VICINITY MAP

ABBREVIATIONS

ACT	ACOUSTIC CEILING TILE	F.E.C.	FIRE EXTINGUISHER CABINET	PT., PTD.	PAINTED
AC.	ACOUSTIC	FIN.F.,F.F.	FINISHED FLOOR	P.R.V.	POWER ROOF VENTILATOR
AL., ALUM.	ALUMINUM	F.OF S.	FACE OF STUD	R.D.	ROOF DRAIN
A.P.	ACCESS PANEL	FRP	FIREGLASS	REC.	RECESSED
A.R.GWB	ABUSE RESISSTANT GWB	REINFORCED PLASTIC		RECPT.	RECEPTIONIST
A.F.F.	ABOVE FINISHED FLOOR	REF.	REFRIGERATOR	REQD.	REQUIRED
BD.	BOARD	F.R.T.	FIRE RETARDANT TREATED	R.L.	RAIN LEADER
BLDG.	BUILDING	FTG.	FOOTING	RM.	ROOM
B.M.	BENCH MARK	FURR.	FURRING	R.O.	ROUGH OPENING
BRG.	BEARING	F.V.	FIELD VERIFY	RUB.	RUBBER (WALL BASE)
CAB.	CABINET	FVC	FIRE VALVE CABINET	S.D.	SOAP DISPENSER
CB, C.B.	CHALKBOARD	GA.	GAUGE	SECT.	SECTION
C.T.	CERAMIC TILE	G.B.	GRAB BAR	S.G.F.T.	STRUCT. GLAZED FACING TILE
C.H.	CEILING HEIGHT	G.W.B, GWB	GYPSUM WALL BOARD		
CJ, C.J.	CONTROL JOINT	GYP.BD.	GYPSUM BOARD	S.H.	SHOWER HEAD
C.L.	CENTER LINE	H., HT.	HEIGHT	SHT.	SHEET
CLG.	CEILING	H.C.	HANDICAPPED	SIM.	SIMILAR
CLO., C.	CLOSET	HDW.	HARDWARE	S.M.	SURFACE MOUNTED
CLR.	CLEAR	H.M.	HOLLOW METAL	S.P.	STAND PIPE
C.M.U., CMU	CONCRETE MASONRY UNIT	HR.	HOUR	S.S.	SERVICE SINK
		H.P.	HIGH POINT	S/S	STAINLESS STEEL
COL.	COLUMN	I.D.	INSIDE DIAMETER	STL.	STEEL
CONC.	CONCRETE	INSUL.	INSULATION	STOR.	STORAGE
CONST.	CONSTRUCTION	J., JAN.	JANITOR	STRUCT.	STRUCTURAL
CONT.	CONTINUOUS	JST.	JOIST	SUSP.	SUSPENDED
CORR.	CORRIDOR	JNT.	JOINT	SYN.FL.	SYNTHETIC FLOOR
CPT.	CARPET	LAM.	LAMINATE	TB, T.B.	TACKBOARD
C.R.	COLD ROLLED	LAV.	LOW POINT	TEL.	TELEPHONE
D.A.	DISTURBED AREA	L.P.	LAVATORY SINK	T.& G.	TONGUE AND GROOVE
DET.	DETAIL	M.	MEN	THRESH.	THRESHOLD
D.F.	DRINKING FOUNTAIN	MACH.	MACHINE	T.O.B.	TOP OF BEARING
DBL	DOUBLE	MAINT.	MAINTENANCE	T.O.M.	TOP OF MASONRY PARAPET
DIA.	DIAMETER	MAS.	MASONRY	T.P.	TOILET PAPER HOLDER
DIM.	DIMENSION	MAT.	MATERIALS	T.S.	TACK STRIP.
DISP.	DISPENSER	MAX.	MAXIMUM		TEACHING STATION
DR.	DOOR	MB, M.B.	MARKER BOARD	T.W.	TEACHING WALL
DW	DRYWALL	M.C.	MEDICINE CABINET	TYP.	TYPICAL
DS	DOWNSPOUT	MECH.	MECHANICAL	U.L.	UNDERWRITERS LABORATORIES
DWG.	DRAWING	MET., MTL.	METAL		
EA.	EACH	MFR.	MANUFACTURER	U.O.N.	UNLESS OTHERWISE NOTED
E.J., EJ	EXPANSION JOINT	MIN.	MINMUM	U.S.G.	U.S. GYPSUM COMPANY
ELEC.	ELECTRIC(-AL)	M.O.	MASONRY OPENING	V.A.T.	VINYL ASBESTOS TILE
EP	EPOXY PAINT	M.S.,	METAL SHELVING	V.C.T.	VINYL COMPOSITION TILE
EQ.	EQUAL	MTD	MOUNTED	VERT.	VERTICAL
EQUIP, EQPT	EQUIPMENT	N.C., NONCOM	NON COMBUSTIBLE	VEST., V.	VESTIBULE
E.W.C.	ELECTRIC WATER COOLER	N.I.C.	NOT IN CONTRACT	V.R.G.	VINYL REDUCER STRIP
		NO., #	NUMBER	V.T.R.	VENT THROUGH ROOF
EXG.	EXISTING	N.T.S.	NOT TO SCALE	W.	WOMEN
EXP.	EXPANSION	O.C.	ON CENTER	W/	WITH
EXT.	EXTERIOR	O.D.	OUTSIDE DIAMETER	WAIN.	WAINSCOT
F.C.	FIRE CODE	OFF.	OFFICE	WARD.	WARDROBE
F.C.U.	FAN COIL UNIT	O.H.	OPPOSITE HAND	W.C.	WATER CLOSET
F.D.	FLOOR DRAIN	OPNG.	OPENING	WD.	WOOD
FON.	FOUNDATION	PART.	PARTITION	WDR.	WARDROBE
F.E.	FIRE EXTINGUISHER	PL.	PLATE	WL.	WALL
		PLAM., P-LAM	PLASTIC LAMINATE	W.M.	WALL-MOUNTED WELDED WIRE MESH
		PLY., PWD	PLYWOOD	W.W.W.	
		PNL.	PANEL		
		PS., P.S.	PROJECTOR SCREEN		

SYMBOLS OF MATERIALS

- ALL METALS-SMALL SCALE
- ACOUSTIC C.M.U. SMALL SCALE
- ACOUSTIC C.M.U. LARGE SCALE
- BATT INSULATION
- BRICK
- CAST STONE
- CONCRETE
- CONCRETE MASONRY UNITS
- EARTH
- GLASS-LARGE SCALE
- GLAZED C.M.U.
- PARTICLE BOARD
- RIGID INSULATION
- SHINGLES
- SOLID CONCRETE MASONRY UNITS
- STEEL-LARGE SCALE
- STUD PARTITION
- WOOD-FINISH
- WOOD BLOCKING

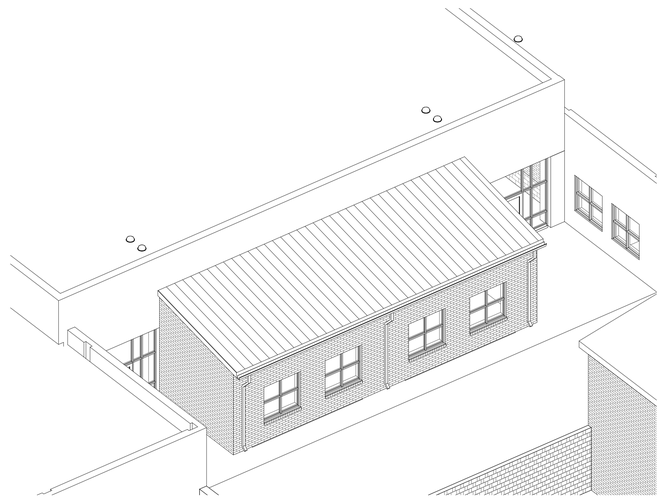
DRAWING KEYS

- 0 — STRUCTURAL GRID LINES
- 1 A101 SIM — SECTION
- 1 A101 SIM — ELEVATION
- 1 A101 SIM — DETAILS IN PLAN, SECTION
- 1i — WALL TYPE, SEE A501
- NEW WALL
- EXISTING WALL TO REMAIN
- Name 101 — ROOM NAME AND NUMBER
- EXISTING WALL TO BE REMOVED
- 1t — WINDOW TAG
- 101 — DOOR TAG

NEW CONSTRUCTION OF

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470



ISSUED FOR BIDDING
NOT FOR CONSTRUCTION

04.16.2020

DESIGN TEAM

BECKER MORGAN GROUP, INC.	ARCHITECTS
WOODS ENGINEERING, P.A.	STRUCTURAL ENGINEERS
CBHF ENGINEERS, PLLC	MECHANICAL, PLUMBING AND ELECTRICAL ENGINEERS
PARAMOUNTE ENGINEERING, INC.	CIVIL ENGINEERS
W.M. JORDAN COMPANY	CONSTRUCTION MANAGERS

DRAWING LIST

SHEET No.	SHEET TITLE
GENERAL	
G001	COVER SHEET
G101	CAFETERIA ADDITION CODE SUMMARY
G200	CAMPUS LIFE SAFETY PLAN AND NEW LIFE SAFETY SYSTEMS
G201	CAFETERIA LIFE SAFETY PLAN
G301	ComCHECK
G401	UL DETAILS
G402	UL DETAILS
CIVIL	
C-0.0	COVER SHEET
C-1.0	GENERAL NOTES
C-1.1	GENERAL NOTES
C-2.0	DEMOLITION PLAN
C-2.1	DEMOLITION PLAN
C-2.2	DEMOLITION PLAN
C-2.3	OVERALL SITE PLAN
C-2.4	SITE PLAN
C-2.5	SITE PLAN
C-2.6	SITE PLAN
C-3.0	GRADING - DRAINAGE - EC PLAN
C-3.1	GRADING - DRAINAGE - EC PLAN
C-4.0	UTILITY PLAN
C-4.1	UTILITY PLAN
C-5.0	DETAILS
C-5.1	DETAILS
C-5.2	DETAILS
C-5.3	DETAILS
C-5.4	DETAILS
LANDSCAPING	
L-1.0	LANDSCAPE PLAN
STRUCTURAL	
S101	GENERAL NOTES
S102	TYPICAL DETAILS
S201	CAFETERIA ADDITION FOUNDATION PLAN AND FRAMING PLANS
S301	FOUNDATION SECTIONS AND DETAILS
ARCHITECTURAL	
AD101	DEMOLITION PLANS AND DETAILS
A101	CAFETERIA ADDITION PLANS
A201	EXTERIOR ELEVATIONS
A301	CAFETERIA BUILDING SECTIONS
A302	CAFETERIA WALL SECTIONS AND DETAILS
A401	SCHEDULES AND DETAILS
A402	DOOR AND WINDOW DETAILS
PLUMBING	
P101	DINING AREA ADDITION ROOF DRAINAGE PLANS
MECHANICAL	
M001	MECHANICAL ABBREVIATIONS, LEGEND, ENERGY AND MECHANICAL SUMMARIES
MD101	HVAC DEMOLITION PLANS
M101	CAFETERIA ADDITION FLOOR PLAN - HVAC
M102	CAFETERIA ADDITION FLOOR PLAN - RCP
M501	HVAC DETAILS
M502	HVAC DETAILS
M601	MECHANICAL SCHEDULES
ELECTRICAL	
E001	ELECTRICAL SYMBOLS AND ABBREVIATIONS
ED101	ELECTRICAL DEMOLITION PLANS
ED201	ELECTRICAL DEMOLITION PLAN - LIGHTING
E101	CAFETERIA ADDITION FLOOR PLANS - POWER AND HVAC POWER
E102	CAFETERIA ADDITION FLOOR PLAN - SYSTEMS
E201	CAFETERIA ADDITION FLOOR PLAN - LIGHTING
E501	ELECTRICAL DETAILS
E502	ELECTRICAL UL DETAILS
E601	ELECTRICAL PANEL SCHEDULES AND LIGHTING FIXTURE SCHEDULE
FIRE PROTECTION	
F101	CAFE ADDITION FLOOR PLAN - FIRE ALARM
F601	FIRE ALARM RISER DIAGRAM, LEGEND AND NOTES

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ISSUED
FOR BIDDING

NOT FOR CONSTRUCTION
ISSUED: 04.16.20

FREDERICK M. COLLINS REGISTERED ARCHITECT 4537 N.C. 4/16/2020

BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, N.C.

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

COVER SHEET

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019083.02
DATE: 04.16.2020
SCALE: 1" = 1'-0"
DRAWN BY: LJR PROJ MGR: RMC

G001

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4/16/2020 8:51:25 PM C:\Users\lrezek\Documents\2019083\02 WBHS CAFE_lrezek.rvt

BUILDING CODE SUMMARY - CAFETERIA ADDITION

TO NEWLY CREATED FIRE AREA WITHIN THE EXISTING UNLIMITED AREA BUILDING

NAME OF PROJECT: WEST BRUNSWICK HIGH SCHOOL

ADDRESS: 550 WHITEVILLE ROAD NW, SHALLOTTE NC 28407

OWNER OR AUTHORIZED AGENT: ______ PHONE #: ______ E-Mail: ______

OWNED BY: ☐ City ■ County ☐ State ☐ Private

CODE ENFORCEMENT JURISDICTION: ☐ City ■ County ☐ State

CONTACT: ______

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	EMAIL ADDRESS
ARCHITECTURAL	Becker Morgan Group, Inc.	Frederick M. Collins	4537	910.341.7600	rcollins@beckermorgan.com
CIVIL	Paramounte Engineering, Inc.	Robert Balland	031591	910.791.6707	rballand@paramounte-eng.com
ELECTRICAL	CBHF ENGINEERS, PLLC	W. Allen Cribb	23311	910.791.4000	acribb@cbhfengineers.com
FIRE ALARM					
PLUMBING	CBHF ENGINEERS, PLLC	David M. Hahn	23551	910.791.4000	dhahn@cbhfengineers.com
MECHANICAL	CBHF ENGINEERS, PLLC	David M. Hahn	23551	910.791.4000	dhahn@cbhfengineers.com
SPRINKLER-STANDPIPE					
STRUCTURAL	Woods Engineering, PA	Don R. Woods	19475	910.343.8007	donwoods@woodseng.com
RETAINING WALL >5' HIGH					
OTHER					

2018 NC BUILDING CODE:
☐ New Building ☐ Addition ☐ 1st Time Interior Completion EXIST. BUILDING NCBC 1996
☐ Phased Construction - Shell/Core - Contact the local inspection jurisdiction for possible additional precedures and requirements
☐ Shell/Core - Contact the local inspection jurisdiction for possible additional precedures and requirements

2018 NC EXISTING BUILDING CODE:
☐ N/A ☐ Chapter 14 ☐ Alteration Level I ☐ N/A ☐ N/A
☐ Prescriptive ☐ Historic Property ☐ Alteration Level II ☐ Repair ☐ Change of Use
☐ Repair ☐ Change of Use ☐ Alteration Level III ■ Addition ☐ Historic Property

CONSTRUCTED: 2001 CURRENT OCCUPANCY(S) (Ch. 3) EDUCATION
RENOVATED: . PROPOSED OCCUPANCY(S) (Ch. 3) EDUCATION

OCCUPANCY CATEGORY (Table 1604.5):
CURRENT ☐ N/A ☐ I ☐ II ■ III ☐ IV
PROPOSED ☐ N/A ☐ I ☐ II ■ III ☐ IV

BASIC BUILDING DATA:

TYPE II NCBC 1996 UNLIMITED AREA

CONSTRUCTION TYPE: ☐ I-A ■ I-B ☐ II-A ☐ II-B ☐ III-A ☐ III-B ☐ IV ☐ V-A ☐ V-B
SPRINKLERS: ■ NO ☐ YES ☐ PARTIAL ☐ NFPA 13 ☐ NFPA 13R ☐ NFPA 13D
STANDPIPES: ■ NO ☐ YES ☐ CLASS I ☐ CLASS II ☐ CLASS III ☐ WET ☐ DRY
PRIMARY FIRE DISTRICT: ■ NO ☐ YES
FLOOD HAZARD AREA: ☐ NO ■ YES (ZONE X)
SPECIAL INSPECTIONS: ■ NO ☐ YES (Contact the local inspection jurisdiction for additional procedures and requirements)

GROSS BUILDING AREA TABLE:

FLOOR	NEW FIRE AREA	NEW (SQ. FT.)	SUB-TOTAL
6TH FLOOR			
5TH FLOOR			
4TH FLOOR			
3RD FLOOR			
2ND FLOOR			
MEZZANINE			
1ST FLOOR	10,597	1,829	12,426
BASEMENT			
TOTAL	10,597	1,829	12,426

ALLOWABLE AREA:

PRIMARY OCCUPANCY CLASSIFICATION(S): EDUCATION
ACCESSORY OCCUPANCY CLASSIFICATION(S): .
INCIDENTAL USES (Table 509): .
SPECIAL USES (Chapter 4 - List Code Sections): .
SPECIAL Provisions (Chapter 5 - List Code Sections): .
MIXED OCCUPANCY: ■ NO ☐ YES SEPARATION: . HR. EXCEPTION: .

☐ Non-Separated Use (508.3)

☐ Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1

$$\frac{\text{ACTUAL AREA OF OCCUPANCY A}}{\text{ALLOWABLE AREA OF OCCUPANCY A}} + \frac{\text{ACTUAL AREA OF OCCUPANCY B}}{\text{ALLOWABLE AREA OF OCCUPANCY B}} \le 1$$

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2[4] AREA		(C) AREA FOR FRONTAGE INCREASE[1,5]	(D) ALLOWABLE AREA PER STORY OR UNLIMITED
			UNSPRINKLERED	SPRINKLERED		
1	NEW CAFE ADD.	1,829 SF	UNLIMITED	N/A	N/A	UNLIMITED
1	NEW FIRE AREA	10,597	12,600	N/A	N/A	12,600
.	.	.	.	.	.	.
1	TOTAL	12,426	.	.	.	.

1. FRONTAGE AREA INCREASES FROM SECTION 506.2 ARE COMPUTED THUS:
   - A. PERIMETER WHICH FRONTS A PUBLIC WAY OR OPEN SPACE HAVING 20 FT MINIMUM WIDTH . (F)
   - B. TOTAL BUILDING PERIMETER = . (P)
   - C. RATIO (F/P) = . (F/P)
   - D. W = MINIMUM WIDTH OF PUBLIC WAY = . (W) (do not exceed 30)
   - E. PERCENT OF FRONTAGE INCREASE I_f = 100 [F/P - 0.25] x W/30 = . (%)
2. UNLIMITED AREA APPLICABLE UNDER CONDITIONS OF SECTION 507.
3. MAXIMUM BUILDING AREA = TOTAL NUMBER OF STORIES IN THE BUILDING x D (MAXIMUM 3 STORIES) (506.2)
4. THE MAXIMUM AREA OF OPEN PARKING GARAGES MUST COMPLY WITH 406.5.4. THE MAXIMUM AREA OF AIR TRAFFIC CONTROL TOWERS MUST COMPLY WITH 412.3.1
5. FRONTAGE INCREASE IS BASED ON THE UNSPRINKLERED AREA VALUE IN TABLE 506.2

ALLOWABLE HEIGHT:

	ALLOWABLE (TABLES 504.3 & 504.4)	SHOWN ON PLANS	CODE REFERENCE
BUILDING HEIGHT IN FEET	55'	18'	.
BUILDING HEIGHT IN STORIES	2	1	.

Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

FIRE PROTECTION REQUIREMENTS:

BUILDING ELEMENT	FIRE SEPARATION DISTANCE (FEET)	RATING REQ'D	RATING PROVIDED* (W/ REDUCTION)	DETAIL # AND SHEET #	DESIGN # FOR RATED ASSEMBLY	DESIGN # FOR RATED PENETRATION	DESIGN # FOR RATED JOINTS
Structural Frame including columns, girders, trusses	N/A	2	1HR - TABLE 601 FOOTNOTE A	.	.	.	.
Bearing Walls	.	.	.	.	.	.	.
Exterior	.	.	.	.	.	.	.
North	>30'	2	.	.	.	.	.
East	N/A	2	.	.	.	.	.
West	N/A	2	.	.	.	.	.
South	.	.	.	.	.	.	.
Interior	N/A	.	.	.	.	.	.
Nonbearing Walls and Partitions	.	.	.	.	.	.	.
Exterior	.	.	.	.	.	.	.
North	.	.	.	.	.	.	.
East	.	.	.	.	.	.	.
West	.	.	.	.	.	.	.
South	.	.	.	.	.	.	.
Interior walls and partitions	N/A	.	.	.	.	.	.
Floor Construction, including supporting beams and joists		N/A	.	.	.	.	.
Floor Ceiling Assembly		N/A	.	.	.	.	.
Columns Supporting Floors		N/A	.	.	.	.	.
Roof Construction, including supporting beams and joists		1	1	.	.	.	.
Roof Ceiling Assembly		1	1	.	.	.	.
Columns Supporting Roof		2	1HR - TABLE 601 FOOTNOTE A	.	.	.	.
Shaft Enclosures - Exit		N/A	.	.	.	.	.
Shaft Enclosures - Other		N/A	.	.	.	.	.
Corridor Separation		1	1	.	.	.	.
Occupancy / Fire Barrier Separation		N/A	.	.	.	.	.
Party / Fire Wall Separation		.	.	.	.	.	.
Smoke Barrier Separation		N/A	.	.	.	.	.
Fire Area		2	2 EQUIVALENT THICKNESS TABLE 722.2.2.1	.	.	.	.
Incidental Use Separation		N/A	.	.	.	.	.

* Indicate section number permitting reduction

PERCENTAGE OF WALL OPENING CALCULATIONS:

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
NORTH WALL >30'	UP, NS	NO LIMIT	NO LIMIT
.	.	.	.
.	.	.	.

LIFE SAFETY SYSTEM REQUIREMENTS:

EMERGENCY LIGHTING: ☐ NO ■ YES
EXIT SIGNS: ☐ NO ■ YES
FIRE ALARM: ☐ NO ■ YES
SMOKE DETECTION SYSTEMS: ☐ NO ■ YES ☐ PARTIAL
CARBON MONOXIDE DETECTION: ■ NO ☐ YES

LIFE SAFETY PLAN REQUIREMENTS:

LIFE SAFETY PLAN SHEET # G202

- FIRE AND/OR SMOKE RATED WALL LOCATIONS (Chapter 7)
- ASSUMED AND REAL PROPERTY LINE LOCATIONS (if not on the site plan)
- EXTERIOR WALL OPENING AREA WITH RESPECT TO DISTANCE TO ASSUMED PROPERTY LINES (705.8)
- OCCUPANCY TYPES FOR EACH AREA AS IT RELATES TO OCCUPANT LOAD CALCULATION (TABLE 1004.1.2) OCCUPANT LOADS FOR EACH AREA
- EXIT ACCESS TRAVEL DISTANCES (1017)
- COMMON PATH OF TRAVEL DISTANCES (1006.2.1 & 1006.3.2(1))
- DEAD END LENGTHS (1020.4)
- CLEAR EXIT WIDTHS FOR EACH EXIT DOOR
- MAXIMUM CALCULATED OCCUPANT LOAD CAPACITY EACH EXIT DOOR CAN ACCOMMODATE BASED ON EGRESS WIDTH (1005.3)
- ACTUAL OCCUPANT LOAD FOR EACH EXIT DOOR
- A SEPARATE SCHEMATIC PLAN INDICATING WHERE FIRE RATED FLOOR / CEILING AND/OR ROOF STRUCTURE IS PROVIDED FOR PURPOSES OF OCCUPANCY SEPARATION
- LOCATION OF DOORS WITH PANIC HARDWARE (1008.1.10.)
- LOCATION OF DOORS WITH DELAYED EGRESS LOCKS AND THE AMOUNT OF DELAY (1010.1.9.7)
- LOCATION OF DOORS WITH ELECTROMAGNETIC EGRESS LOCKS (1010.1.9.9)
- LOCATION OF DOORS EQUIPPED WITH HOLD-OPEN DEVICES
- LOCATION OF EMERGENCY ESCAPE WINDOWS (1030)
- THE SQUARE FOOTAGE OF EACH FIRE AREA (202)
- THE SQUARE FOOTAGE OF EACH SMOKE COMPARTMENT FOR OCCUPANCY CLASSIFICATION I-2 (407.5)
- NOTE ANY CODE EXCEPTIONS OR TABLE NOTES THAT MAY HAVE BEEN UTILIZED REGARDING THE ITEMS ABOVE

ACCESSIBLE DWELLING UNITS (SECTION 1107) N/A

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED
.	.	.	.	.	.	.	.

ACCESSIBLE PARKING (SECTION 1106)

PER SECTION 20-6 OF SHALLOTTE UNIFIED DEVELOPMENT CODE
MIN. NO. OF PARKING SPACES N/A
MAX. NO. OF PARKING SPACES N/A

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES		# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
	REQUIRED	PROVIDED	REGULAR WITH 5' ACCESS AISLE	VAN SPACES WITH 132" ACCESS AISLE	VAN SPACES WITH 8' ACCESS AISLE	
.	.	.	.	.	.	.
.	.	.	.	.	.	.
TOTAL	.	.	.	.	.	.

PLUMBING FIXTURE REQUIREMENTS (TABLE 2902.1) N/A EXISTING

SPACE / USE	WATERCLOSETS MALE	WATERCLOSETS FEMALE	WATERCLOSETS UNISEX	URINALS	LAVATORIES MALE	LAVATORIES FEMALE	LAVATORIES UNISEX	SHOWERS / TUBS	DRINKING FOUNTAINS REGULAR	DRINKING FOUNTAINS ACCESSIBLE
EXIST'G	.	.	.	.	.	.	.	.	.	.
NEW	.	.	.	.	.	.	.	.	.	.
REQ'D	.	.	.	.	.	.	.	.	.	.

Special Approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)
.
.
.

ENERGY SUMMARY SEE G300 FOR COMCheck

ENERGY REQUIREMENTS:

THE FOLLOWING DATA SHALL BE CONSIDERED MINIMUM AND ANY SPECIAL ATTRIBUTE REQUIRED TO MEET THE ENERGY CODE SHALL ALSO BE PROVIDED. EACH DESIGNER SHALL FURNISH THE REQUIRED PORTIONS OF THE PROJECT INFORMATION FOR THE PLAN DATA SHEET. IF PERFORMANCE METHOD, STATE THE ANNUAL ENERGY COST FOR THE STANDARD REFERENCE DESIGN VS ANNUAL ENERGY COST FOR THE PROPOSED DESIGN.

EXISTING BUILDING ENVELOPE COMPLIES WITH CODE: ☐ YES (the remiander of this section is not applicable) ☐ NO

EXEMPT BUILDING: ☐ YES Provide code or statutory reference: .
☐ NO

CLIMATE ZONE: .

METHOD OF COMPLIANCE:
☐ PRESCRIPTIVE (ENERGY CODE)
☐ PERFORMANCE (ENERGY CODE)
☐ PRESCRIPTIVE (ASHRAE 90.1)
☐ PERFORMANCE (ASHRAE 90.1)
☐ PERFORMANCE (OTHER)
If 'Other' specify source here: .

THERMAL ENVELOPE (Prescriptive method only)

ROOF/CEILING ASSEMBLY (each assembly)
DESCRIPTION OF ASSEMBLY .
U-VALUE OF TOTAL ASSEMBLY .
R-VALUE OF INSULATION .
SKYLIGHTS IN EACH ASSEMBLY .
U-VALUE OF SKYLIGHT .
TOTAL SQUARE FOOTAGE OF SKYLIGHTS IN EACH ASSEMBLY .

EXTERIOR WALLS (each assembly)
DESCRIPTION OF ASSEMBLY .
U-VALUE OF TOTAL ASSEMBLY .
R-VALUE OF INSULATION .
OPENINGS (windows or doors with glazing)
U-VALUE OF ASSEMBLY .
SOLAR HEAT GAIN COEFFICIENT .
PROJECTION FACTOR .
DOOR R-VALUES .

WALLS BELOW GRADE (each assembly)
DESCRIPTION OF ASSEMBLY .
U-VALUE OF TOTAL ASSEMBLY .
R-VALUE OF INSULATION .

FLOORS OVER UNCONDITIONED SPACE (each assembly)
DESCRIPTION OF ASSEMBLY .
U-VALUE OF TOTAL ASSEMBLY .
R-VALUE OF INSULATION .

FLOORS SLAB ON GRADE (each assembly)
DESCRIPTION OF ASSEMBLY .
U-VALUE OF TOTAL ASSEMBLY .
R-VALUE OF INSULATION .
HORIZONTAL / VERTICAL REQUIREMENT .
SLAB HEATED .

STRUCTURAL DESIGN SEE STRUCTURAL DRAWINGS

DESIGN LOADS:

IMPORTANCE FACTORS: WIND (Iw) . SNOW (Is) . SEISMIC (Ie) .

LIVE LOADS: ROOF . PSF MEZZANINE . PSF FLOOR . PSF

GROUND SNOW LOAD: . PSF

WIND LOAD: BASIC WIND SPEED . MPH (ASCE-7-98) EXPOSURE CATEGORY .

SEISMIC DESIGN CATEGORY: .

PROVIDE THE FOLLOWING SEISMIC DESIGN PARAMETERS:
OCCUPANCY CATEGORY (TABLE 1604.5) .
SPECTRAL RESPONSE ACCELERATION S_S . %g S_1 . %g
SITE CLASSIFICATION (ASCE 7) .
DATA SOURCE: .

BASIC STRUCTURAL SYSTEM .
ANALYSIS PROCEDURE: ☐ N/A ☐ SIMPLIFIED ☐ EQUIVALENT LATERAL FORCE ☐ DYNAMIC
ARCHITECTURAL, MECHANICAL, COMPONENTS ANCHORED? ☐ YES ☐ NO

LATERAL DESIGN CONTROL: ☐ N/A ☐ EARTHQUAKE ☐ WIND

SOIL BEARING CAPACITIES:
☐ N/A
☐ FIELD TEST (PROVIDE COPY OF TEST REPORT) . PSF
☐ PRESUMPTIVE BEARING CAPACITY . PSF
PILE SIZE, TYPE AND CAPACITY . PSF

MECHANICAL SUMMARY SEE MECHANICAL DRAWINGS

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

THERMAL ZONE
WINTER DRY BULB .
SUMMER DRY BULB .

INTERIOR DESIGN CONDITIONS
WINTER DRY BULB .
SUMMER DRY BULB .
RELATIVE HUMIDITY .

BUILDING HEATING LOAD .

BUILDING COOLING LOAD .

MECHANICAL SPACING CONDITIONING SYSTEM
UNITARY
DESCRIPTION OF UNIT .
HEATING EFFICIENCY .
COOLING EFFICIENCY .
SIZE CATEGORY OF UNIT .
BOILER
SIZE CATEGORY, IF OVERSIZED, STATE REASON .
CHILLER
SIZE CATEGORY, IF OVERSIZED, STATE REASON .

LIST EQUIPMENT EFFICIENCIES: .

ELECTRICAL SUMMARY SEE ELECTRICAL DRAWINGS

ELECTRICAL SYSTEM AND EQUIPMENT

METHOD OF COMPLIANCE:
ENERGY CODE: ☐ PRESCRIPTIVE ☐ PERFORMANCE
ASHRAE 90.1: ☐ PRESCRIPTIVE ☐ PERFORMANCE

LIGHTING SCHEDULE
- LAMP TYPE REQUIRED IN FIXTURE
- NUMBER OF LAMPS IN FIXTURE
- BALLAST TYPE USED IN THE FIXTURE
- TOTAL WATTAGE PER FIXTURE TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED (whole building or space by space)
- TOTAL EXTERIOR WATTAGE SPECIFIED VS ALLOWED

ADDITIONAL PRESCRIPTIVE COMPLIANCE
(When using the 2018 NCECC; not required for ASHRAE 90.1)
- C406.2 MORE EFFICIENT HVAC EQUIPMENT PERFORMANCE C406.3 REDUCED LIGHTING POWER DENSITY
- C406.4 ENHANCED DIGITAL LIGHTING CONTROLS
- C406.5 ON-SITE RENEWABLE ENERGY
- C406.6 DEDICATED OUTDOOR AIR SYSTEM
- C406.7 REDUCED ENERGY USE IN SERVICE WATER HEATING

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FREDERICK M. COLLINS REGISTERED ARCHITECT 4537 N.C. WILMINGTON, N.C. 4/16/2020

BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, NC

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA ADDITION CODE SUMMARY

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019083.02
DATE: 04.16.2020
SCALE:
DRAWN BY: LJR PROJ MGR: RMC

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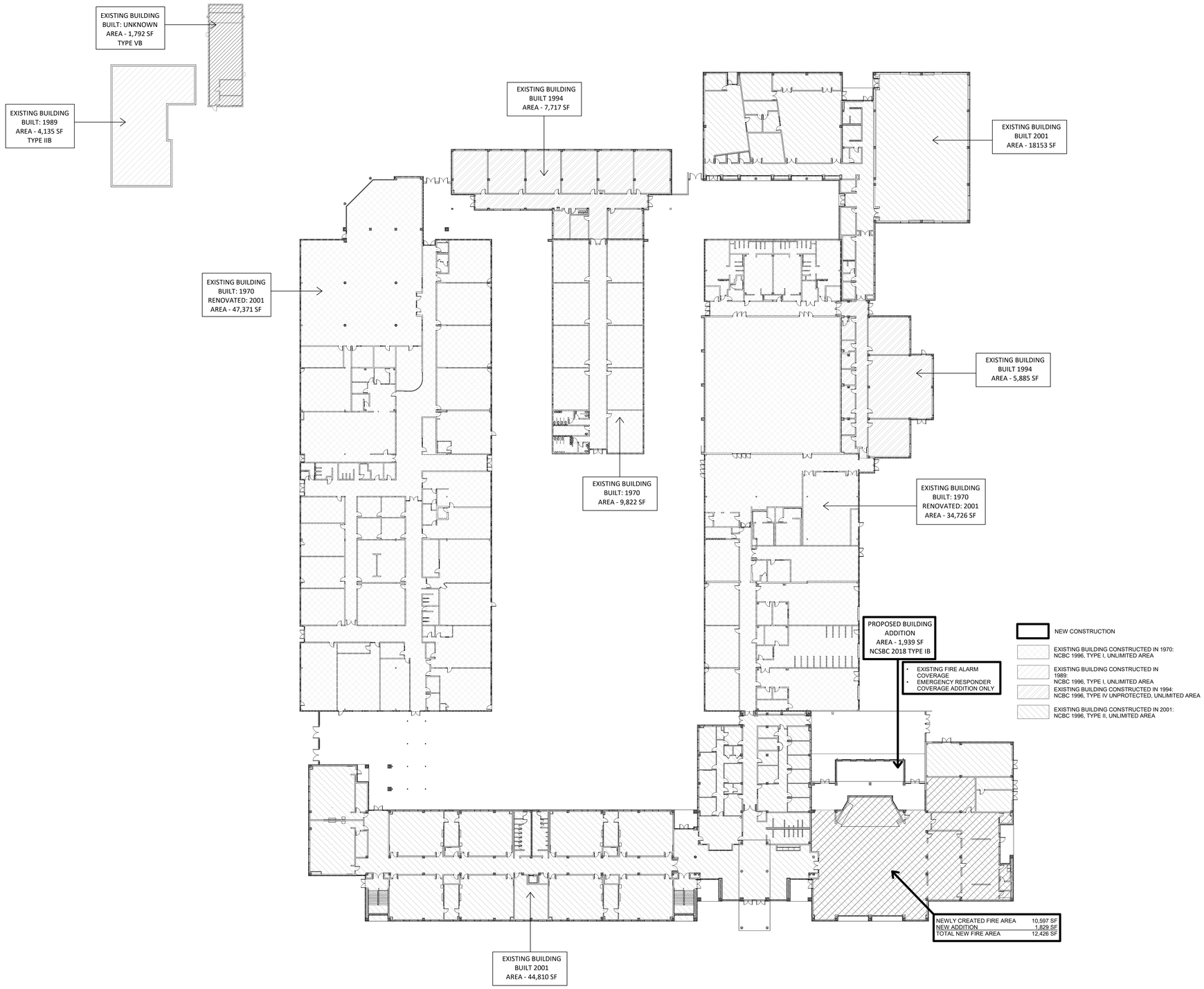

1 CAMPUS LIFE SAFETY PLAN
SCALE: 1" = 30'-0"

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PROJECT TITLE

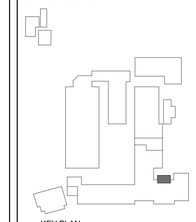
WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAMPUS LIFE SAFETY PLAN AND NEW LIFE SAFETY SYSTEMS



KEY PLAN

ISSUE BLOCK

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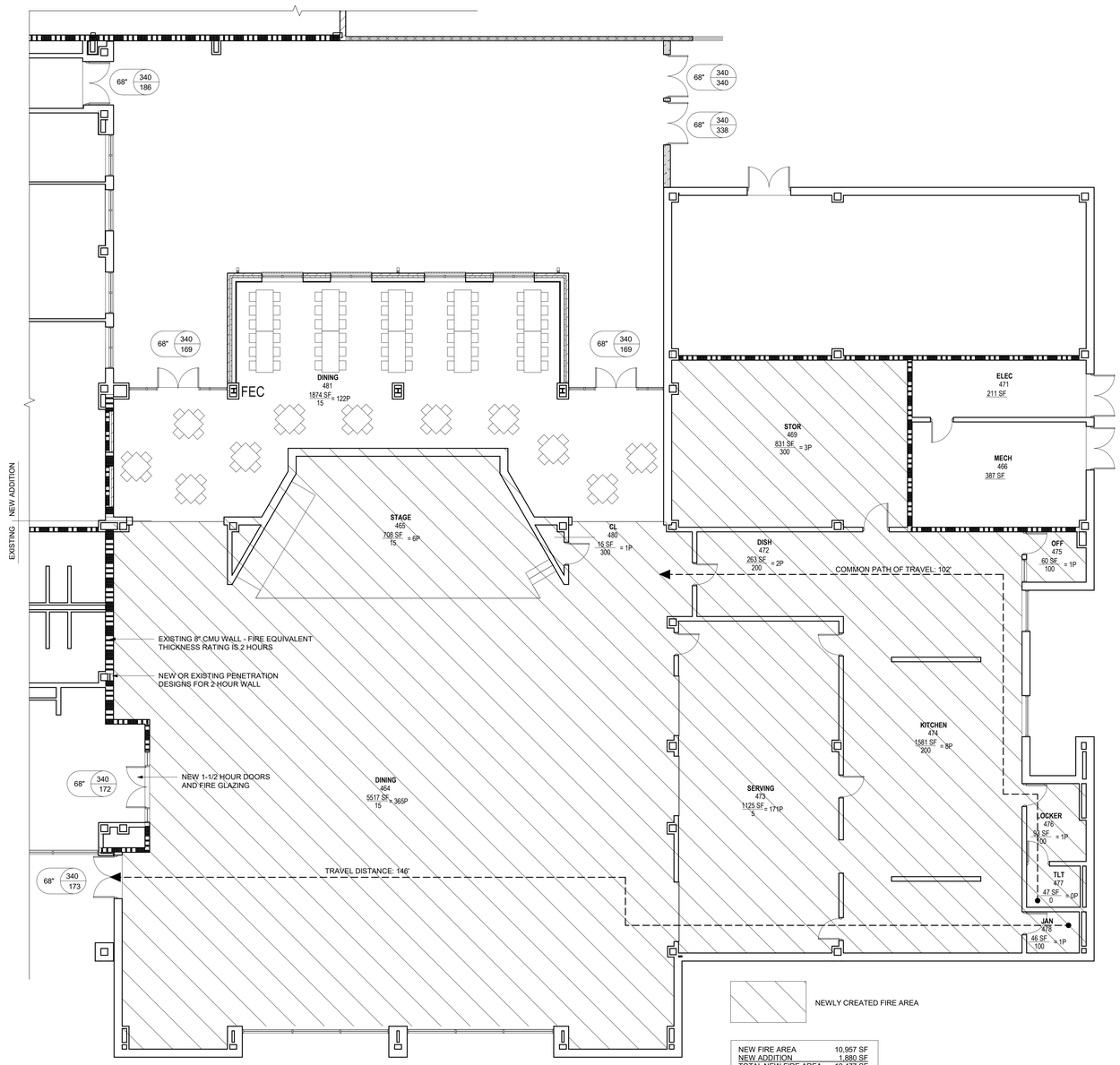

NEW FIRE AREA	10,957 SF
NEW ADDITION	1,880 SF
TOTAL NEW FIRE AREA	12,477 SF
ALLOWABLE FIRE AREA	12,600 SF

1 CAFETERIA LIFE SAFETY PLAN

SCALE: 1/8" = 1'-0"

CODE LEGEND

	PATH OF EGRESS
	1 HOUR RATED WALL
	2 HOUR RATED WALL
FE / FEC	FIRE EXTINGUISHER LOCATION
ROOM NAME ROOM NUMBER SF / OCC. SF = OCC. #	ROOM TAG / NET SQ. FT. AREA AND OCCUPANCY LOAD

EXIT CAPACITY MARKER

DOOR WIDTH — XX" — XXX / XX — OCC LOAD ALLOWED / OCC LOAD ACTUAL

MAXIMUM COMMON PATH OF TRAVEL
NON-SPRINKLED BUILDING

B - BUSINESS: 75'
E - EDUCATION: 75'
S2 - STORAGE: 100'

MAXIMUM TRAVEL DISTANCE
NON-SPRINKLED BUILDING

B - BUSINESS: 200'
E - EDUCATION: 200'
S2 - STORAGE: 300'

MAXIMUM DEAD END CORRIDOR
NON-SPRINKLED BUILDING

B - BUSINESS: 20'
E - EDUCATION: 20'
S2 - STORAGE: 20'

NOTES

1. PROVIDE NEW FIRE EXTINGUISHERS IN CABINETS (FEC) AND FIRE EXTINGUISHERS ON BRACKETS (FE) AS SHOWN ON PLAN. PROVIDE NEW FIRE EXTINGUISHERS IN KITCHEN (TYPE K), MECHANICAL, ELECTRICAL (TYPE B-C), FIRE PUMP, AND ELEVATOR MACHINE ROOMS, AND AS INDICATED.

2. FIRE EXTINGUISHER SHALL BE MINIMUM 3A-40BC RATING.

3. MARK ALL RATED PARTITIONS AND WALLS IN ACCORDANCE WITH IBC (2012) 703.7, AND AS DETAILED.

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BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, N.C.

PROJECT TITLE

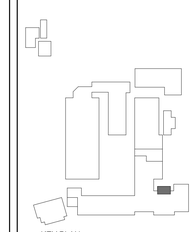
WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA LIFE SAFETY PLAN



KEY PLAN

ISSUE BLOCK

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PROJECT NO:	2019083.02
DATE:	04.16.2020
SCALE:	As indicated
DRAWN BY: LJR	PROJ MGR: RMC

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COM*check* Software Version COMcheckWeb

Envelope Compliance Certificate

Project Information

Energy Code:	2018 IECC
Project Title:	West Brunswick High School - Cafeteria Addition
Location:	Wilmington, North Carolina
Climate Zone:	3a
Project Type:	New Construction
Vertical Glazing / Wall Area:	38%

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)

High efficiency HVAC. Systems that do not meet the performance requirement will be identified in the mechanical requirements checklist report.

Building Area	Floor Area
1-School/University : Nonresidential	1725

Envelope Assemblies

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
Floor: Unheated Slab-On-Grade, [Bldg. Use 1 - School/University] (c)	249	---	---	0.730	0.730
Roof: Insulation Entirely Above Deck, High Albedo Roof Exemption = Steep Sloped Roof, [Bldg. Use 1 - School/University]	824	---	25.0	0.039	0.039
EAST					
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	270	19.0	12.4	0.046	0.064
SOUTH					
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	270	19.0	12.4	0.046	0.064
Window: Metal Frame Curtain Wall/Storefront, Fixed, Perf. Specs.: Product ID pending ID, SHGC 0.25, PF 0.01, [Bldg. Use 1 - School/University] (b)	106	---	---	0.290	0.460
Door: , Perf. Specs.: Product ID pending ID, SHGC 0.25, PF 0.01, [Bldg. Use 1 - School/University] (b)	42	---	---	0.770	0.770
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	658	19.0	12.4	0.046	0.064
Window: Metal Frame Curtain Wall/Storefront, Fixed, Perf. Specs.: Product ID pending ID, SHGC 0.25, PF 0.08, [Bldg. Use 1 - School/University] (b)	138	---	---	0.290	0.460
Door: , Perf. Specs.: Product ID pending ID, SHGC 0.25, PF 0.08, [Bldg. Use 1 - School/University] (b)	42	---	---	0.770	0.770
Window: Metal Frame Curtain Wall/Storefront, Fixed, Perf. Specs.: Product ID pending ID, SHGC 0.25, PF 0.08, [Bldg. Use 1 - School/University] (b)	138	---	---	0.290	0.460
Door: , Perf. Specs.: Product ID pending ID, SHGC 0.25, PF 0.08, [Bldg. Use 1 - School/University] (b)	42	---	---	0.770	0.770
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 -	300	19.0	12.4	0.046	0.064

Assembly	Gross Area or Perimeter	Cavity R-Value	Cont. R-Value	Proposed U-Factor	Budget U-Factor(a)
School/University]					
Window: Metal Frame Curtain Wall/Storefront, Fixed, Perf. Specs.: Product ID pending ID, SHGC 0.25, PF 0.01, [Bldg. Use 1 - School/University] (b)	122	---	---	0.290	0.460
Door: , Perf. Specs.: Product ID pending ID, SHGC 0.25, PF 0.01, [Bldg. Use 1 - School/University] (b)	42	---	---	0.770	0.770
WEST					
Ext. Wall: Steel-Framed, 16in. o.c., [Bldg. Use 1 - School/University]	270	19.0	12.4	0.046	0.064

(a) Budget U-factors are used for software baseline calculations ONLY, and are not code requirements.
(b) Fenestration product performance must be certified in accordance with NFRC and requires supporting documentation.
(c) Slab-On-Grade proposed and budget U-factors shown in table are F-factors.

Envelope PASSES: Design 6% better than code

Envelope Compliance Statement

Compliance Statement: The proposed envelope design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed envelope systems have been designed to meet the 2018 IECC requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

FREDERICK COLLINS, AIA — Name - Title
Signature
10/14/19 — Date

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BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, N.C.

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

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ISSUE BLOCK

Mark	Date	Description
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PROJECT NO: 2019083.02
DATE: 04.16.2020
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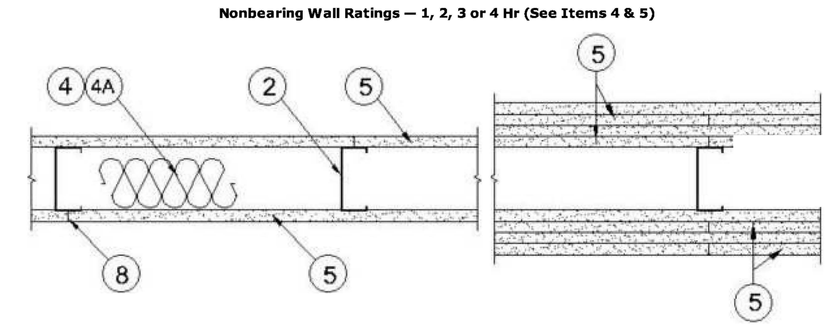
ONLINE CERTIFICATIONS DIRECTORY

Design No. U419
BXUV.U419
Fire Resistance Ratings - ANSI/UL 263

August 06, 2012

Nonbearing Wall Ratings — 1, 2, 3 or 4 Hr (See Items 4 & 5)



1. **Floor and Ceiling Runners —** (Not shown) — For use with Item 2 - Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth to accommodate stud size, with min 1-1/4 in. long legs, attached to floor and ceiling with fasteners 24 in. OC max.

1A. **Framing Members* - Floor and Ceiling Runners —** Not shown - In lieu of Item 1 — For use with Item 2A, proprietary channel shaped, min. 3-5/8 in. deep, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC max. Effective thickness is 0.034 in.

1B. **Framing Members* - Floor and Ceiling Runners —** (Not shown - In lieu of Item 1) — For use with Item 2A, proprietary channel shaped, min. 2-1/2 in. deep, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling fasteners 24 in. OC. max. Effective thickness is 0.034 in.

1C. **Framing Members* - Floor and Ceiling Runner —** Not shown - In lieu of Item 1 — For use with Item 2C, proprietary channel shaped runners, 3-5/8 in. deep attached to floor and ceiling with fasteners 24 in. OC max.

1D. **Framing Members* - Floor and Ceiling Runner —** Not shown - In lieu of Item 1 — For use with Item 2D, proprietary channel shaped runners, 1-1/4 in. wide by 3-5/8 in. deep fabricated from min 0.020 in. thick galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1E. **Framing Members*— Floor and Ceiling Runners —** (Not shown) — In lieu of Item 1 - Channel shaped, attached to floor and ceiling with fasteners 24 in. OC. max.

1F. **Floor and Ceiling Runners —** (Not shown)—For use with Item 2B- Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, min depth to accommodate stud size, with min 1 in. long legs, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1G. **Framing Members*— Floor and Ceiling Runners —** (Not shown, As an alternate to Item 1) — For use with Items 2F, 5F or 5G or 5I only, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.

1H. **Framing Members* - Floor and Ceiling Runner —** Not shown - In lieu of Item 1 — For use with Item 2G, proprietary channel shaped runners, minimum width to accommodate stud size, with 1- 1/8 in. long legs fabricated from min 0.015 in. (min bare metal thickness) galv steel, attached to floor and ceiling with fasteners spaced 24 in. OC max.

1I. **Framing Members* - Floor and Ceiling Runner —** For use with Item 2H, proprietary channel shaped runners, minimum width to accommodate stud size attached to floor and ceiling with fasteners 24 in. OC max.

1J. **Floor and Ceiling Runners —** (Not shown) — Channel shaped, fabricated from min 0.02 in. galv steel, min width to accommodate stud size, with min 1 in. long legs, for use with studs specified below and fabricated from min 0.02 in. galv steel or thicker, attached to floor and ceiling with fasteners spaced max 24 in. OC.

1K. **Framing Members*— Floor and Ceiling Runners —** (Not shown, As an alternate to Item 1) — For use with Items 2I, channel shaped, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, attached to floor and ceiling with fasteners 24 in. OC. max.

2. **Steel Studs —** Channel shaped, fabricated from min 25 MSG corrosion-protected steel, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/8 to 3/4 in. less than assembly height.

2A. **Framing Members* - Steel Studs —** In lieu of Item 2 - Proprietary channel shaped studs, min. depth as indicated under Item 5, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height. Allowable use of studs is shown in the table below. For direct attachment of gypsum board only. Effective thickness is 0.034 in.

2B. **Steel Studs —** (As an alternate to Item 2, For use with Items 5B & 5E) Channel shaped, fabricated from min 20 MSG corrosion-protected or galv steel, 3-1/2 in. min depth, spaced a max of 16 in. OC. Studs friction-fit into floor and ceiling runners. Studs to be cut 5/8 to 3/4 in. less than assembly height.

2C. **Framing Members* - Steel Studs —** (As an alternate to Item 2, For use with Items 5C or 5I) - Proprietary channel shaped studs, 3-5/8 in. deep spaced a max of 24 in. OC. Studs to be cut 3/4 in less than the assembly height and installed with a ½ in. gap between the end of the stud and track at the bottom of the wall. For direct attachment of gypsum board only.

2D. **Framing Members* - Metal Studs —** Not shown - In lieu of Item 2 — For use with Item 1D, proprietary channel shaped steel studs, min depth as indicated under Item 5, spaced a max if 24 in. OC, fabricated from min 0.020 in. thick galv steel. Studs cut 3/8 in. to 3/4 in. less in lengths than assembly heights.

2E. **Framing Members*— Steel Studs —** In lieu of Item 2 - For Use with Item 1E- Channel shaped studs, min depth as indicated under Item 5, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

2F. **Framing Members*— Steel Studs —** (Not shown, As an alternate to Item 2) —For use with Items 1G, 5F or 5G or 5I only, channel shaped studs, min depth as indicated under Item 5F, 5G or 5I, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

2G. **Framing Members* - Metal Studs —** Not shown - In lieu of Item 2 — For use with Item 1H, proprietary channel shaped steel studs, minimum width indicated under Item 5, 1-1/4 in. deep fabricated from min 0.015 in. (min bare metal thickness) galvanized steel. Studs 3/8 in. to 3/4 in. less in lengths than assembly heights.

2H. **Framing Members* - Steel Studs —** Not shown - In lieu of Item 2 - For use with Item 1I. Proprietary channel shaped studs, minimum width indicated under Item 5, Studs to be cut 3/8 to 3/4 in less than the assembly height.

2I. **Framing Members*— Steel Studs —** (Not shown, As an alternate to Item 2) —For use with Items 1K, fabricated from min. 0.015 in. (min bare metal thickness) galvanized steel, spaced a max of 24 in. OC. Studs to be cut 3/4 in. less than assembly height.

3. **Wood Structural Panel Sheathing —** (Optional, For use with Item 5 Only.)- (Not Shown) - 4 ft wide, 7/16 in. thick oriented strand board (OSB) or 15/32 in. thick structural 1 sheathing (plywood) complying with DOC PS1 or PS2, or APA Standard PRP-108, manufactured with exterior glue, applied horizontally or vertically to the steel studs. Vertical joints centered on studs, and staggered one stud space from wallboard joints. Attached to studs with flat-head self-drilling tapping screws with a min. head diam. of 0.292 in. at maximum 6 in. OC. in the perimeter and 12 in. OC. in the field. When used, fastener lengths for gypsum panels increased by min. 1/2 in.

4. **Batts and Blankets* —** (Required as indicated under Item 5) — Mineral wool batts, friction fitted between studs and runners. Min nom thickness as indicated under Item 5. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

4A. **Batts and Blankets* —** (Optional) — Placed in stud cavities, any glass fiber or mineral wool insulation bearing the UL Classification Marking as to Surface Burning Characteristics and/or Fire Resistance. See **Batts and Blankets (BKNV or BZJZ) Categories** for names of Classified companies.

5. **Gypsum Board* —** Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 1 hr, 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating, Hr	Min Stud Depth, in. Items 2, 2D, 2E, 2G and 2H	Min Stud Depth, in. Item 2A	No. of Layers & Thkns of Panel	Min Thkns of Insulation (Item 4)
1	3-1/2	3-5/8	1 layer, 5/8 in. thick	Optional
1	2-1/2	3-5/8	1 layer, 1/2 in. thick	1-1/2 in.
1	1-5/8	3-5/8	1 layer, 3/4 in. thick	Optional
2	1-5/8	2-1/2	2 layers, 1/2 in. thick	Optional
2	1-5/8	2-1/2	2 layers, 5/8 in. thick	Optional
2	3-1/2	3-5/8	1 layer, 3/4 in. thick	3 in.
3	1-5/8	2-1/2	3 layers, 1/2 in. thick	Optional
3	1-5/8	2-1/2	2 layers, 3/4 in. thick	Optional
3	1-5/8	2-1/2	3 layers, 5/8 in. thick	Optional
4	1-5/8	2-1/2	4 layers, 5/8 in. thick	Optional
4	1-5/8	2-1/2	4 layers, 1/2 in. thick	Optional
4	2-1/2	2-1/2	2 layers, 3/4 in. thick	2 in.

When Item 7B, Steel Framing Members*, is used, Nonbearing Wall Rating is limited to 1 Hr. Min. stud depth is 3-1/2 in., min. thickness of insulation (Item 4) is 3 in., and two layers of gypsum board panels (1/2 in. or 5/8 in. thick) shall be attached to furring channels as described in Item 6. One layer of gypsum board panels (1/2 in. or 5/8 in. thick) attached to opposite side of stud without furring channels as described in Item 6.

5A. **Gypsum Board* —** (As an alternate to Item 5) — 5/8 in. thick, 24 to 54 in. wide, applied horizontally as the outer layer to one side of the assembly. Secured as described in Item 6.

5B. **Gypsum Board* —** (Not Shown) - As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 in or ¾ in. thick products are specified. For direct attachment only to steel studs Item 2B, (not to be used with Item 3) - Nom 5/8 in. or ¾ in. may be used as alternate to all 5/8 in. or ¾ in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 in. or ¾ in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Gypsum board secured to 20 MSG steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. To be used with Lead Batten Strips (see Item 11) or Lead Discs or Tabs (see Item 12).

5C. **Gypsum Board* —** (For Use With Item 2C) Rating Limited to 1 Hour. 5/8 in. thick, 48 in. wide, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally. (Vertical Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. Vertical joints are to be centered over studs and staggered one stud cavity on opposite sides of studs. (Horizontal Application) - The gypsum board is to be installed on each side of the studs with 1 in. long Type S coated steel screws spaced 8 in. OC starting 4 in. from the edge of the board at the vertical edges and 12 in. OC starting 6 in. from the edge of the board at the center of each board. Gypsum boards are to be secured to the top and bottom track with screws spaced 8 in. OC starting 4 in. from the board edge. Fasteners shall not penetrate through both the stud and the track at the same time. All horizontal joints are to be backed as outlined under section VI of Volume 1 in the Fire Resistive Directory.

5D. **Gypsum Board* —** (As an alternate to Item 5) — 5/8 in. thick, 48 in. wide, applied vertically or horizontally. Secured as described in Item 6. For use with Items 1 and 2 only.

5E. **Gypsum Board* —** (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2B, not to be used with Item 3). Nominal 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 (or No. 6 by 1-1/4 in. long bugle head fine driller) steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field.

5F. **Gypsum Board* —** (As an alternate to Item 5) — For use with Items 1G and 2F and limited to 1 Hour Rating only, Gypsum panels with beveled, square or tapered edges, applied vertically, and fastened to the steel studs with 1 in. long Type S screws spaced 8 in. OC along vertical and bottom edges and 12 in. OC in the field. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Steel stud depth shall be a minimum 3-5/8 in.

5G. **Gypsum Board* —** (As an alternate to Item 5) — For use with Items 1G and 2F only, Gypsum panels with beveled, square or tapered edges, applied vertically or horizontally, as specified in the table below and fastened to the steel studs as described in Item 6. Vertical joints centered over studs and staggered one stud cavity on opposite sides of studs. Vertical joints in adjacent layers (multilayer systems) staggered one stud cavity. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers (multilayer systems) staggered a min of 12 in. The thickness and number of layers for the 2 hr, 3 hr and 4 hr ratings are as follows:

Gypsum Board Protection on Each Side of Wall

Rating, Hr	Min Stud Depth, in. Item 2F	No. of Layers & Thickness of Panel	Min Thkns of Insulation (Item 4)
2	1-5/8	2 layers, 1/2 in. thick	Optional
2	1-5/8	2 layers, 5/8 in. thick	Optional
3	1-5/8	3 layers, 1/2 in. thick	Optional
3	1-5/8	3 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 5/8 in. thick	Optional
4	1-5/8	4 layers, 1/2 in. thick	Optional

5H. **Gypsum Board* —** (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 5/8 or 3/4 in thick products are specified. For direct attachment only to steel studs Item 2B, (not to be used with Item 3) - Nom 5/8 or 3/4 in. may be used as alternate to all 5/8 or 3/4 in. shown in Item 5, Wallboard Protection on Each Side of Wall table. Nom 5/8 or 3/4 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over 20 MSG steel studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Gypsum board secured to 20 MSG steel studs Item 2B with 1-1/4 in. long Type S-12 steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. For Joint Compound see Item 5. To be used with Lead Batten Strips (see Item 11A) orLead Discs (see Item 12A).

5I. **Gypsum Board* —** (As an alternate to Item 5) - Nom. 5/8 in. thick gypsum panels with beveled, square or tapered edges installed as described in Item 5. Steel stud minimum depth shall be as indicated in Item 5.

5J. **Gypsum Board* —** (Not Shown) - (As an alternate to Item 5 when used as the base layer on one or both sides of wall when 1/2 in. or 5/8 in thick products are specified, For direct attachment only to steel studs Item 2B, not to be used with Item 3). Nom 5/8 in. thick lead backed gypsum panels with beveled, square or tapered edges, applied vertically. Vertical joints centered over studs and staggered min 1 stud cavity on opposite sides of studs. Wallboard secured to studs with 1-1/4 in. long Type S-12 steel screws gypsum panel steel screws spaced 8 in. OC at perimeter and 12 in. OC in the field. Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations. Lead batten strips, min 2 in. wide, max 8 ft long with a max thickness of 0.14 in. placed on the face of studs and attached to the stud with construction adhesive and two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead discs, nominal 3/8 in. diam by max 0.085 in. thick. Compression fitted or adhered over the screw heads. Lead batten strips and discs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

6. **Fasteners —** (Not shown) — For use with Items 2 and 2F - Type S or S-12 steel screws used to attach panels to studs (Item 2) or furring channels (Item 7). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8 in. OC when panels are applied horizontally, or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. **Two layer systems:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer.**Three-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. **Four-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below.

6A. **Fasteners —** (Not shown) —For use with Item 2A - Type S or S-12 steel screws used to attach panels to studs (Item 2A). **Single layer systems:** 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 8-1/2 in. OC with additional screws 1 in. and 2-1/2 in. from edges of the board when panels are horizontally. or 8 in. OC along vertical and bottom edges and 12 in. OC in the field when panels are applied vertically. **Two layer systems applied vertically:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC with screws offset 8 in. from first layer. **Two layer systems applied horizontally:** First layer- 1 in. long for 1/2 and 5/8 in. thick panels or 1-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC starting 8 in. from each edge of the board with an additional screw placed 1-1/4 in. from each edge of the board. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels or 2-1/4 in. long for 3/4 in. thick panels, spaced 16 in. OC starting 8 in. from each edge of the board with an additional screw placed 1-1/4 in. from each edge of the board with screws offset 8 in. from first layer. **Three-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in., 5/8 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. For all layers, an additional screw shall be placed 1-1/4 in. from each edge of the board. **Four-layer systems:** First layer- 1 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Second layer- 1-5/8 in. long for 1/2 in., 5/8 in. thick panels, spaced 24 in. OC. Third layer- 2-1/4 in. long for 1/2 in. thick panels or 2-5/8 in. long for 5/8 in. thick panels, spaced 24 in. OC. Fourth layer- 2-5/8 in. long for 1/2 in. thick panels or 3 in. long for 5/8 in. thick panels, spaced 12 in. OC. Screws offset min 6 in. from layer below. For all layers, an additional screw shall be placed 1-1/4 in. from each edge of the board.

7. **Furring Channels —** (Optional, not shown, for single or double layer systems) — Resilient furring channels fabricated from min 25 MSG corrosion-protected steel, spaced vertically a max of 24 in. OC. Flange portion attached to each intersecting stud with 1/2 in. long Type S-12 steel screws. Not for use with Item 5A and 5E.

7A. **Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. RSIC-1 clips secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. RSIC-V clips secured to studs with No. 8 x 9/16 in. minimum self-drilling, S-12 steel screw through the center hole. Furring channels are friction fitted into clips.

7B. **Framing Members* —** (Optional, Not Shown) — As an alternate to Item 7, for single or double layer systems, furring channels and Steel Framing Members on only one side of studs as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel, spaced 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Batts and Blankets placed in stud cavity as described in Item 5. Two layers of gypsum board attached to furring channels as described in Item 5. Not for use with Item 5A and 5E.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Ba) to one side of studs (Item 2) only. Clips spaced 48 in. OC., and secured to studs lllith two No. 8 x 2-1/2 in. coarse drywall screws, one through the hole at each end of the clip. Furring channels are friction fitted into clips.

7C. **Framing Members* —** Optional - Not Shown - Used as an alternate method to attach resilient channels (Item 7). Clips attached at each intersection of the resilient channel and the steel studs (Item 2). Resilient channels are friction fitted into clips, and then clips are secured to the steel stud with min. 1 in. long Type S-12 steel screws through the center hole of the clip and the resilient channel flange.

7D. **Framing Members* —** (Not Shown) — (Optional on one or both sides, not shown, for single or double layer systems) — As an alternate to Item 7, furring channels and Steel Framing Members as described below:

a. **Furring Channels —** Formed of No. 25 MSG galv steel. 2-3/8 in. wide by 7/8 in. deep, spaced max. 24 in. OC perpendicular to studs. Channels secured to studs as described in Item b. Gypsum board attached to furring channels as described in Item 6. Not for use with Item 5A and 5E.

b. **Steel Framing Members* —** Used to attach furring channels (Item 7Aa) to studs (Item 2). Clips spaced max. 48 in. OC. GENIECLIPS secured to studs with No. 8 x 1-1/2 in. minimum self-drilling, S-12 steel screw through the center grommet. Furring channels are friction fitted into clips.

8. **Joint Tape and Compound —** Vinyl or casein, dry or premixed joint compound applied in two coats to joints and screw heads of outer layers. Paper tape, nom 2 in. wide, embedded in first layer of compound over all joints of outer layer panels. Paper tape and joint compound may be omitted when gypsum panels are supplied with a square edge.

9. **Siding, Brick or Stucco —** (Optional, not shown) — Aluminum, vinyl or steel siding, brick veneer or stucco, meeting the requirements of local code agencies, installed over gypsum panels. Brick veneer attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick.

10. **Caulking and Sealants* —** (Optional, not shown) — A bead of acoustical sealant applied around the partition perimeter for sound control.

11. **Lead Batten Strips —** (Not Shown, For Use With Item 5B) - Lead batten strips, min 1-1/2 in. wide, max 10 ft long with a max thickness of 0.125 in. Strips placed on the interior face of studs and attached from the exterior face of the stud with two 1 in. long Type S-12 pan head steel screws, one at the top of the strip and one at the bottom of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5B) and optional at remaining stud locations. Required behind vertical joints.

11A. **Lead Batten Strips —** (Not Shown, For Use With Item 5H) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.140 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grades "A, B, C or D". Lead batten strips required behind vertical joints of lead backed gypsum wallboard and optional at remaining stud locations.

12. **Lead Discs or Tabs —** (Not Shown, For Use With Item 5B) - Used in lieu of or in addition to the lead batten strips (Item 11) or optional at other locations - Max 3/4 in. diam by max 0.125 in. thick lead discs compression fitted or adhered over steel screw heads or max 1/2 in. by 1-1/4 in. by max 0.125 in. thick lead tabs placed on gypsum boards (Item 5B) underneath screw locations prior to the installation of the screws. Lead discs or tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C".

12A. **Lead Discs —** (Not Shown, for use with Item 5H) Max 5/16 in. diam by max 0.140 in. thick lead discs compression fitted or adhered over steel screw heads. Lead discs to have a purity of 99.9% meeting the Federal Specification QQ-L-201f, Grades "A, B, C or D".

13. **Lead Batten Strips —** (Not Shown, For Use With Item 5E) Lead batten strips, 2 in. wide, max 10 ft long with a max thickness of 0.142 in. Strips placed on the face of studs and attached to the stud with two min. 1 in. long min. Type S-8 pan head steel screws, one at the top of the strip and one at the bottom of the strip or with one min. 1 in. long min. Type S-8 pan head steel screw at the top of the strip. Lead batten strips to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead batten strips required behind vertical joints of lead backed gypsum wallboard (Item 5E) and optional at remaining stud locations.

14. **Lead Tabs —** (Not Shown, For Use With Item 5E) 2 in. wide, 5 in. long with a max thickness of 0.142 in. Tabs friction-fit around front face of stud, the stud folded back flange, and the back face of the stud. Tabs required at each location where a screw (that secures the gypsum boards, Item 5E) will penetrate the steel stud. Lead tabs to have a purity of 99.9% meeting the Federal specification QQ-L-201f, Grade "C". Lead tabs may be held in place with standard adhesive tape if necessary.

ONLINE CERTIFICATIONS DIRECTORY

Design No. U905
BXUV.U905
Fire-resistance Ratings - ANSI/UL 263

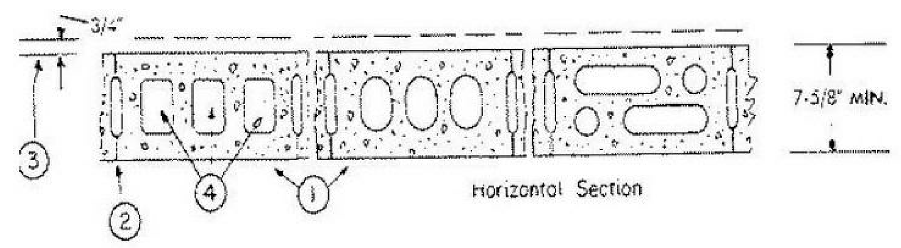
March 11, 2016

Bearing Wall Rating — 2 HR.

Nonbearing Wall Rating — 2 HR

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Concrete Blocks* —** Various designs. Classification D-2 (2 hr).

2. **Mortar —** Blocks laid in full bed of mortar, nom. 3/8 in. thick, of not less than 2-1/4 and not more than 3-1/2 parts of clean sharp sand to 1 part Portland cement (proportioned by volume) and not more than 50 percent hydrated lime (by cement volume). Vertical joints staggered.

3. **Portland Cement Stucco or Gypsum Plaster —** Add 1/2 hr to classification if used. Where combustible members are framed in wall, plaster or stucco must be applied on the face opposite framing to achieve a max. Classification of 1-1/2 hr. Attached to concrete blocks (Item 1).

4. **Loose Masonry Fill —** If all core spaces are filled with loose dry expanded slag, expanded clay or shale (Rotary Kiln Process), water repellant vermiculite masonry fill insulation, or silicone treated perlite loose fill insulation add 2 hr to classification.

5. **Foamed Plastic* —** (Optional-Not Shown) — 1-1/2 in. thick max, 4 ft wide sheathing attached to concrete blocks (Item 1).

5A. **Building Units —** As an alternate to Items 5, min. 1-in thick polyisocyanurate composite foamed plastic insulation boards, nom. 48 by 48 or 96 in.

ONLINE CERTIFICATIONS DIRECTORY

System No. HW-D-0098
XHBN.HW-D-0098
Joint Systems

June 04, 2010

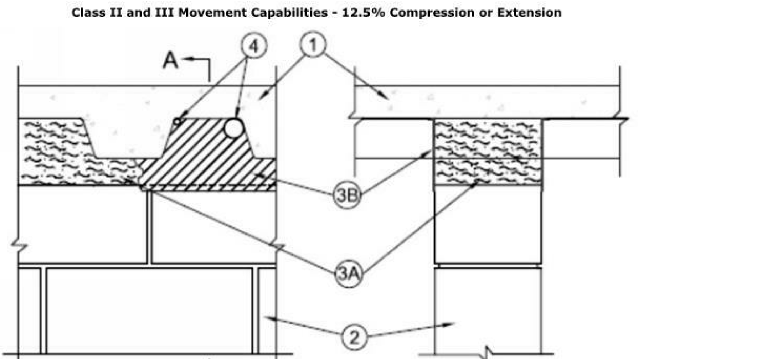
Assembly Rating — 1 and 2 Hr (See Item 4)

Nominal Joint Width - 1 in.

L Rating At Ambient — Less Than 1 CFM/Lin Ft (See Item 4)

L Rating At 400°F — Less Than 1 CFM/Lin Ft (See Item 4)

Class II and III Movement Capabilities - 12.5% Compression or Extension



SECTION A-A

1. **Floor Assembly —** The fire rated fluted steel unit/concrete floor assembly shall be constructed of the materials and in a manner described in the individual D700 or D900 Floor-Ceiling Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete as measured from top plane of the floor units.

C. **Spray-Applied Fire Resistive Materials* —** (Optional)—(Not Shown)—Prior to the installation of the forming material and fill, void or cavity material (Items 3A, 3B) the steel floor units may be sprayed with a min 5/16 in. (8 mm) to max 1-3/4 in. (44 mm) thickness of fire resistive material.

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

1B. **Roof Assembly —** As an alternate to Items 1 and 1A, a fire rated protected fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P700 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Spray—Applied Fire Resistive Materials* —** (Not Shown)—Prior to the installation of the steel ceiling runners, Forming Material and Fill, Void or Cavity Material (Items 2A, 3A, 3B), the roof assembly shall be sprayed with the type and thickness of fire resistive material indicated in the individual P700 Series design.

2. **Wall Assembly —** Min 6 in. (152 mm) thick steel-reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m^3) structural concrete. Wall may also be constructed of any UL Classified **Concrete Blocks***.

3. **Joint System — Max separation between bottom of floor or roof and top of wall at time of installation of joint system is 1 in (25 mm) . The joint system is designed to accommodate a max 12.5 percent compression or extension from its installed width.** The joint system shall consist of the following:

A. **Forming Material —** Nom 4 pcf (64 kg/m^3) mineral wool batt insulation compressed and firmly packed to completely fill the flutes and the gap between the top of the wall and bottom of the floor or roof as a permanent form. Batt insulation cut to the shape of the fluted steel deck, approx 33 percent larger than the flutes. Pieces compressed and installed vertically into the flutes above the top of the wall. Additional pieces of batt insulation, min 6 in. wide, installed edge-first into joint opening between bottom of fluted steel deck and top of wall, parallel with joint direction, such that batt sections are compressed min 33 percent in thickness. Compressed batt sections are flush with both surfaces of wall. Adjoining lengths of batt to be tightly butted with butted seams spaced min 48 in. (1.22 m) apart along the length of the joint.

A1. **Forming Material*—Plugs —** (Optional-Not Shown) Performed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling runner. The plugs shall be flush with both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of the wall and the bottom of the steel floor units.

B. **Fill, Void or Cavity Material* —** Min 1/8 in. (3.2 mm) wet thickness (min 1/16 in. or 1.6mm dry thickness) of fill material sprayed or troweled on each side of the wall to completely cover mineral wool forming material and to overlap a min of 1/2 in. (13 mm) onto wall and steel deck on both sides of wall. When spray-applied fire resistive material* is applied to the steel deck, the fill material is to overlap the wall a min of 1/2 in. (14 mm) and to overlap the spray-applied fire resistive material a min of 2 in. (51 mm) on both sides of wall. When through-penetrants (Item 4) are installed within flute, the fill material shall overlap a min 1/2 in. (13 mm) onto the periphery of each penetrant, on both sides of wall.

4. **Through-Penetrants —** Max of two penetrants may be installed parallel with and within the flutes of the steel floor or roof deck. The annular space between penetrants and steel deck or spray-applied fire resistive material on steel deck shall be min 0 in. (point contact) and the annular space between penetrants within the flute shall be min 2 in. (51 mm). Penetrants to be rigidly supported on both sides of the floor or wall assembly. The following types and sizes of penetrants may be used:

A. **Polyvinyl Chloride (PVC) Pipe —** Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) piping systems.

B. **Rigid Nonmetallic Conduit+ —** Nom 1-1/2 in. (38 mm) diam (or smaller) Schedule 40 PVC conduit installed in accordance with the National Electrical Code (NFPA 70).

C. **Steel Conduit or Tubing —** Nom 1/2 in. (13 mm) diam rigid steel conduit or steel electrical metallic tubing (EMT) installed in accordance with the National Electrical Code (NFPA No. 70).

When Through-Penetrant(s) installed in flute of steel deck, the hourly rating of the joint system is 1 hr.

When Through-Penetrant(s) installed in flute of steel deck, L Ratings do not apply.

ONLINE CERTIFICATIONS DIRECTORY

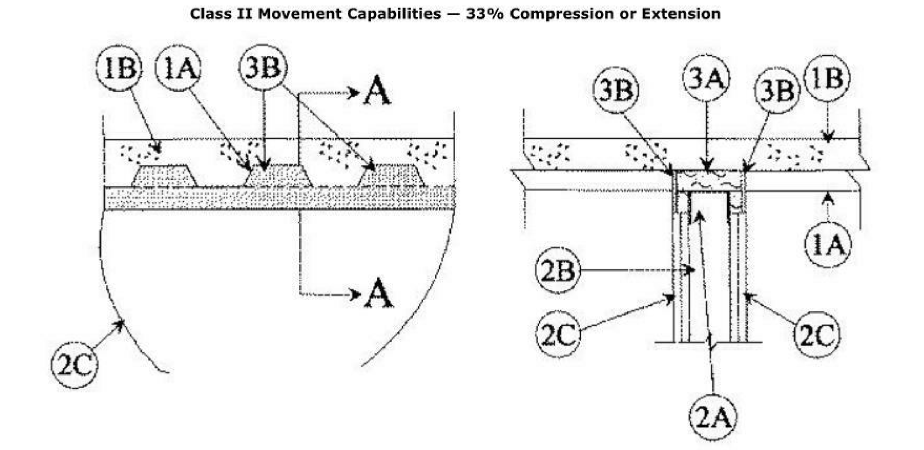
System No. HW-D-0045
XHBN.HW-D-0045
Joint Systems

September 01, 2016

Assembly Rating — 1 and 2 Hr (See Item 2)

Nominal Joint Width — 3/4 In.

Class II Movement Capabilities — 33% Compression or Extension



SECTION A-A

1. **Floor Assembly —** The fire-rated fluted steel floor unit/concrete floor assembly shall be constructed of the materials and in the manner described in the individual Floor-Ceiling Design in the Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Form Units* —** Max 3 in. (76 mm) deep galv steel fluted floor units.

B. **Concrete —** Min 2-1/2 in. (64 mm) thick reinforced concrete, as measured from the top plane of the floor units.

1A. **Roof Assembly —** (Not Shown) — As an alternate to the floor assembly, a fire rated fluted steel deck roof assembly may be used. The roof assembly shall be constructed of the materials and in the manner described in the individual P900 Series Roof-Ceiling Design in the UL Fire Resistance Directory. The hourly rating of the roof assembly shall be equal to or greater than the hourly rating of the wall assembly. The roof assembly shall include the following construction features:

A. **Steel Roof Deck —** Max 3 in. (76 mm) deep galv steel fluted roof deck.

B. **Roof Insulation —** Min 2-1/4 in. (57 mm) thick poured insulating concrete, as measured from the top plane of the floor units.

2. **Wall Assembly —** The 1 or 2 hr fire-rated gypsum board /stud wall assembly shall be constructed of the materials and in the manner specified in the individual U400 or V400 Series Wall and Partition Design in the UL Fire Resistance Directory and shall include the following construction features:

A. **Steel Floor and Ceiling Runners —** Floor and ceiling runners of wall assembly shall consist of galv steel channels sized to accommodate steel studs (Item 2B). Flange height of ceiling runner shall be min 1/4 in. (6 mm) greater than max extended joint width. . Ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or by welds spaced max 24 in. (610 mm) OC.

A1. **Light Gauge Framing* — Slotted Ceiling Runner —** As an alternate to the ceiling runner in Item 2A, slotted ceiling runner to consist of galv steel channel with slotted flanges sized to accommodate steel studs (Item 2B). Slotted ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) OC.

A2. **Light Gauge Framing* — Vertical Deflection Ceiling Runner —** As an alternate to the ceiling runners in Item 2A and 2A1, vertical deflection ceiling runner to consist of galv steel channel with slotted vertical deflection clips mechanically fastened within runner. Slotted clips provided with step bushings for permanent fastening of steel studs. Flanges sized to accommodate steel studs (Item 2B). Vertical deflection ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) OC.

A3. **Light Gauge Framing* — Notched Ceiling Runner —** As an alternate to the ceiling runners in Items 2A through 2A3, notched ceiling runners to consist of C-shaped galv steel channel with notched return flanges sized to accommodate steel studs (Item 2B). Notched ceiling runner installed perpendicular to direction of fluted steel deck and secured to valleys with steel fasteners or welds spaced max 24 in. (610 mm) OC.

B. **Studs —** Steel studs to be min 2-1/2 in. (64 mm) wide. Studs cut 1/2 to 3/4 in. (13 to 19 mm) less in length than assembly height with bottom nesting in and resting on floor runner and with top nesting in ceiling runner without attachment. When slotted ceiling runner (Item 2A1) is used, steel studs secured to slotted ceiling runner with No. 8 by 1/2 in. (13 mm) long wafer head steel screws at midheight of slot on each side of wall. When vertical deflection ceiling runner (Item 2A2) is used, steel studs secured to slotted vertical deflection clips, through the bushings, with steel screws at midheight of each slot. Stud spacing not to exceed 24 in. (610 mm) OC.

C. **Gypsum Board* —** For 1 hr assembly, one layer of 5/8 in. (16 mm) thick gypsum board is required in the individual Wall and Partition Design. For 2 hr assembly, two layers of 5/8 in. (16 mm) thick gypsum board is required in the individual Wall and Partition Design. For both hourly ratings, a nominal 3/4 in. (19 mm) gap shall be maintained between the top of the gypsum board and the bottom surface of the steel floor units and the top row of screws shall be installed into the studs 3 in. (76 mm) below the valleys of the steel floor units.

The hourly rating of the joint system is dependent on the hourly fire rating of the wall.

3. **Joint System — Max separation between bottom of floor or roof and top of wall is 3/4 in. (19 mm). The joint system is designed to accommodate a max 33 percent compression or extension from its installed width.** The joint system consists of a packing material and a fill material between the top of the gypsum board and the bottom of the floor or roof, as follows:

A. **Forming Material* —** Nom 4 pcf (64 kg/m^3) mineral wool batt insulation, cut to the shape of the fluted deck, approx 20 percent larger than the area of the flutes and compressed into the flutes of the steel deck flutes above the ceiling runner. The mineral wool insulation is to project beyond each side of the ceiling runner, recessed 1/2 in. (13 mm) from both wall surfaces . For 2 hr assembly, an additional 1-1/2 in. (38 mm) thick by 3/4 in. (19 mm) wide sections of mineral wool batt insulation compressed 50 percent and installed cut edge first to fill the 3/4 in. (19 mm) gap between the top of gypsum board and bottom of the steel deck. The forming material shall be recessed 1/2 in. (13 mm) from each side of the wall.

A1. **Forming Material* — Plugs —** (Optional, Not Shown) — Preformed mineral wool plugs, formed to the shape of the fluted floor units, friction fit to completely fill the flutes above the ceiling channel. The plugs shall project beyond each side of the ceiling runner and shall be recessed 1/2 in. (13 mm) from both wall surfaces. Additional forming material, described in Item 3A, to be used in conjunction with the plugs to fill the gap between the top of gypsum board and bottom of steel deck.

B. **Fill, Void or Cavity Material* — Sealant —** Min 1/2 in. (13 mm) thickness of fill material installed on each side of the wall in the flutes of the steel deck and between the top of the gypsum board and the bottom of the steel deck, flush with each surface of the wall.

BECKER MORGAN GROUP

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Newark, DE 19711
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ISSUED
FOR BIDDING
NOT FOR CONSTRUCTION
ISSUED: 04.16.20

FREDERICK M. COLLINS
REGISTERED ARCHITECT
4537
N.C.
WILMINGTON, N.C.
4/16/2020

BECKER MORGAN GROUP, INC.
Registered Architecural Corporation
51922
North Carolina
WILMINGTON, NC

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

UL DETAILS

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019083.02
DATE: 04.16.2020
SCALE:
DRAWN BY: LJR PROJ MGR: RMC

G401

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ONLINE CERTIFICATIONS DIRECTORY

Design No. U425

BXUV.U425
Fire-resistance Ratings - ANSI/UL 263

August 31, 2016

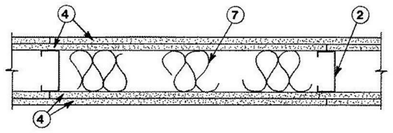
(For Exterior Walls, Ratings Applicable

For Exposure To Fire On Interior Face Only,

(See Items 4 and 5)

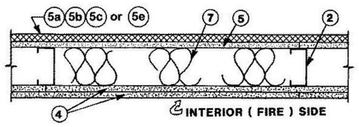
Bearing Wall Rating — 45 Min, 1, 1-1/2 or 2 HR.

INTERIOR WALL



HORIZONTAL SECTION

EXTERIOR WALL



HORIZONTAL SECTION

1. **Steel Floor and Ceiling Tracks —** (Not Shown) — Top and bottom tracks of wall assemblies shall consist of steel members, min No. 20 MSG (0.0329 in., min bare metal thickness) steel or min No. 20 MSG (0.036 in. thick) galv steel or No. 20 MSG (0.033 in. thick) primed steel, that provide a sound structural connection between steel studs, and to adjacent assemblies such as a floor, ceiling, and/or other walls. Attached to floor and ceiling assemblies with steel fasteners spaced not greater than 24 in. O.C.

2. **Steel Studs —** Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

2A. **Framing Members* — Steel Studs —** In lieu of Item 2 — Min 3-1/2 in. wide, No. 20 MSG (0.0329 in., min bare metal thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

2B. **Framing Members* — Steel Studs —** In lieu of Item 2 — Min 3-5/8 in. wide, No. 20 MSG (0.036 in. min. thickness) corrosion protected cold formed steel studs designed in accordance with the current edition of the Specification for the Design of Cold-Formed Steel Structural Members by the American Iron and Steel Institute. All design details enhancing the structural integrity of the wall assembly, including the axial design load of the studs, shall be as specified by the steel stud designer and/or producer, and shall meet the requirements of all applicable local code agencies. The max stud spacing of wall assemblies shall not exceed 24 in. OC (or 16 in. OC when Item 5b is used). Studs attached to floor and ceiling tracks with 1/2 in. long Type S-12 steel screws on both sides of studs or by welded or bolted connections designed in accordance with the AISI specifications.

3. **Lateral Support Members —** (Not Shown) — Where required for lateral support of studs, support may be provided by means of steel straps, channels or other similar means as specified in the design of a particular steel stud wall system.

4. **Gypsum Board* — Any 1/2 in. thick UL Classified Gypsum Board that is eligible for use in Design No. X515. Any 5/8 in. thick UL Classified Gypsum Board that is eligible for use in Design Nos. L501, G512 or U305.** Gypsum board bearing the UL Classification Marking as to Fire Resistance. Applied vertically with joints between layers staggered. Outer layer of 3 layer construction may be applied horizontally unless specified below. The thickness and number of layers and percent of design load for the 45 min, 1 hr, 1-1/2 hr and 2 hr ratings are as follows:

Interior Walls

Rating	Wallboard Protection Both Sides of Wall - No. of Layers & Thkns of Board In. Each Layers	% of Design Load
45 min	*1 layer, 1/2 in. thick	100
1 hr	*1 layer, 5/8 in. thick	100
1-1/2 hr	*2 layers, 1/2 in. thick	100
2 hr	*2 layers, 5/8 in. thick or	80
	*3 layers, 1/2 in. thick	100
	*2 layers, 3/4 in. thick	100

* Ratings applicable to assemblies serving as exterior walls where Classified fire resistive gypsum sheathing type wallboard is substituted on the exterior face.

Exterior Walls

Rating	Wallboard Protection on Interior Side of Wall - No. of Layers & Thkns of Board In. Each Layers	% of Design Load
45 min	1 layer, 5/8 in. thick	100
1 hr	2 layers, 1/2 in. thick	100
1-1/2 hr	2 layers, 5/8 in. thick	100
2 hr	3 layers, 1/2 in. thick	100
	2 layers, 3/4 in. thick	100

4A. **Gypsum Board —** Nom. 3/4 in. gypsum board applied vertically with joints between layers staggered. The thickness and number of layers and percent of design load for the 2 hr ratings are shown in the table above.

4B. **Gypsum Board* —** (As an alternate to Items 4 and 4A) — Nom. 5/8 in. thick gypsum panels, with square edges, applied horizontally. Gypsum panels fastened to framing with 1 in. long bugle head steel screws spaced a max 8 in. OC, with last 2 screws 3/4 in. and 4 in. from each edge of board. Horizontal joints need not be backed by steel framing. Horizontal edge joints and horizontal butt joints on opposite sides of studs on interior walls need not be staggered. Horizontal edge joints and horizontal butt joints in adjacent layers on interior walls (multilayer systems) staggered a min of 12 in.

4C. **Gypsum Board* —** (As an alternate to Items 4 through 4B) — 5/8 in. thick, 4 ft. wide, paper surfaced applied vertically only and secured as described in Item 6.

4D. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 4 through 4C) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

4E. **Wall and Partition Facings and Accessories* —** (As an alternate to Items 4 through 4D) — Nominal 5/8 in. thick, 4 ft wide panels, applied vertically and secured as described in Item 4.

4F. **Gypsum Board* —** (As an alternate to 5/8 in. Type FSW in Item 4) — Nom. 5/16 in. thick gypsum panels applied vertically. Two layers of 5/16 in. for every single layer of 5/8 in. gypsum board described in Item 4. Horizontal joints on the same side need not be staggered. Inner layer of each double 5/16 in. layer attached with fasteners, as described in item 4, spaced 24 in. OC. Outer layer of each double 5/16 in. layer attached per Item

5. **Gypsum Sheathing —** For exterior walls, 1/2 or 5/8 in. thick Classified or unclassified exterior gypsum sheathing applied vertically and attached to studs and runner tracks with 1 in. long Type S-12 bugle head screws spaced 12 in. OC. along studs and tracks. One of the following exterior facings are to be applied over the gypsum sheathing.

a. **Siding, Brick, or Stucco —** Aluminum siding, steel siding, brick veneer, or stucco attached to studs over gypsum sheathing and meeting the requirements of local code agencies. When a min 3-3/4 in. thick brick veneer facing is used, the Exterior Wall Rating is applicable with exposure on either face. Brick veneer wall attached to studs with corrugated metal wall ties attached to each stud with steel screws, not more than each sixth course of brick. When a min 3-3/4 in. thick brick veneer facing is used, Foamed Plastic (Item 10) may be used.

b. **Cementitious Backer Units* —** 1/2 or 5/8 in. thick, square edge boards, attached to steel studs over gypsum sheathing with 1-5/8 in. long, Type S-12, corrosion resistant, wafer head steel screws, spaced 8 in. OC. Studs spaced a max of 16 in. OC. Joints covered with glass fiber mesh tape.

c. **Fiber-Cement Siding —** Fiber-cement exterior sidings including smooth and patterned panel or lap siding.

d. **Molded Plastic* —** Solid vinyl siding mechanically secured to framing members in accordance with manufacturer's recommended installation details.

e. **Wood Structural Panel or Lap Siding —** APA Rated Siding, Exterior, plywood, OSB or composite panels with veneer faces and structural wood core, per PS 1 or APA Standard PRP-108, including textured, rough sawn, medium density overlay, brushed, grooved and lap siding.

f. **Building Units* —** (Not Shown) — 3 in. thick 18 x 24 in. cellular glass blocks, applied to the gypsum sheathing (Item 5) with PC 88 adhesive or fastened with F anchors spaced a maximum 24 in. OC. F anchors fastened to framing members with 1-1/4 in. long #6 drywall screws.

Design No. P518

October 18, 2017

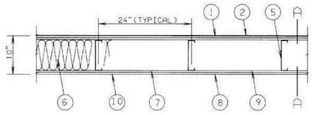
Restrained Assembly Rating — 1 Hr.

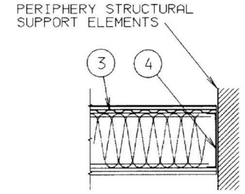
Unrestrained Assembly Rating — 1 Hr.

Unrestrained Beam Rating — 1 Hr.

This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**





SEC A-A

1. **Roof Covering* —** Consisting of hot mopped or cold application materials compatible with insulation(s) described herein which provide Class A, B or C coverings. See Roofing Materials and Systems Directory-Roof Covering Materials (TEVT).

1A. **Metal Roof Deck Panels —** (Not shown) — In addition to or in lieu of Item 1, the roof covering may consist of a mechanically fastened metal roof deck panel assembly. See Fire Resistance Directory-Metal Roof Deck Panels (CETW).

1B. **In lieu of Item 1, roof covering consisting of single-ply Roofing Membrane* —** that is either ballasted, adhered or mechanically attached as permitted under the respective classified company's Classification. See Fire Resistance Directory-Roofing Membranes (CHCI).

2. **Gypsum Sheathing —** supplied in sheet nom 2 by 4 ft to 4 by 12 ft by nom 1/2 in. thick gypsum sheathing installed perpendicular to steel roof deck with end joints of adjacent rows staggered 2 ft. Sheathing attached to steel roof deck with Type S, 1-7/8 in. long bugle head steel screws spaced 24 in. OC in both directions.

3. **Steel Roof Deck —** — (Unclassified) — Nom 30 in. wide, corrugated, No. 28 MSG galv steel, min. 9/16 in. deep with 2-1/2 in. corrugation pitch. The deck shall be attached to each steel joist with No. 8-18 by 5/8 in. long self-drilling steel screws located at the side laps of each unit and at the center of each unit, edges at steel channel attached 8 in. OC. Units shall be overlapped at ends a min of 1-1/2 in.
Classified Steel Floor and Form Units* — Noncomposite, min. 9/16 in. deep, min gauge is 28 MSG. Attached to each steel joist with No. 8-18 by 5/8 in. long self-drilling steel screws located at the side laps of each unit and at the center of each unit, edges at steel channel attached 8 in. OC. Units shall be overlapped at ends a min of 1-1/2 in.

3A. **Plywood Sheathing (As an alternate to Items 2 and 3) —** 1/2 in. thick wood structural panels min grade "Underlayment" or "Single Floor". Face grain of plywood or strength axis of panel to be perpendicular to joists with joints staggered. The plywood shall be attached to each steel joist with 1-3/8 in. long ballistic point nails spaced 8 in. OC at the edges and in the field.

3B. **Mineral and Fiber Board* (As an alternate to Items 2, 3 and 3A) —** One layer of min 1 in. thick by 24 in. wide boards, installed with long dimension perpendicular to joists (Item 5) with joints staggered. Mechanically fastened to each steel joist with pneumatically driven 2-1/2 in. long and 0.1 in. diam steel coil pins spaced at 6 in. OC max.
HOMASOTE CO — Type FireStall

3C. **Building Units* — (Optional, for installation over Items 2 and 3, Item 3A or Item 3B) —** Expanded foamed plastic insulation boards faced on the top surface with nailbase. Units to be installed with long dimension perpendicular to joists (Item 5).
HOMASOTE CO — Type NCFR/Thermasote

4. **Roof Joist Track —** Cold formed channels 8-3/16 in. deep with min 1-1/4 in. flanges, fabricated from No. 18 gauge or heavier ptd or galv steel. Used to provide supporting surface between roof joists (Item 5) and the periphery structural support elements. Ends of roof joists secured to roof tracks with 1 in. long, 1/8 in. fillet welds at top and bottom joist flanges.

5. **Roof Joists —** Cee-shaped sections, min 8 in. deep with 1-9/16 in. flanges and 9/16 in. lips, made from No. 18 gauge or heavier ptd or galv steel of 33 KSI min yield strength. Designed in accordance with the American Iron and Steel Institute specifications adopted August 1986. Joists spaced 24 in. OC max.

5A. **Structural Steel Members (Roof Joists) —** (Not Shown)- As an alternate to Item 5, light gauge steel truss system manufactured from cold-formed, galvanized steel chord and web members conforming to ASTM A653 Grade 33 or higher yield strength. Steel thickness of truss chords shall be min of 18 ga. and web sections a min of 20 ga. Truss members welded together. Truss chord and web members to be designed in accordance with the American Iron and Steel Institute's Specification for the Design of Cold-Formed Steel Structural Members, most current edition. Trusses spaced a max of 24 in. OC and having a min depth of 8 in. Where the truss intersects with the interior face of the exterior wall, the min truss depth shall be 12 in. with no min slope.

5B. **Angles- (Not Shown) —** (Optional)- Min 1-1/2 in. by 1-1/2 in. by 18 ga. angles welded to top corner of Item 5A and min 1-1/2 in. by 3 in. by 18 ga. angles welded to bottom conners of Item 5A. All angles, top and bottom corners, welded with 1/16 in. by 1 in. long welds to provide supporting surface between roof joists, Item 5A, and periphery support elements.

6. **Batts and Blankets* —** Nom 24 by 48 by 8 in. thick or 24 in. wide rolls of glass fiber insulation. Each batt placed directly on top of inner layer gypsum wallboard (Item 8) between roof joists. Density of glass fiber insulation is nominal 0.53 pcf . See **Batts and Blankets** (BKNV or BZJZ) categories for names of Classified companies.

7. **Bridging —** Min 1-1/2 in. wide, No. 18 MSG galv steel continuous strap. Bridging required at the bottom flange of roof joists at midspan. Bridging secured to the bottom flange of each joist with one No. 8-18 by 5/8 in. long self-drilling steel screw and with two screws at the end of bridging strap.

8. **Gypsum Board* —** 1/2 in. thick, 4 ft wide. Base layer installed with long dimension perpendicular to roof joists with end joints centered on joists and attached with 1-1/4 in. long, Type S-12 bugle head steel screws spaced 8 in. OC at end joints of the board and 12 in. OC in the field. Screws located 1 in. from board side edges and 1/2 in. from butted ends. Face layer installed with long dimension parallel and centered over ceiling joists. Face layer fastened to joists through inner layer with 1-7/8 in. long Type S-12 bugle head steel screws spaced 12 in. OC in the field and 8 in. OC at perimeter. Bottom layer end joints fastened to inner layer with 1-1/2 in. long Type G bugle head steel screws spaced 8 in. OC and located at 1 in. from board edges.
AMERICAN GYPSUM CO — Type AG-C

CONTINENTAL BUILDING PRODUCTS OPERATING CO, L L C — Type LGFC-C/A.

GEORGIA-PACIFIC GYPSUM L L C — Types 5, DAPC, TG-C.

UNITED STATES GYPSUM CO — Type C.

9. **Vapor Barrier —** Latex Primer Sealer, ASTM designation #D1653. Applied to the back surface of the inner layer of wallboard at 39 oz per 100 sq ft.

10. **Finishing System —** Wallboard joints exposed or covered with fiber tape and joint compound. As an option, nom 3/32 in. thick gypsum veneer plaster may be applied to the entire surface of gypsum board. **Alternate Ceiling Membrane** Not Shown.

11. **Hanger Wire —** For use with Item 12 - No. 12 SWG galv steel wire secured to steel joists spaced a max 48 in. O.C.

12. **Steel Framing Members —**

a. **Main runners —** Installed perpendicular to Structural Steel Members, - Nom 12 ft long. 15/16 in. or 1-1/2 in. wide face, spaced 4 ft OC. Main runners hung a min of 2 in. from bottom chord of Structural Steel Members with 12 SWG galv steel wire. Wires located a max of 48 in. OC.

b. **Main runners —** Nom 4 ft long, 15/16 in. or 1-1/2 in. wide face or cross channels, nom 4 ft long, 1-1/2 in. wide face, installed perpendicular to the main runners, spaced 16 in. OC. Additional cross tees or channels used at 8 in. from each side of butted wallboard end joints. The cross tees or channels may be riveted or screw-attached to the wall angle or channel to facilitate the ceiling installation.

c. **Wall angles or channels —** Used to support steel framing member ends and for screw-attachment of the gypsum wallboard - Painted or galvanized steel angles with 1 in. legs or channels with 1 in. legs and 1-9/16 in. deep, attached to walls at perimeter of ceiling with fasteners 16 in. OC.

13. **Gypsum Board* —** For use with **Steel Framing Members*** (Item 12) - Two layers of nominal 1/2 in. thick by 48 in. wide boards. Inner layer installed with long dimension perpendicular to cross tees with side joints centered along main runners and end joints centered along cross tees. Inner layer fastened to cross tees with 1-1/4 in. long Type S bugle-head steel screws spaced 8 in. OC along butted end joints and 12 in. OC in the field of the board. End joints of adjacent wallboard sheets shall be staggered not less than 4 ft OC. Outer layer attached to the cross tees through inner layer using 1-7/8 in. long Type S bugle-head steel screws spaced 8 in. OC at butted end joints and 12 in. OC in the field. Butted end joints to be centered along cross tees and be offset a min of 32 in. from end joints of inner layer. Rows of screws on both sides of butted end joints of each layer shall be located 3/8 to 1/2 in. from end joints. Butted side joints of outer layer to be offset a min of 18 in. from butted side joints of inner layer. Joints treated as described in Item 10.
CGC INC — Type C.

Resilient Channels with drywall screws and washers spaced at 16 in. OC on the perimeter of the panel and 8 in. OC in the field of the panel. Over the SONOpan panel install the same Gypsum Board as specified in Item 4 to 4B with the fastener length increased by minimum 3/4 inch. Not evaluated or intended as a substitute for the required Gyer(s) of UL Classified Gypsum Board.

MSL — ReflexXor membrane, SONOpan panel.

13. **Wall and Partition Facings and Accessories* —** (Optional, Not Shown) - **When the Wall Assembly is used as an External Wall, on the External side of the wall one of the following Wall and Partition and Facing Accessories may be used, refer to items (A) to (C) below.**

A. **Non Insulated System with Metal Channels —** Install moisture barrier over the Gypsum Board Item 4 and Install Acry Metal Channels vertically at a horizontal spacing not greater than 24 inches OC over the moisture barrier. Acry Metal Channels attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Install Acrytec Panels on Acry Metal Channels using 1-1/4" long corrosion coated stainless steel screws spaced at a max spacing of 24 inches OC, along with manufacturer's approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels shall be Tremco illmod 600 pre compressed polyurethane foam sealant.

B. **Insulated System with Metal Channels —** Install moisture barrier over the Gypsum Board Item 4. Install galvanized Z girt channels specified by the manufacturer over the moisture barrier and the Gypsum Board Item 4. Z girt channels to be installed horizontally at a max. spacing of 24" OC. Z girt channels attached through the Gypsum Board and the moisture barrier to the Steel Studs Item 2, with screws provided by the manufacturer at a max spacing of 24 inches OC. Install mineral wool insulation between the Z girts. Maximum thickness of mineral wool insulation not to exceed 6 in. As per manufacturer's instructions install Acry Metal Channels vertically over the Z girts at a max horizontal spacing of 24 in. OC. Acrytec Panels installed on Acry channel with 1-1/4" long corrosion coated stainless steel screws at a max spacing of 24 in. OC, along with manufacturers approved adhesive (3M 540 or Tremco Vulcum 116). Adhesive to be applied in a zigzag pattern along every channel. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

C. **Non Insulated Wood Strapping System —** Install moisture barrier over the Gypsum Board Item 4 and Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC., over the moisture barrier. 1" x 3" wood strapping attached through the moisture barrier and the Gypsum Board to the Steel Studs Item 2, using fasteners specified by the manufacturer and fasteners spaced max., 24 in. OC. Acrytec Panels to be installed on the 1" x 3" wood strapping using manufacturers approved stainless steel fasteners spaced at maximum 24 inches OC along with Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

D. **Insulated Wood Strapping System —** Install moisture barrier over the Gypsum Board Item 4. Install Extruded Polystyrene Insulation over moisture barrier, max thickness of insulation not to exceed 4 inches. Install 1" x 3" wood strapping vertically at a horizontal spacing not greater than 24 inches OC. Wood strapping attached through the Insulation, the Gypsum Board and moisture barrier to the Steel Studs Item 2 using fasteners specified by the manufacturer and fasteners spaced max. 24 in. OC. Acrytec Panels to be installed over the wood strapping using manufacturers approved stainless steel fasteners at a max spacing of 24 in. OC and Tremco Vulcum 116 adhesive applied in a zigzag pattern along every wood strap. Joint treatment in between panels to be Tremco illmod 600 pre compressed polyurethane foam sealant.

BECKER MORGAN GROUP

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Dover, DE 19904
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ISSUED
FOR BIDDING

NOT FOR CONSTRUCTION
ISSUED: 04.16.20

FREDERICK M. NICOLLS REGISTERED ARCHITECT 4537 N.C. 4/16/2020

BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, N.C.

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

UL DETAILS

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019083.02
DATE: 04.16.2020
SCALE:
DRAWN BY: LJR PROJ MGR: RMC

G402

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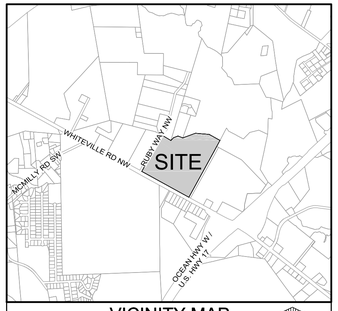
WEST BRUNSWICK HIGH SCHOOL IMPROVEMENTS

550 WHITEVILLE ROAD NW
SHALLOTTE, NORTH CAROLINA 28470

BID DOCUMENTS

APRIL 2020



VICINITY MAP
SCALE: 1" = 1,000'
NORTH

NOTICE REQUIRED

ALL EXISTING UNDERGROUND UTILITIES SHALL BE PHYSICALLY LOCATED PRIOR TO THE BEGINNING OF ANY CONSTRUCTION IN THE VICINITY OF SAID UTILITIES.

CONTRACTORS SHALL NOTIFY OPERATORS WHO MAINTAIN UNDERGROUND UTILITY LINES IN THE AREA OF PROPOSED EXCAVATION AT LEAST TWO WORKING DAYS, BUT NOT MORE THAN TEN WORKING DAYS PRIOR TO COMMENCEMENT OF EXCAVATION OR DEMOLITION.

CONTRACTORS SHALL CONTACT OVERHEAD ELECTRIC PROVIDER TO COMPLY WITH FEDERAL OSHA 1910.333 MINIMUM APPROACH DISTANCE TO ENERGIZED POWERLINES AND OSH 29 CFR 1926.1407-1411 MUST BE FOLLOWED.

CONTRACTOR SHALL CONTACT AT&T PRIOR TO ANY DEMOLITION TO ALLOW FOR AT&T TO DISCONNECT COMMUNICATIONS CABLES COMING INTO THE SITE.

CONTACT THESE UTILITIES

TOWN OF SHALLOTTE PLANNING & ZONING
ATTN: ROBERT WARING, PLANNING DIRECTOR
PH: 910-754-4032

PIEDMONT NATURAL GAS
ATTN: CATHY PLEASANT
PH: 910-251-2827

EMERGENCY DIAL 911
POLICE - FIRE - RESCUE
ATTN: TOWN OF SHALLOTTE FIRE/RESCUE DEPARTMENT
NON-EMERGENCY PH: 910-754-6008

TOWN OF SHALLOTTE PUBLIC WORKS (SEWER)
ATTN: BILL HALL
PH: 910-754-4032
AFTER HOURS SEWER EMERGENCY
PH: 910-233-5693

BRUNSWICK COUNTY UTILITIES (WATER)
ATTN: BILL PINNIX & AMY AYCOCK
PH: 910-253-2408 & 910-253-2407

DUKE ENERGY
DISTRIBUTION CONSTRUCTION SERVICE
ALLISON WALSH
PH: 910-350-3457

TRANSMISSION AGENT
BILL WILDER
PH: 910-772-4903

AT&T/BELL SOUTH
ATTN: STEVE DAYVAULT (BUILDING ENGINEERING)
PH: 910-341-0741

ATTN: JAMES BATSON, ENGINEERING
PH: 910-341-1621

SPECTRUM
ATTN: STEVE BARNETTE
PH: 910-772-5755

OWNER/DEVELOPER:
BRUNSWICK COUNTY SCHOOLS
35 REFERENDUM DRIVE NE
BOLIVIA, NC 28422

ENGINEER (CIVIL) & LANDSCAPE ARCHITECT:
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
ATTN: ROBERT BALLAND, P.E. (910) 791-6707 - ENGINEER
ATTN: ALLISON ENGEBRETSON, RLA (910) 791-6707 - LANDSCAPE

SURVEYING:
PARAMOUNTE ENGINEERING, INC.
122 CINEMA DRIVE
WILMINGTON, NORTH CAROLINA 28403
ATTN: CHRIS GAGNE, P.L.S. (910) 791-6707

SHEET INDEX

SHEET NUMBER	SHEET TITLE
C-0.0	COVER SHEET
C-1.0 & C-1.1	GENERAL NOTES
C-2.0 - C-2.2	DEMOLITION PLANS
C-2.3 - C-2.6	SITE PLANS
C-3.0 & C-3.1	GRADING-DRAINAGE-EC PLANS
C-4.0 & C-4.1	UTILITY PLAN
C-5.0 - C-5.4	DETAILS
L-1.0	LANDSCAPE PLAN

NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
04/16/20

Know what's below. Call before you dig.

PREPARED BY:

PARAMOUNTE ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

PROJECT # 19249.PE

FINAL DESIGN - RELEASED FOR BIDDING ONLY

COORDINATION NOTES:

1. THE CONTRACTOR IS REQUIRED TO OBTAIN ANY/ALL PERMITS REQUIRED FOR CONSTRUCTION OF THESE PLANS.
2. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH PERMITS ISSUED AND WITH THE TOWN OF SHALLOTTE, BRUNSWICK COUNTY (WATER), TOWN OF SHALLOTTE PUBLIC WORKS (SEWER), AND THE STATE OF NORTH CAROLINA (NCDOT - STREETS).
3. THE CONTRACTOR IS TO ESTABLISH AND CHECK ALL HORIZONTAL AND VERTICAL CONTROLS TO BE USED WITH THE PROJECT. IN ADDITION, THE CONTRACTOR IS TO COMPUTE THE LAYOUT OF THE ENTIRE SITE PLAN IN ADVANCE OF BEGINNING ANY WORK ASSOCIATED WITH THE SUBJECT PLANS. CONTRACTOR SHALL EMPLOY A PROFESSIONAL SURVEYOR TO PERFORM SITE IMPROVEMENT STAKEOUT(S).
4. ANYTIME WORK IS PERFORMED OFF-SITE OR WITHIN AN EXISTING EASEMENT, THE CONTRACTOR IS TO NOTIFY THE HOLDER OF SAID EASEMENT AS TO THE NATURE OF PROPOSED WORK, AND TO FOLLOW ANY GUIDELINES OR STANDARDS WHICH ARE ASSOCIATED WITH OR REFERENCED IN THE RECORDED EASEMENT.
5. CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS BY OTHERS FOR ALL BUILDING DIMENSIONS AND DETAILS.

GENERAL NOTES:

1. TREE INVENTORY AND TOPOGRAPHIC SURVEY COMPLETED BY PARAMOUNTE ENGINEERING, INC. THE SURVEY SHALL BE FIELD VERIFIED BY CONTRACTOR AND ANY DISCREPANCIES REPORTED TO THE OWNER AND ENGINEER.
2. REASONABLE CARE HAS BEEN EXERCISED IN SHOWING THE LOCATION OF EXISTING UTILITIES ON THE PLANS. THE EXACT LOCATION OF ALL EXISTING UTILITIES IS NOT KNOWN IN ALL CASES. THE CONTRACTOR SHALL EXPLORE THE AREA AHEAD OF DITCHING OPERATIONS BY OBSERVATIONS, ELECTRONIC DEVICES, HAND DIGGING AND BY PERSONAL CONTACT WITH THE UTILITY COMPANIES. IN ORDER TO LOCATE EXISTING UTILITIES IN ADVANCE OF TRENCHING OPERATIONS SO AS TO ELIMINATE OR MINIMIZE DAMAGE TO EXISTING UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS RESULTING FROM ANY DAMAGE TO THE EXISTING UTILITY LINES INCLUDING LOSS OF UTILITY REVENUES. CONTRACTOR SHALL ARRANGE FOR TEMPORARY SUPPORT OF EXISTING UTILITIES, SUCH AS POLES, CONDUITS, FIBER OPTIC CABLES, TELEPHONE CABLES, WATER LINES, ETC.
3. CONTRACTOR SHALL COMPLY WITH THE LATEST REVISIONS AND INTERPRETATIONS OF THE DEPARTMENT OF LABOR SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION PROMULGATED UNDER THE OCCUPATIONAL SAFETY AND HEALTH ACT.
4. CONTRACTOR SHALL PLAN AND CONSTRUCT WORK SO AS TO CAUSE MINIMUM INCONVENIENCE TO THE OWNER AND THE PUBLIC. THE CONTRACTOR SHALL PROVIDE, ERECT AND MAINTAIN AT ALL TIMES DURING WORK PROGRESS OR TEMPORARY SUSPENSION OF WORK, SUITABLE BARRIERS, FENCES, SIGNS OR OTHER ADEQUATE PROTECTION, INCLUDING FLAGMEN AND WATCHMEN AS NECESSARY TO INSURE THE SAFETY OF THE PUBLIC AS WELL AS THOSE ENGAGED IN THE CONSTRUCTION WORK. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF "CONSTRUCTION AND MAINTENANCE OPERATIONS SUPPLEMENT TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" BY THE USDOT.
5. ALL MATERIAL CLEARED OR DEMOLISHED BY THE CONTRACTOR IN ORDER TO CONSTRUCT THE WORK SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE PROPERLY DISPOSED OF OFF-SITE.
6. ALL WORK BY THE CONTRACTOR SHALL BE WARRANTED BY THE CONTRACTOR FOR A PERIOD OF ONE YEAR AFTER THE OWNER ACCEPTS THE WORK.
7. CONTRACTOR SHALL CALL THE NORTH CAROLINA ONE-CALL CENTER AT 811 AN ALLOW THE CENTER TO LOCATE EXISTING UTILITIES BEFORE DIGGING.
8. ANY DISCREPANCY IN THIS PLAN AND ACTUAL FIELD CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO START OF CONSTRUCTION. GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF ALL SETBACKS, EASEMENTS AND DIMENSIONS SHOWN HEREON BEFORE BEGINNING CONSTRUCTION.
9. CONTRACTOR SHALL MAINTAIN THE SITE IN A MANNER SO THAT WORKMEN AND PUBLIC SHALL BE PROTECTED FROM INJURY, AND ADJOINING PROPERTY PROTECTED FROM DAMAGE.
10. ACCESS TO UTILITIES, FIRE HYDRANTS, STREET LIGHTING, ETC., SHALL REMAIN UNDISTURBED, UNLESS COORDINATED WITH THE RESPECTIVE UTILITY.
11. DO NOT SCALE THIS DRAWING AS IT IS A REPRODUCTION AND SUBJECT TO DISTORTION.
12. THE GENERAL CONTRACTOR SHALL REMOVE ALL DEBRIS FROM THE SITE UPON COMPLETION OF THE PROJECT AND AT LEAST ONCE A WEEK DURING CONSTRUCTION.
13. THE GENERAL CONTRACTOR SHALL KEEP THE AREA OUTSIDE THE "CONSTRUCTION LIMITS" BROOM CLEAN AT ALL TIMES.
14. ALL STREET SURFACES, DRIVEWAYS, CULVERTS, CURB AND GUTTERS, ROADSIDE DRAINAGE DITCHES AND OTHER STRUCTURES THAT ARE DISTURBED OR DAMAGED IN ANY MANNER AS A RESULT OF CONSTRUCTION SHALL BE REPLACED OR REPAIRED IN ACCORDANCE WITH THE SPECIFICATIONS.
15. CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" SET OF DRAWINGS TO RECORD THE EXACT LOCATION OF ALL PIPING PRIOR TO CONCEALMENT. DRAWINGS SHALL BE GIVEN TO THE OWNER UPON COMPLETION OF THE PROJECT WITH A COPY OF THE TRANSMITTAL LETTER TO THE ENGINEER.
16. IF DEPARTURES FROM THE SPECIFICATIONS OR DRAWINGS ARE DEEMED NECESSARY BY THE CONTRACTOR, DETAILS OF SUCH DEPARTURES AND REASONS THEREOF SHALL BE GIVEN TO THE OWNER FOR REVIEW. NO DEPARTURES FROM THE CONTRACT DOCUMENTS SHALL BE MADE WITHOUT THE PERMISSION OF THE OWNER, THE TOWN OF SHALLOTTE, BRUNSWICK COUNTY (WATER), OR TOWN OF SHALLOTTE PUBLIC WORKS (SEWER), RESPECTIVELY.
17. CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF ALL UNDERGROUND UTILITIES. THE LOCATION OF ALL EXISTING UTILITIES ARE NOT NECESSARILY SHOWN ON PLANS AND WHERE SHOWN ARE ONLY APPROXIMATE. THE CONTRACTOR SHALL ON HIS INITIATIVE AND AT NO EXTRA COST HAVE LOCATED ALL UNDERGROUND LINES AND STRUCTURES AS NECESSARY. NO CLAIMS FOR DAMAGES OR EXTRA COMPENSATION SHALL ACCRUE TO THE CONTRACTOR FROM THE PRESENCE OF SUCH PIPE OTHER OBSTRUCTIONS OR FROM DELAY DUE TO REMOVAL OR REARRANGEMENT OF THE SAME. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UNDERGROUND STRUCTURES. CONTACT NORTH CAROLINA ONE CALL" TOLL FREE 1-800-632-4949 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING ALL NONSUBSCRIBING UTILITIES.
18. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC., THAT MAY BE REQUIRED.
19. THE ENGINEER AND/OR OWNER DISCLAIM ANY ROLE IN THE CONSTRUCTION MEANS AND METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS.
20. ALL LOT STRIPING AND DIRECTIONAL ARROWS TO BE REFLECTIVE MARKINGS AND SHALL CONFORM TO MUTCD. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
21. LANDSCAPE PLANTINGS AT ENTRANCE/ EXITS WILL BE INSTALLED AND MAINTAINED SO AS NOT TO INTERFERE WITH SIGHT DISTANCE NEEDS OF DRIVERS IN THE PARKING AREA AND AT ENTRANCE/EXIT LOCATIONS PER LOCAL STANDARDS.
22. ALL DIMENSIONS AND RADII ARE TO OUTSIDE FACE OF BUILDING OR TO FACE OF CURB UNLESS OTHERWISE NOTED.

TRAFFIC NOTES:

1. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY & FOR DRIVEWAY(S) ARE TO BE THERMOPLASTIC & MEET TOWN OF SHALLOTTE AND/OR NCDOT STANDARDS.
2. TRAFFIC CONTROL DEVICES (INCLUDING SIGNS AND PAVEMENT MARKINGS) IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD (MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES) STANDARDS.
3. ALL TRAFFIC CONTROL SIGNS AND MARKINGS NOT WITHIN THE PUBLIC RIGHT-OF-WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
4. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
5. ANY OPEN CUTTING OF A TOWN STREET REQUIRES A UTILITY CUT PERMIT. CONTACT TOWN OF SHALLOTTE PLANNING 910-754-4032 FOR MORE DETAILS. IN CERTAIN CASES, AN ENTIRE RESURFACING OF THE AREA BEING OPEN CUT MAY BE REQUIRED. CONTACT NCDOT, DIVISION 3, DIVISION ENGINEER FOR ANY WORK WITHIN NCDOT RIGHT-OF-WAY AT 910-341-2000. PROVIDE MINIMUM OF FORTY-EIGHT (48) HOURS NOTICE TO APPLICABLE AUTHORITY PRIOR TO ANY EXCAVATION IN THE RIGHT OF WAY.
7. ANY BROKEN OR MISSING SIDEWALK PANELS, DRIVEWAY PANELS AND/OR CURBING SHALL BE REPLACED.
8. TACTILE WARNING MATS TO BE INSTALLED AT ALL WHEELCHAIR RAMPS AND CURB CUTS.

GENERAL EROSION AND SEDIMENT CONTROL NOTES:

1. THE EROSION CONTROL PLAN SHALL INCLUDE PROVISIONS FOR GROUNDCOVER ON ALL EXPOSED PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 WITHIN 7 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY. GROUND COVER SHALL BE PROVIDED ON ALL OTHER DISTURBED AREAS WITHIN 14 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY.
2. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL HANDBOOK. (NO SEPARATE PAYMENT).
3. THE CONTRACTOR SHALL NOTIFY PLAN APPROVING AUTHORITY ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITY, AND ONE WEEK PRIOR TO FINAL INSPECTION.
4. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE PLACED PRIOR TO CLEARING AND/OR LAND DISTURBANCE.
5. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN AND PERMIT SHALL BE MAINTAINED ON THE SITE AT ALL TIMES.
6. PRIOR TO COMMENCING LAND DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING, BUT NOT LIMITED TO OFF-SITE BORROW OR WASTE AREAS STAGING OR STORAGE AREAS), THE CONTRACTOR SHALL PREPARE AND SUBMIT A SUPPLEMENTARY EROSION CONTROL PLAN TO THE OWNER FOR REVIEW AND TO THE NEW HANOVER COUNTY FOR APPROVAL. CONTRACTOR SHALL PAY ALL FEES REQUIRED AND SHALL INSTALL NECESSARY MEASURES AT NO SEPARATE PAYMENT. THE CONTRACTOR SHALL PROVIDE THE OWNER AND THE ENGINEER A COPY OF THE AMENDED PERMIT.
7. THE CONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY EITHER THE REVIEWING AGENCY OR THE ENGINEER. (NO SEPARATE PAYMENT).
8. ALL DISTURBED AREAS ARE TO DRAIN TO APPROVED SEDIMENT CONTROL MEASURES AT ALL TIMES DURING LAND DISTURBING ACTIVITIES AND DURING SITE DEVELOPMENT UNTIL FINAL STABILIZATION IS ACHIEVED.
9. ALL AREAS DISTURBED BY CONSTRUCTION UNLESS OTHERWISE IMPROVED SHALL BE SODDED OR SEEDED AS INDICATED AND STABILIZED.
10. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO AN APPROVED FILTERING DEVICE PRIOR TO DISCHARGE TO RECEIVING OUTLET.
11. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
12. ALL TEMPORARY EROSION CONTROL MEASURES SHALL BE REMOVED BY CONTRACTOR ONCE STABILIZATION OR A SUFFICIENT GROUND COVER HAS BEEN ESTABLISHED OR AS DIRECTED BY THE ENGINEER. (NO SEPARATE PAYMENT). NCDENR'S FINAL APPROVAL IS REQUIRED.
13. TEMPORARY GRAVEL CONSTRUCTION ENTRANCE SHALL BE REQUIRED AT ALL CONSTRUCTION STAGING AREA ENTRANCES AND ALL CONSTRUCTION ACCESS LOCATIONS INTO NON-PAVED AREA. (NO SEPARATE PAYMENT).
14. WHEN CROSSING CREEK OR DRAINAGE-WAY, THE DIVISION OF WATER QUALITY SHALL BE CONTACTED PRIOR TO DISTURBING A CREEK. THE CONTRACTOR SHALL INSTALL RIP-RAP WITH FABRIC ALONG DISTURBED BANKS AND CHANNEL AND RESTORE SLOPES TO ORIGINAL CONTOURS, BUT NOT STEEPER THAN 2:1 MAXIMUM. DISTURBED CREEK AREA SHALL BE STABILIZED IMMEDIATELY.

DEMOLITION NOTES:

1. CONTRACTOR TO COORDINATE WITH THE OWNER TO PROPERLY MAINTAIN OR RELOCATE EXISTING SERVICE CONNECTIONS WHEN NECESSARY.
2. CONTRACTOR IS TO WALK THE SITE AND BECOME FAMILIAR WITH THE SCOPE OF DEMOLITION REQUIRED. ALL DEMOLITION WORK REQUIRED TO CONSTRUCT NEW SITE IMPROVEMENTS WILL BE PERFORMED BY THE CONTRACTOR AND WILL BE CONSIDERED UNCLASSIFIED EXCAVATION.
3. DEMOLITION SHALL INCLUDE BUT IS NOT LIMITED TO THE EXCAVATION, HAULING AND OFFSITE DISPOSAL OF CONCRETE PADS, CONCRETE DITCHES, FOUNDATIONS, SLABS, STEPS, AND STRUCTURES; ABANDONED UTILITIES, BUILDINGS, PAVEMENTS AND ALL MATERIALS CLEARED AND STRIPPED TO THE EXTENT NECESSARY AS DIRECTED BY THE GEOTECHNICAL ENGINEER FOR THE INSTALLATION OF THE NEW IMPROVEMENTS AND WITHIN THE LIMITS OF CLEARING AND GRADING AND AS SHOWN ON THESE PLANS.
4. THE CONTRACTOR SHALL PROTECT ALL ADJACENT PROPERTY, STRUCTURES AND UTILITIES ON THE PROPERTY NOT TO BE DEMOLISHED. DAMAGE TO PROPERTIES OF OTHERS DUE TO THE CONTRACTOR'S ACTIVITIES SHALL BE REPLACED IN KIND BY THE CONTRACTOR AT NO COST TO OWNER.
5. ELECTRIC, TELEPHONE, SANITARY SEWER, WATER AND STORM SEWER UTILITIES THAT SERVICE OFF-SITE PROPERTIES SHALL BE MAINTAINED DURING THE CONSTRUCTION PROCESS BY THE CONTRACTOR.
6. THE CONTRACTOR SHALL PRODUCE A PHOTOGRAPHIC RECORD (DIGITAL) OF DEVELOPMENT COMMENCING WITH A RECORD OF THE SITE AS IT APPEARS BEFORE DEMOLITION HAS BEGUN. AFTERWARDS, A PHOTOGRAPHIC RECORD SHALL BE MAINTAINED WEEKLY DURING CONSTRUCTION AND ENDING WITH A PHOTOGRAPHIC RECORD OF THE DEVELOPMENT AS IT APPEARS AFTER DEMOLITION. THIS RECORD SHALL BE DELIVERED TO THE OWNER.
7. EXISTING CURB AND GUTTER, LIGHTS, SIDEWALK, AND UTILITIES NOT INTENDED FOR DEMOLITION SHALL BE MAINTAINED, PROTECTED AND UNDISTURBED DURING DEMOLITION.
8. ALL EXISTING IMPROVEMENTS INDICATED OR REQUIRED TO BE DEMOLISHED SHALL INCLUDE REMOVAL FROM THE PROPERTY AND PROPER DISPOSAL.
9. CONTRACTOR SHALL COORDINATE RELOCATION OF ALL EXISTING OVERHEAD AND UNDERGROUND UTILITIES INCLUDING CABLE, GAS, TELEPHONE AND ELECTRIC AND ANY OTHER UTILITIES THROUGH THE SITE WITH THE RESPECTIVE COMPANIES.
10. CONTRACTOR SHALL MAINTAIN REQUIRED DISTANCES FROM HIGH VOLTAGE OVERHEAD LINES AND REMOVE TREES SO THEY DO NOT FALL TOWARDS OVERHEAD ELECTRICITY.
11. PROVIDE SMOOTH SAW CUT OF EXISTING PAVEMENTS, CURBS AND GUTTERS AND SIDEWALKS TO BE DEMOLISHED.
12. ALL DEMOLITION WORK SHALL BE DONE IN STRICT ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS AS WELL AS OSHA REGULATIONS.
13. EXISTING FIRE HYDRANTS ON OR NEAR THE SITE ARE TO REMAIN IN SERVICE.
14. INFORMATION CONCERNING UNDERGROUND UTILITIES WAS OBTAINED FROM AVAILABLE RECORDS, BUT THE CONTRACTOR MUST DETERMINE THE EXACT LOCATION AND ELEVATIONS.

NPDES BUILDING WASTES HANDLING:
1. NO PAINT OR LIQUID WASTES IN STREAM OR STORM DRAINS.
2. DEDICATED AREAS FOR DEMOLITION, CONSTRUCTION AND OTHER WASTES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
3. EARTHEN-MATERIALS STOCKPILES MUST BE LOCATED 50' FROM STORM DRAINS AND STREAMS UNLESS NO REASONABLE ALTERNATIVES AVAILABLE.
4. CONCRETE MATERIALS MUST BE CONTROLLED TO AVOID CONTACT WITH SURFACE WATERS, WETLANDS, OR BUFFERS.

NPDES INSPECTIONS:
1. SAME WEEKLY INSPECTION REQUIREMENTS.
2. SAME RAIN GAUGE & INSPECTIONS AFTER 0.5" RAIN EVENT.
3. INSPECTIONS ARE ONLY REQUIRED DURING "NORMAL BUSINESS HOURS".
4. INSPECTION REPORTS MUST BE AVAILABLE ON-SITE DURING BUSINESS HOURS UNLESS A SITE-SPECIFIC EXEMPTION IS APPROVED.
5. RECORDS MUST BE KEPT FOR 3 YEARS AND AVAILABLE UPON REQUEST.
6. ELECTRONICALLY AVAILABLE RECORDS MAY BE SUBSTITUTED UNDER CERTAIN CONDITIONS.

NPDES SEDIMENT BASINS:
1. OUTLET STRUCTURES MUST WITHDRAW FROM BASIN SURFACE UNLESS DRAINAGE AREA IS LESS THAN 1 ACRE.
2. USE ONLY DWQ-APPROVED FLOCULANTS.

NPDES - SPECIFIC PLAN SHEETS NOTES:
1. THIS PAGE IS SUBMITTED TO COMPLY WITH NPDES GENERAL STORMWATER PERMIT NCG010000.
2. THIS PAGE CAN BE APPROVED BY THE COUNTY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000 ONLY.
3. THIS PAGE OF THE APPROVED PLANS IS ENFORCEABLE EXCLUSIVELY PURSUANT TO NPDES GENERAL STORMWATER PERMIT NCG010000.
4. THE COUNTY IS NOT AUTHORIZED TO ENFORCE THE NPDES PORTION OF THIS PAGE OF THE PLANS AND THEY ARE NOT A PART OF THE APPROVED PLANS FOR THE PURPOSES OF ENFORCEMENT ACTION UNDER THE COUNTY CODE.

EROSION CONTROL AND SEQUENCE OF CONSTRUCTION NOTES:

NOTE: THESE EROSION CONTROL AND SEQUENCE OF CONSTRUCTION NOTES ARE INTENDED FOR EACH "PHASE" OF CONSTRUCTION. THE ORDER AND STEPS TAKEN MUST BE IMPLEMENTED AS EACH PART OF THE PROJECT IS DEVELOPED; WHETHER AS A WHOLE OR IN PHASES. ANY EROSION CONTROL DEVICES/MEASURES MUST REMAIN IN PLACE UNTIL THE ENTIRE DISTURBANCE IS STABILIZED AND ALL IMPROVEMENTS WITHIN THE DISTURBANCE LIMITS ARE COMPLETE.

1. CONSTRUCT TEMPORARY GRAVEL CONSTRUCTION ENTRANCE(S), ESTABLISH THE LIMITS OF DISTURBANCE, TREE PROTECTION FENCING, AND TEMPORARY SILT FENCE.
2. CLEAR AND REMOVE FROM SITE TREES AS DESIGNATED, ROOTS, ROOT MAT, ETC. FROM THE AREA WITHIN THE DESIGNATED CLEARING LIMITS.
3. CONSTRUCT TEMPORARY SEDIMENT BASIN(S) AND ASSOCIATED SKIMMER, OUTLET PIPE, SPILLWAY, ETC.
4. INSTALL REMAINING EROSION CONTROL MEASURES AS SHOWN ON THE PLANS WITHIN THE AREA DISTURBED. ALL EROSION CONTROL MEASURES MUST BE INSTALLED BEFORE COMMENCING CONSTRUCTION.
5. PLANT GRASS OVER ALL GRADED AREAS WITHIN 14 WORKING DAYS OF CEASE OF ANY GRADING ACTIVITY.
6. IMMEDIATELY UPON THE INSTALLATION OF ANY STORM DRAINAGE CATCH BASIN, DROP INLET, ETC., THE CONTRACTOR SHALL INSTALL INLET PROTECTION TO PREVENT SEDIMENT FROM ENTERING THE DRAINAGE SYSTEM.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEANING AND RESTORING TO PRE-CONSTRUCTION CONDITIONS ANY AREAS OUTSIDE THE PROJECT LIMITS THAT MAY INADVERTENTLY BE DAMAGED DUE TO THE FAILURE OF THE EROSION CONTROL MEASURES.
8. DURING GRADING AND AFTER GRADING HAS BEEN COMPLETE, THE CONTRACTOR SHALL CONTINUE TO MAINTAIN PERMANENT AND TEMPORARY EROSION CONTROL MEASURES UNTIL FINAL APPROVAL BY ENGINEER OR EROSION CONTROL INSPECTOR.
9. UPON RECEIVING FINAL APPROVAL, THE CONTRACTOR CAN REMOVE TEMPORARY EROSION CONTROL MEASURES.
10. THE CONTRACTOR SHALL CONTINUE TO WATER, FERTILIZE, MOW AND MAINTAIN GRASS & PLANTED AREAS UNTIL ALL CONSTRUCTION IS COMPLETE.

EROSION CONTROL MAINTENANCE PLAN:

1. ALL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY 1/2-INCH OR GREATER RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. ALL CONSTRUCTION ENTRANCES WILL BE PERIODICALLY TOP DRESSED WITH AN ADDITIONAL 2 INCHES OF #4 STONE TO MAINTAIN PROPER DEPTH. ANY SEDIMENT THAT IS TRACKED INTO THE STREET WILL BE IMMEDIATELY REMOVED.
3. SEDIMENT FENCE / SEDIMENT FENCE OUTLETS - SEDIMENT WILL BE REMOVED BEHIND THE SEDIMENT FENCE WHEN IT BECOMES HALF-FILLED. THE SEDIMENT FENCE WILL BE BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER. STAKES MUST BE STEEL, AND SPACED 6 FEET WITH EXTRA STRENGTH FABRIC AND NO WIRE BACKING. STAKE SPACING CAN BE 8 FEET WHEN STANDARD STRENGTH FABRIC AND WIRE BACKING ARE USED. IF ROCK FILTERS (OR EXCELSIOR WATTLES) ARE DESIGNED AT LOW POINTS IN THE SEDIMENT FENCE THE ROCK OR WATTLE WILL BE REPAIRED OR REPLACED IF IT BECOMES HALF FULL OF SEDIMENT, NO LONGER DRAINS, OR IS DAMAGED.
6. TEMPORARY SEDIMENT BASIN - REMOVE SEDIMENT AND RESTORE THE BASIN TO ITS ORIGINAL DIMENSIONS WHEN IT ACCUMULATES TO WITHIN ONE HALF OF THE DESIGN DEPTH. PLACE SEDIMENT IN AREA WITH SEDIMENT CONTROLS. CHECK THE EMBANKMENT, SPILLWAYS, AND OUTLET FOR EROSION DAMAGE, PIPING, AND SETTLEMENT. MAKE ALL NECESSARY REPAIRS IMMEDIATELY. REMOVE ALL TRASH AND OTHER DEBRIS FROM THE RISER AND POOL AREA.
9. EMERGENCY SPILLWAY / FOREBAY PROTECTION - AFTER EVERY HIGH-WATER EVENT INSPECT THE INTEGRITY OF THE LINED SPILLWAY AND THE ADJACENT EARTHEN BANKS. IMMEDIATELY MAKE ALL NEEDED REPAIRS TO PREVENT FURTHER DAMAGE. REPAIR ANY VOIDS IN THE RIP RAP LINED APRONS. RE-ESTABLISH ANY LOOSE STONES, AND FIX GAPS IN THE ADJACENT VEGETATIVE COVER.
10. SKIMMER - INSPECT SKIMMER AT LEAST ONCE A WEEK AND AFTER EACH RAINFALL TO MAKE SURE THAT THE INTAKE MECHANISM, ORIFICE, OR DISCHARGE PIPE IS NOT CLOGGED WITH TRASH OR SEDIMENT. IF THE BASIN IS DRY, MAKE SURE THAT ANY VEGETATION GROWING ON THE BOTTOM IS NOT HOLDING THE SKIMMER DOWN. TAKE SPECIAL PRECAUTION IN WINTER TO PREVENT THE SKIMMER FROM PLUGGING WITH ICE.
9. INLET PROTECTION - SEDIMENT SHALL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL, BLOCK AND GRAVEL, OR ROCK-PIPE INLETS, WHEN IT REACHES HALF-FILLED. ROCK WILL BE CLEANED OR REPLACED WHEN NO LONGER DRAINS. SILT SACKS, BEAVER DAMS, SANDY SACKS, AND SOCKS NEED CHECKING EVERY WEEK AND AFTER RAIN.
10. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO SPECIFICATIONS ON THESE PLANS AND CONTRACT SPECIFICATIONS TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.

PERMANENT SEEDING

GRASS TYPE	LBS/ ACRE	TIME OF SEEDING	FERTILIZER LIMESTONE
BERMUDA, HULLED BERMUDA, UNHULLED	10-20 35	MARCH - AUGUST SEPT. - FEB.	BY SOIL TEST
CENTIPEDE	10	MARCH - AUGUST	BY SOIL TEST (NO HIGH PH)
TALL FESCUE (COASTAL CULTIVAR RECOMMENDED)	50	MARCH - AUGUST	300 LB/AC 10-20-20 OR BY SOIL TEST
SLOPES >= 2:1 CENTIPEDE SERICEA LESPEDEZA	5 20	JAN - DEC	BY SOIL TEST

TEMPORARY SEEDING

GRASS TYPE	LBS/ ACRE	TIME OF SEEDING	FERTILIZER LIMESTONE
RYE GRAIN	50	OCT. - APR.	400 LBS/AC. 10-20-20
SWEET SUDAN GRASS	50	JUNE - AUGUST	400 LBS/AC. 10-20-20
GERMAN or BROWNTOP MILLET	50	JUNE - AUGUST	400 LBS/AC. 10-20-20
STRAW MULCH AS NEEDED	4,000		

STABILIZATION TIME FRAMES:
*IN THE EVENT THAT THE GOVERNING AGENCIES TIMEFRAME FOR STABILIZATION VARY, CONTRACTOR SHALL MEET THE MORE STRINGENT REQUIREMENT.

NC ACCESSIBILITY NOTES:

GENERAL NOTES:

1. SPECIAL ATTENTION SHALL BE GIVEN TO COMPLIANCE WITH AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NORTH CAROLINA BUILDING CODE/ANSI A117.1, AND APPLICABLE LOCAL LAWS & REGULATIONS.
2. IT IS ESSENTIAL THAT CONTRACTORS ARE AWARE OF THE SITE ACCESSIBILITY REQUIREMENTS. PARAMOUNTE ENGINEERING HAS DEVELOPED THESE NOTES AND DETAILS TO ASSURE THAT CONTRACTORS ARE AWARE OF THE REQUIREMENTS AT THE POINT IN TIME WHEN THEY ARE BIDDING THE PROJECT. IN ADDITION, PARAMOUNTE ENGINEERING HAS MADE A POINT IN THESE NOTES AND DETAILS, AS WELL AS IN OUR DRAWINGS, TO PROVIDE SLOPES / GRADES AND DIMENSIONS THAT COMPLY WITH THE AMERICANS WITH DISABILITIES ACT (2010 ADA STANDARDS), THE NORTH CAROLINA BUILDING CODE/ANSI A117.1 AND APPLICABLE LOCAL LAWS & REGULATIONS. IF THESE SLOPES / GRADES AND DIMENSIONS ARE NOT ACHIEVABLE, THE CONTRACTOR IS REQUIRED TO CONTACT THE OWNER IMMEDIATELY AND BEFORE MOVING FORWARD WITH THE WORK.
3. THE CONTRACTOR SHALL NOTIFY PARAMOUNTE ENGINEERING IMMEDIATELY OF ANY CONFLICT BETWEEN THESE NOTES AND DETAILS AND OTHER PROJECT DRAWINGS, WHETHER BY PARAMOUNTE ENGINEERING OR OTHERS. THE CONTRACTOR SHALL NOT PROCEED WITH THE WORK FOR WHICH THE ALLEGED CONFLICT HAS BEEN DISCOVERED UNTIL SUCH ALLEGED CONFLICT HAS BEEN RESOLVED. NO CLAIM SHALL BE MADE BY THE CONTRACTOR FOR DELAY OR DAMAGES AS A RESULT OF RESOLUTION OF ANY SUCH CONFLICT(S).
4. THESE ACCESSIBILITY NOTES AND DETAILS ARE INTENDED TO DEPICT SLOPE AND DIMENSIONAL REQUIREMENTS ONLY. REFER TO SIDEWALK, CURBING, AND PAVEMENT DETAILS FOR ADDITIONAL INFORMATION.

ACCESSIBLE ROUTE NOTES:

1. AT LEAST ONE ACCESSIBLE ROUTE SHALL BE PROVIDED WITHIN THE SITE FROM ACCESSIBLE PARKING SPACES AND ACCESSIBLE PASSENGER LOADING ZONES; PUBLIC STREETS OR SIDEWALKS; AND PUBLIC TRANSPORTATION STOPS TO THE ACCESSIBLE BUILDING OR FACILITY ENTRANCE THEY SERVE.
2. AT LEAST ONE ACCESSIBLE ROUTE SHALL CONNECT ACCESSIBLE BUILDINGS, ACCESSIBLE FACILITIES, ACCESSIBLE ELEMENTS, AND ACCESSIBLE SPACES THAT ARE ON THE SAME SITE.
3. WALKING SURFACES THAT ARE PART OF AN ACCESSIBLE ROUTE SHALL HAVE A MAXIMUM RUNNING SLOPE OF 5.0% AND A MAXIMUM CROSS SLOPE OF 2.0%.
4. ANY WALKING SURFACE THAT IS PART OF AN ACCESSIBLE ROUTE WITH A RUNNING SLOPE GREATER THAN 5.0% IS A RAMP AND SHALL COMPLY WITH THE GUIDELINES FOR RAMPS OR CURB RAMPS.
5. TRANSITIONS BETWEEN RAMPS, WALKS, LANDINGS, GUTTERS OR STREETS SHALL BE FLUSHAND FREE OF ABRUPT VERTICAL CHANGES (1/4 INCH MAXIMUM VERTICAL CHANGE IN LEVEL PERMITTED).
6. FLOOR SURFACES SHALL BE STABLE, FIRM AND SLIP RESISTANT.
7. THE MINIMUM CLEAR WIDTH OF EXTERIOR ACCESSIBLE ROUTES SHALL BE FORTY-EIGHT (48) INCHES MINIMUM MEASURED BETWEEN HANDRAILS WHERE HANDRAILS ARE PROVIDED (NC BUILDING CODE 1104.1 & 1104.2).
8. WHERE AN ACCESSIBLE ROUTE MAKES A 180 DEGREE TURN AROUND AN OBJECT THAT IS LESS THAN FORTY-EIGHT (48) INCHES IN WIDTH, CLEAR WI

GROUND STABILIZATION AND MATERIALS HANDLING PRACTICES FOR COMPLIANCE WITH THE NCG01 CONSTRUCTION GENERAL PERMIT

Implementing the details and specifications on this plan sheet will result in the construction activity being considered compliant with the Ground Stabilization and Materials Handling sections of the NCG01 Construction General Permit (Sections E and F, respectively). The permittee shall comply with the Erosion and Sediment Control plan approved by the delegated authority having jurisdiction. All details and specifications shown on this sheet may not apply depending on site conditions and the delegated authority having jurisdiction.

SECTION E: GROUND STABILIZATION

Required Ground Stabilization Timeframes

Site Area Description	Stabilize within this many calendar days after ceasing land disturbance	Timeframe variations
(a) Perimeter dikes, swales, ditches, and perimeter slopes	7	None
(b) High Quality Water (HQW) Zones	7	None
(c) Slopes steeper than 3:1	7	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed
(d) Slopes 3:1 to 4:1	14	-7 days for slopes greater than 50' in length and with slopes steeper than 4:1 -7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed
(e) Areas with slopes flatter than 4:1	14	-7 days for perimeter dikes, swales, ditches, perimeter slopes and HQW Zones -10 days for Falls Lake Watershed unless there is zero slope

Note: After the permanent cessation of construction activities, any areas with temporary ground stabilization shall be converted to permanent ground stabilization as soon as practicable but in no case longer than 90 calendar days after the last land disturbing activity. Temporary ground stabilization shall be maintained in a manner to render the surface stable against accelerated erosion until permanent ground stabilization is achieved.

GROUND STABILIZATION SPECIFICATION

Stabilize the ground sufficiently so that rain will not dislodge the soil. Use one of the techniques in the table below:

Temporary Stabilization	Permanent Stabilization
• Temporary grass seed covered with straw or other mulches and tackifiers • Hydroseeding • Rolled erosion control products with or without temporary grass seed • Appropriately applied straw or other mulch • Plastic sheeting	• Permanent grass seed covered with straw or other mulches and tackifiers • Geotextile fabrics such as permanent soil reinforcement matting • Hydroseeding • Shrubs or other permanent plantings covered with mulch • Uniform and evenly distributed ground cover sufficient to restrain erosion • Structural methods such as concrete, asphalt or retaining walls • Rolled erosion control products with grass seed

POLYACRYLAMIDES (PAMS) AND FLOCCULANTS

1. Select flocculants that are appropriate for the soils being exposed during construction, selecting from the *NC DWR List of Approved PAMS/Flocculants*.
2. Apply flocculants at or before the inlets to Erosion and Sediment Control Measures.
3. Apply flocculants at the concentrations specified in the *NC DWR List of Approved PAMS/Flocculants* and in accordance with the manufacturer's instructions.
4. Provide ponding area for containment of treated Stormwater before discharging offsite.
5. Store flocculants in leak-proof containers that are kept under storm-resistant cover or surrounded by secondary containment structures.

EQUIPMENT AND VEHICLE MAINTENANCE

1. Maintain vehicles and equipment to prevent discharge of fluids.
2. Provide drip pans under any stored equipment.
3. Identify leaks and repair as soon as feasible, or remove leaking equipment from the project.
4. Collect all spent fluids, store in separate containers and properly dispose as hazardous waste (recycle when possible).
5. Remove leaking vehicles and construction equipment from service until the problem has been corrected.
6. Bring used fuels, lubricants, coolants, hydraulic fluids and other petroleum products to a recycling or disposal center that handles these materials.

LITTER, BUILDING MATERIAL AND LAND CLEARING WASTE

1. Never bury or burn waste. Place litter and debris in approved waste containers.
2. Provide a sufficient number and size of waste containers (e.g dumpster, trash receptacle) on site to contain construction and domestic wastes.
3. Locate waste containers at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
4. Locate waste containers on areas that do not receive substantial amounts of runoff from upland areas and does not drain directly to a storm drain, stream or wetland.
5. Cover waste containers at the end of each workday and before storm events or provide secondary containment. Repair or replace damaged waste containers.
6. Anchor all lightweight items in waste containers during times of high winds.
7. Empty waste containers as needed to prevent overflow. Clean up immediately if containers overflow.
8. Dispose waste off-site at an approved disposal facility.
9. On business days, clean up and dispose of waste in designated waste containers.

PAINT AND OTHER LIQUID WASTE

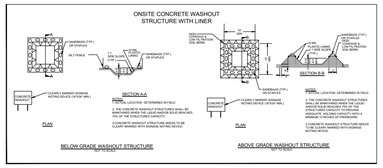
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, sized and placed appropriately for the needs of site.
5. Prevent the discharge of soaps, solvents, detergents and other liquid wastes from construction sites.

PORTABLE TOILETS

1. Install portable toilets on level ground, at least 50 feet away from storm drains, streams or wetlands unless there is no alternative reasonably available. If 50 foot offset is not attainable, provide relocation of portable toilet behind silt fence or place on a gravel pad and surround with sand bags.
2. Provide staking or anchoring of portable toilets during periods of high winds or in high foot traffic areas.
3. Monitor portable toilets for leaking and properly dispose of any leaked material. Utilize a licensed sanitary waste hauler to remove leaking portable toilets and replace with properly operating unit.

EARTHEN STOCKPILE MANAGEMENT

1. Show stockpile locations on plans. Locate earthen-material stockpile areas at least 50 feet away from storm drain inlets, sediment basins, perimeter sediment controls and surface waters unless it can be shown no other alternatives are reasonably available.
2. Protect stockpile with silt fence installed along toe of slope with a minimum offset of five feet from the toe of stockpile.
3. Provide stable stone access point when feasible.
4. Stabilize stockpile within the timeframes provided on this sheet and in accordance with the approved plan and any additional requirements. Soil stabilization is defined as vegetative, physical or chemical coverage techniques that will restrain accelerated erosion on disturbed soils for temporary or permanent control needs.



CONCRETE WASHOUTS

1. Do not discharge concrete or cement slurry from the site.
2. Dispose of, or recycle settled, hardened concrete residue in accordance with local and state solid waste regulations and at an approved facility.
3. Manage washout from mortar mixers in accordance with the above item and in addition place the mixer and associated materials on impervious barrier and within lot perimeter silt fence.
4. Install temporary concrete washouts per local requirements, where applicable. If an alternate method or product is to be used, contact your approval authority for review and approval. If local standard details are not available, use one of the two types of temporary concrete washouts provided on this detail.
5. Do not use concrete washouts for dewatering or storing defective curb or sidewalk sections. Stormwater accumulated within the washout may not be pumped into or discharged to the storm drain system or receiving surface waters. Liquid waste must be pumped out and removed from project.
6. Locate washouts at least 50 feet from storm drain inlets and surface waters unless it can be shown that no other alternatives are reasonably available. At a minimum, install protection of storm drain inlet(s) closest to the washout which could receive spills or overflow.
7. Locate washouts in an easily accessible area, on level ground and install a stone entrance pad in front of the washout. Additional controls may be required by the approving authority.
8. Install at least one sign directing concrete trucks to the washout within the project limits. Post signage on the washout itself to identify this location.
9. Remove leavings from the washout when at approximately 75% capacity to limit overflow events. Replace the tarp, sand bags or other temporary structural components when no longer functional. When utilizing alternative or proprietary products, follow manufacturer's instructions.
10. At the completion of the concrete work, remove remaining leavings and dispose of in an approved disposal facility. Fill pit, if applicable, and stabilize any disturbance caused by removal of washout.

HERBICIDES, PESTICIDES AND RODENTICIDES

1. Store and apply herbicides, pesticides and rodenticides in accordance with label restrictions.
2. Store herbicides, pesticides and rodenticides in their original containers with the label, which lists directions for use, ingredients and first aid steps in case of accidental poisoning.
3. Do not store herbicides, pesticides and rodenticides in areas where flooding is possible or where they may spill or leak into wells, stormwater drains, ground water or surface water. If a spill occurs, clean area immediately.
4. Do not stockpile these materials onsite.

HAZARDOUS AND TOXIC WASTE

1. Create designated hazardous waste collection areas on-site.
2. Place hazardous waste containers under cover or in secondary containment.
3. Do not store hazardous chemicals, drums or bagged materials directly on the ground.

NCG01 GROUND STABILIZATION AND MATERIALS HANDLING

EFFECTIVE: 04/01/19

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

Inspect	Frequency (during normal business hours)	Inspection records must include:
(1) Rain gauge maintained in good working order	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un-attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device approved by the Division.
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken.
(3) Stormwater discharge outfalls (SDOs)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Evidence of indicators of stormwater pollution such as oil sheen, floating or suspended solids or discoloration, 5. Indication of visible sediment leaving the site, 6. Description, evidence, and date of corrective actions taken.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If visible sedimentation is found outside site limits, then a record of the following shall be made: 1. Actions taken to clean up or stabilize the sediment that has left the size limits, 2. Description, evidence, and date of corrective actions taken, and 3. An explanation as to the actions taken to control future releases.
(5) Streams or wetlands onsite or offsite (where accessible)	At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: 1. Description, evidence and date of corrective actions taken, and 2. Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit of this permit.
(6) Ground stabilization measures	After each phase of grading	1. The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). 2. Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible.

NOTE: The rain inspection resets the required 7 calendar day inspection requirement.

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

The approved E&SC plan as well as any approved deviation shall be kept on the site. The approved E&SC plan must be kept up-to-date throughout the coverage under this permit. The following items pertaining to the E&SC plan shall be documented in the manner described:

Item to Document	Documentation Requirements
(a) Each E&SC Measure has been installed and does not significantly deviate from the locations, dimensions and relative elevations shown on the approved E&SC Plan.	Initial and date each E&SC Measure on a copy of the approved E&SC Plan or complete, date and sign an inspection report that lists each E&SC Measure shown on the approved E&SC Plan. This documentation is required upon the initial installation of the E&SC Measures or if the E&SC Measures are modified after initial installation.
(b) A phase of grading has been completed.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate completion of the construction phase.
(c) Ground cover is located and installed in accordance with the approved E&SC Plan.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications.
(d) The maintenance and repair requirements for all E&SC Measures have been performed.	Complete, date and sign an inspection report.
(e) Corrective actions have been taken to E&SC Measures.	Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.

2. Additional Documentation

In addition to the E&SC Plan documents above, the following items shall be kept on the site

and available for agency inspectors at all times during normal business hours, unless the Division provides a site-specific exemption based on unique site conditions that make this requirement not practical:

(a) This general permit as well as the certificate of coverage, after it is received.

(b) Records of inspections made during the previous 30 days. The permittee shall record the required observations on the Inspection Record Form provided by the Division or a similar inspection form that includes all the required elements. Use of electronically-available records in lieu of the required paper copies will be allowed if shown to provide equal access and utility as the hard-copy records.

(c) All data used to complete the Notice of Intent and older inspection records shall be maintained for a period of three years after project completion and made available upon request. [40 CFR 122.41]

PART III
SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION C: REPORTING

1. Occurrences that must be reported

Permittees shall report the following occurrences:

(a) Visible sediment deposition in a stream or wetland.

(b) Oil spills if:
- They are 25 gallons or more,
- They are less than 25 gallons but cannot be cleaned up within 24 hours,
- They cause sheen on surface waters (regardless of volume), or
- They are within 100 feet of surface waters (regardless of volume).

(a) Releases of hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (Ref: 40 CFR 110.3 and 40 CFR 117.3) or Section 102 of CERCLA (Ref: 40 CFR 302.4) or G.S. 143-215.85.

(b) Anticipated bypasses and unanticipated bypasses.

(c) Noncompliance with the conditions of this permit that may endanger health or the environment.

2. Reporting Timeframes and Other Requirements

After a permittee becomes aware of an occurrence that must be reported, he shall contact the appropriate Division regional office within the timeframes and in accordance with the other requirements listed below. Occurrences outside normal business hours may also be reported to the Division's Emergency Response personnel at (800) 662-7956, (800) 858-0368 or (919) 733-3300.

Occurrence	Reporting Timeframes (After Discovery) and Other Requirements
(a) Visible sediment deposition in a stream or wetland	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the sediment and actions taken to address the cause of the deposition. Division staff may waive the requirement for a written report on a case-by-case basis. • If the stream is named on the NC 303(d) list as impaired for sediment-related causes, the permittee may be required to perform additional monitoring, inspections or apply more stringent practices if staff determine that additional requirements are needed to assure compliance with the federal or state impaired-waters conditions.
(b) Oil spills and release of hazardous substances per Item 1(b)-(c) above	• ***Within 24 hours***, an oral or electronic notification. The notification shall include information about the date, time, nature, volume and location of the spill or release.
(c) Anticipated bypasses [40 CFR 122.41(m)(3)]	• ***A report at least ten days before the date of the bypass, if possible***. The report shall include an evaluation of the anticipated quality and effect of the bypass.
(d) Unanticipated bypasses [40 CFR 122.41(m)(3)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days,*** a report that includes an evaluation of the quality and effect of the bypass.
(e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)(7)]	• ***Within 24 hours***, an oral or electronic notification. • ***Within 7 calendar days***, a report that contains a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time noncompliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. [40 CFR 122.41(l)(6).
	• Division staff may waive the requirement for a written report on a case-by-case basis.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

CLIENT INFORMATION:

BECKER MORGAN GROUP
3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

PARAMOUNTE ENGINEERING, P.C.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

GENERAL NOTES

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

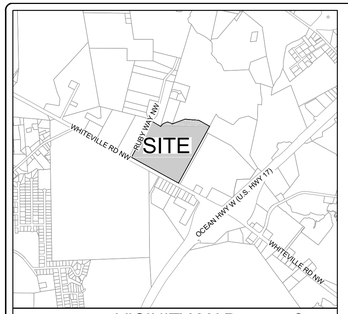
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 04/16/20
SCALE: N.T.S.
DESIGNED: AEC
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
04/16/20

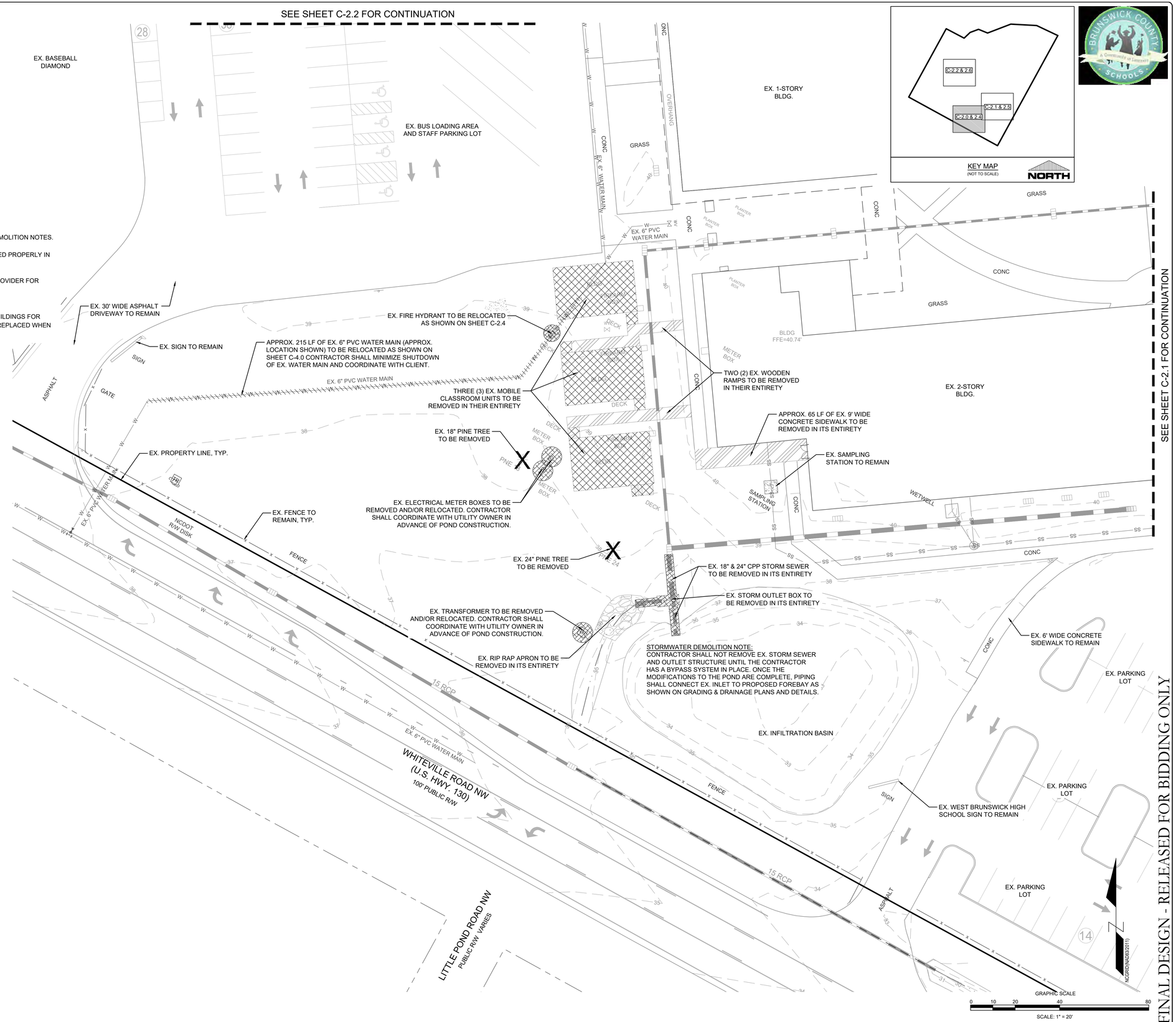
C-1.1

PEI JOB#: 19249.PE



VICINITY MAP
SCALE: 1" = 2,000'
NORTH

KEY MAP
(NOT TO SCALE)
NORTH



DEMOLITION NOTES:

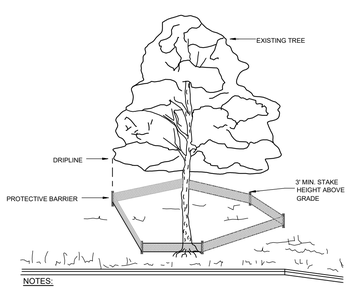
1. CONTRACTOR SHALL REFER TO SHEET C-1.0 GENERAL NOTES FOR DEMOLITION NOTES.
2. ALL UTILITIES SHALL BE ABANDONED AND/OR DEMOLISHED AND CAPPED PROPERLY IN ACCORDANCE WITH THE UTILITY OWNERS RULES AND REGULATIONS.
3. CONTRACTOR SHALL COORDINATE WITH ELECTRIC UTILITY OWNER/PROVIDER FOR DEMOLITION AND/OR REQUIRED RELOCATION.

EX. VEGETATION NOTES:

1. CONTRACTOR SHALL REMOVE SHRUBS AS NECESSARY ALONG THE BUILDINGS FOR CONSTRUCTION AS LONG AS THE SAME QUANTITY AND SPECIES ARE REPLACED WHEN CONSTRUCTION IS COMPLETE.

SYMBOLS LEGEND

	EXISTING CONCRETE TO BE REMOVED
	EXISTING ASPHALT TO BE REMOVED
	EXISTING UTILITY LINE TO BE REMOVED
	EXISTING STORM STRUCTURE TO BE REMOVED
	EXISTING SIGN/LIGHT/UTILITY POLE TO BE REMOVED
	EXISTING FENCE TO BE REMOVED
TP TP	TREE PROTECTION FENCING
X	EXISTING TREE/SHRUBS TO BE REMOVED
	EXISTING BUILDING/STRUCTURE TO BE REMOVED



NOTES:

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- INSTALLATION OF PROTECTION FENCING IS REQUIRED PRIOR TO LAND DISTURBING ACTIVITY AND IS TO BE MAINTAINED UNTIL AFTER FINAL SITE INSPECTION
- FENCING SHALL BE INSTALLED AT THE DRIPLINE OR AT THE BOUNDARY OF THE CRITICAL ROOT ZONE, WHICHEVER IS GREATER.
  DRIP LINE - THE AREA OF SOIL DIRECTLY BENEATH THE TREE EXTENDING OUT TO THE TIPS OF THE OUTERMOST BRANCHES.
  CRITICAL ROOT ZONE - 1' RADIUS FROM THE TREE TRUNK PER 1" CALIPER

(A) METHOD OF TREE PROTECTION DURING CONSTRUCTI0N
NTS

811 Know what's below. Call before you dig.

REVISIONS:

CLIENT INFORMATION:

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WILMINGTON, NC 28403

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NC License #: C-2846

DEMOLITION PLAN

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

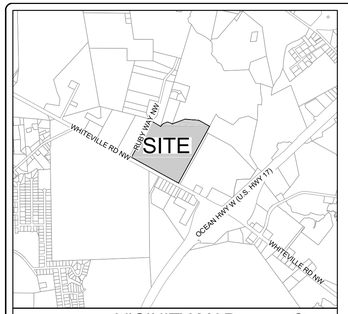
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 04/16/20
SCALE: 1" = 20'
DESIGNED: AEC
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

C-2.0

PEI JOB#: 19249.PE



VICINITY MAP
SCALE: 1" = 2,000'
NORTH

KEY MAP
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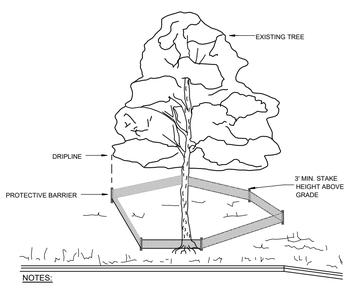

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DEMOLITION PLAN

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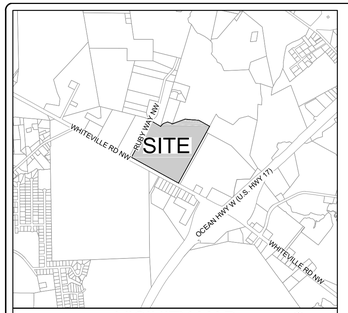
04/16/20

C-2.1

PEI JOB#: 19249.PE



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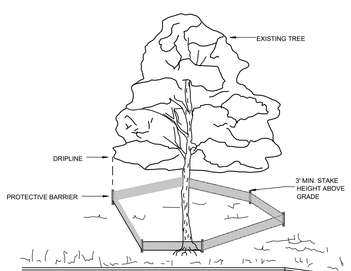

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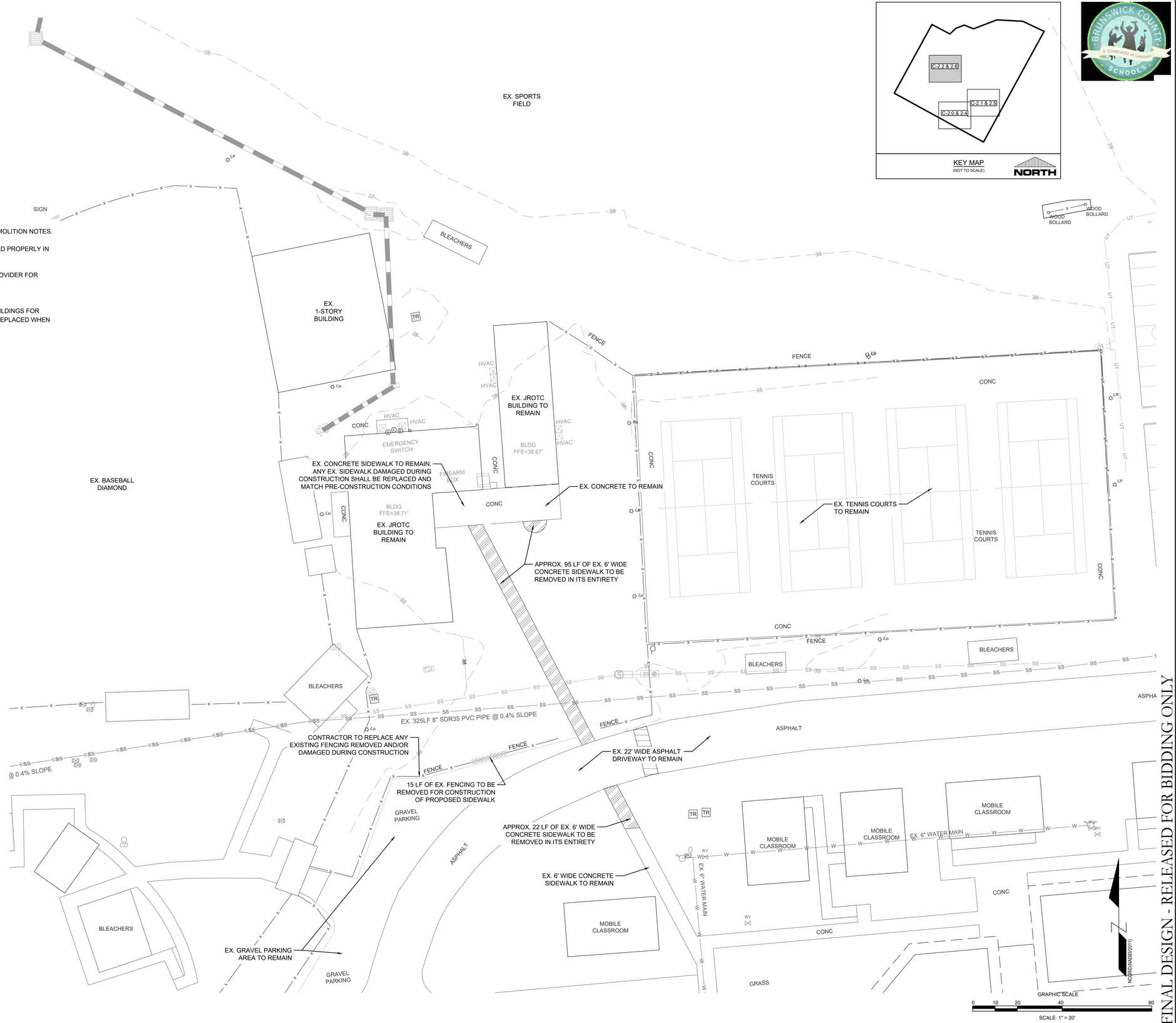

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(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DEMOLITION PLAN

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

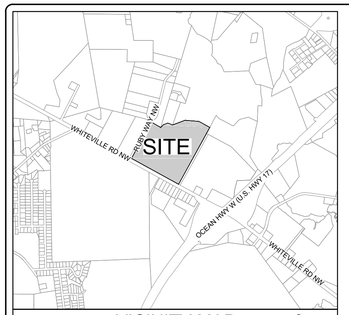
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST.:

DRAWING INFORMATION
DATE: 04/16/20
SCALE: 1" = 20'
DESIGNED: AEC
DRAWN: AEC
CHECKED: RPB

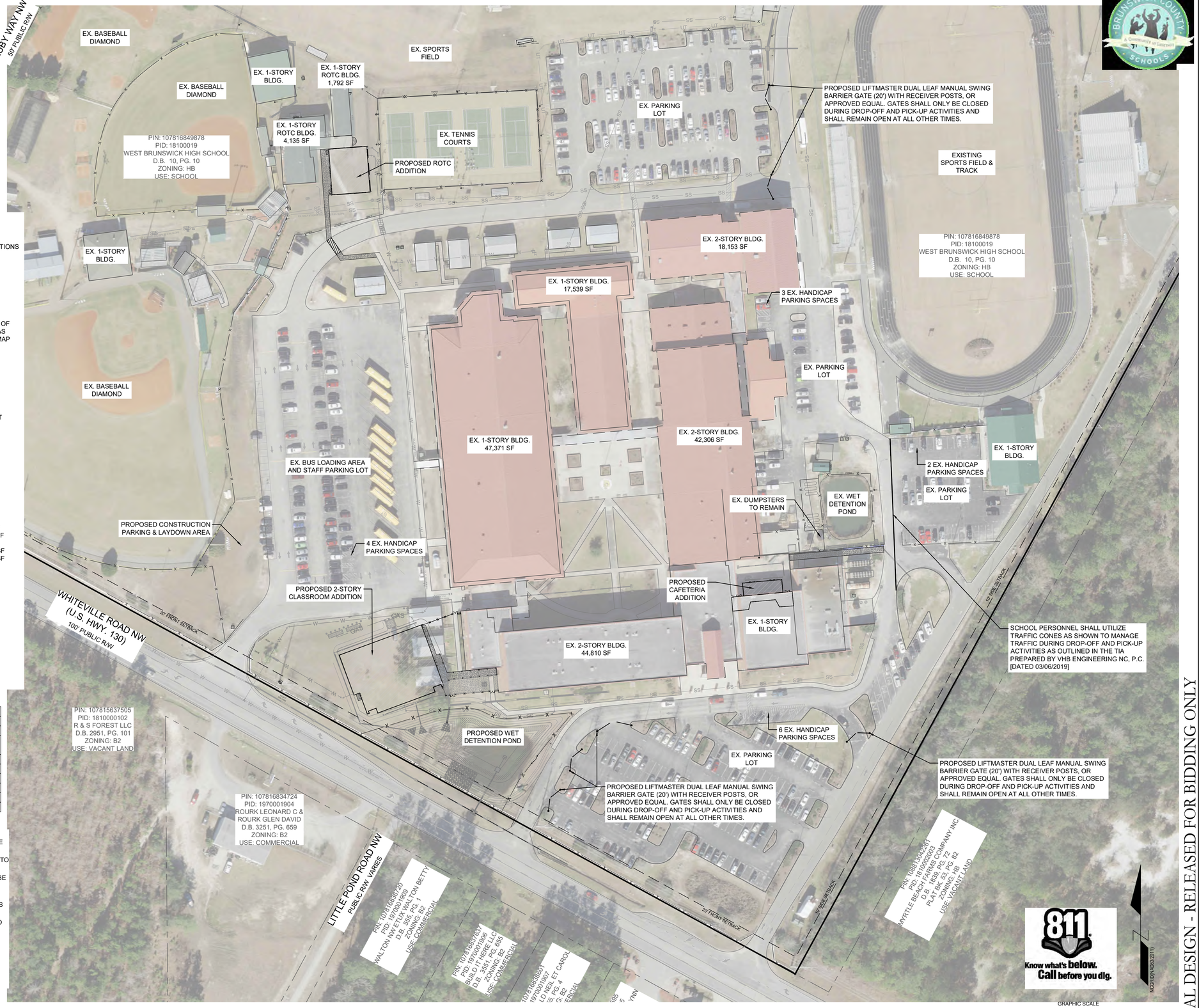
SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

C-2.2

PEI JOB#: 19249.PE



VICINITY MAP
SCALE: 1" = 2,000'
NORTH



SITE INFORMATION

OWNER INFORMATION:	BRUNSWICK COUNTY SCHOOLS 35 REFERENDUM DRIVE NE BOLIVIA, NC 28422
PROJECT NAME:	W. BRUNSWICK HIGH SCHOOL ADDITIONS
PROJECT ADDRESS:	550 WHITEVILLE ROAD N.W. SHALLOTTE, NC 28470
PARCEL ID:	18100019
PARCEL PIN:	107816849878
RECORDED DEED BOOK:	BK 238, PG 458
CURRENT ZONING:	HB
EXISTING USE:	HIGH SCHOOL
PROPOSED USE:	HIGH SCHOOL
TOTAL SITE AREA:	53.58 AC
FLOOD INFORMATION:	THIS PARCEL LIES WITHIN AN AREA OF MINIMAL FLOOD HAZARD (ZONE X) AS INDICATED BY FEMA FLOOD ZONE MAP NUMBER 3720107800K BEARING AN EFFECTIVE DATE OF 08/28/2018.

PARKING INFORMATION

PER SECTION 20-6 OF SHALLOTTE UNIFIED DEVELOPMENT ORDINANCE:

USE TYPE:	SCHOOL & EMPLOYEE BUS TRANS.
MIN. # OF PARKING SPACES REQ'D:	N/A
MAX. # OF PARKING SPACES REQ'D:	N/A
*EX. PARKING PROVIDED:	533 SPACES
HANDICAP PARKING REQ'D:	2% OF TOTAL PARKING IN EACH LOT 11 SPACES TOTAL REQ'D
HANDICAP PARKING PROVIDED:	15 SPACES

*NUMBER OF EX. PARKING IS APPROX. AND ESTIMATED USING AERIAL IMAGES
NO CHANGES TO EX. PARKING PROPOSED

IMPERVIOUS INFORMATION

EXISTING IMPERVIOUS

EX. IMPERVIOUS TOTAL	805,202 SF (18.48 AC)
EX. IMPERVIOUS TO BE REMOVED	9,609 SF (0.22 AC)

PROPOSED IMPERVIOUS WITH THIS PROJECT

	DA #1	DA #4	DA #5
ON-SITE ASPHALT	0 SF	0 SF	0 SF
SIDEWALKS	550 SF	2,530 SF	824 SF
BUILDINGS	3,000 SF	9,738 SF	1,997 SF
FUTURE	4,558 SF	11,500 SF	0 SF
TOTAL PROPOSED	8,108 SF	23,768 SF	2,821 SF
NEW IMPERVIOUS	3,550 SF	23,768 SF	2,821 SF

TOTAL PROPOSED IMPERVIOUS (ENTIRE SITE) = 822,590 SF (18.88 AC)
IMPERVIOUS PERCENTAGE = 822,590 SF / 2,342,016 SF = 35.1%

SEE EXHIBIT DA-MAP FOR BREAKDOWN OF STORMWATER DRAINAGE AREAS

BUILDING SETBACKS

	REQUIRED	PROVIDED
FRONT	20'	29' (SEE PLANS)
SIDE	10'	237'
REAR	20'	705'

(PROVIDED SETBACKS SHOWN HERE ARE FOR PROPOSED ADDITIONS ONLY)

BUILDING COVERAGE

COVERAGE SHOWN HERE IS FOR ENTIRE SITE

ALLOWABLE	80%
PROVIDED	200,835 SF / 2,333,945 SF = 8.60%

BUILDING INFORMATION FOR PROPOSED ADDITIONS*

	CLASSROOM ADDITION	CAFETERIA ADDITION	ROTC ADDITION
BUILDING AREAS			
EXISTING	0 SF	10,597 SF	5,927 SF
PROPOSED	1ST FLOOR - 9,738 SF 2ND FLOOR - 9,738 SF	1,829 SF	3,000 SF
TOTAL GFA	19,476 SF	12,426 SF	8,927 SF
HEIGHTS / STORIES			
ALLOWABLE	55' / 2	55' / 2	55' / 2
PROPOSED	30'-8" / 2	18' / 1	15' / 1
CONSTRUCTION TYPE	II-B	I-B	V-B
SPRINKLER SYSTEM?	NO	NO	NO

*SEE ARCHITECTURAL PLANS FOR INFORMATION OF ALL OTHER EXISTING BUILDINGS

GENERAL NOTES

1. ALL PAVEMENT MARKINGS IN PUBLIC RIGHTS-OF-WAY AND FOR DRIVEWAYS ARE TO BE THERMOPLASTIC AND MEET TOWN AND/ OR NCDOT STANDARDS.
2. ALL SIGNS AND PAVEMENT MARKINGS IN AREAS OPEN TO PUBLIC TRAFFIC ARE TO MEET MUTCD STANDARDS.
3. ALL TRAFFIC CONTROL SIGNS AND MARKINGS OFF THE RIGHT OF WAY ARE TO BE MAINTAINED BY THE PROPERTY OWNER IN ACCORDANCE WITH MUTCD STANDARDS.
4. ALL PARKING STALL MARKINGS AND LANE ARROWS WITHIN THE PARKING AREAS SHALL BE WHITE.
5. NO LANDSCAPE IMPROVEMENTS ARE REQUIRED PER TOWN OF SHALLOTTE UDO ARTICLE 17.
6. REFER TO THE WEST BRUNSWICK HIGH SCHOOL TRAFFIC OPERATIONS STUDY PREPARED BY VHB ENGINEERING [DATED 03/06/2019] FOR SPECIFIC TRAFFIC RELATED IMPROVEMENTS REQUIRED AND THE TRAFFIC IMPACT ANALYSIS.

SOLID WASTE DISPOSAL

EXISTING DUMPSTERS TO REMAIN AS-IS.

FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

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OVERALL SITE PLAN

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BRUNSWICK COUNTY, NC 28470

PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION

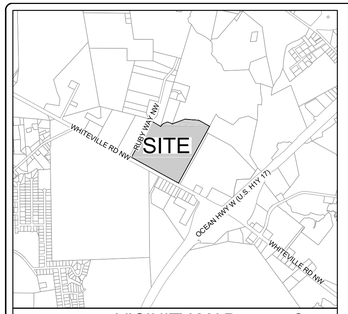
DATE:	04/16/20
SCALE:	1" = 60'
DESIGNED:	AEC
DRAWN:	AEC
CHECKED:	RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

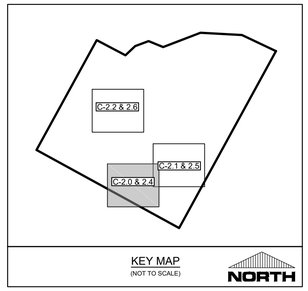
C-2.3

PEI JOB#: 19249.PE

SEE SHEET C-2.6 FOR CONTINUATION



VICINITY MAP
SCALE: 1" = 2,000'
NORTH



KEY MAP
(NOT TO SCALE)
NORTH

Know what's below. Call before you dig.

4 EX. HANDICAP PARKING SPACES

EX. BUS LOADING AREA AND STAFF PARKING LOT

PROPOSED CONSTRUCTION PARKING & LAYDOWN AREA

EX. 1-STORY BLDG.

PROPOSED RELOCATED HYDRANT

PROPOSED 10'x10' CONCRETE PAD FOR ELECTRICAL TRANSFORMER (SEE ELECTRICAL PLANS FOR FURTHER DETAILS)

PROPOSED (2) 20'x5' CONCRETE PADS FOR PROPANE TANKS (SEE PLUMBING & MECHANICAL PLANS FOR FURTHER DETAILS)

PROPOSED FENCING WITH BRICK COLUMN WRAP POSTS. SEE ARCHITECTURAL PLANS FOR DETAILS.

EX. 30' WIDE ASPHALT DRIVEWAY TO REMAIN

EX. SIGN TO REMAIN

EX. 6' WIDE CONCRETE SIDEWALK TO REMAIN AND TIE INTO PROPOSED CONCRETE SIDEWALK

20' FRONT SETBACK

PROPOSED CONCRETE COURTYARD. AMOUNT APPROX. 1,200 SF BID ALTERNATE - PAVERS

PROPOSED 10' WIDE CONCRETE SIDEWALK WITH PRE-ENGINEERED CANOPY ABOVE (DESIGNED BY OTHERS). SEE ARCHITECTURAL PLANS FOR DETAILS.

EX. 2-STORY BLDG.

PROPOSED 2-STORY CLASSROOM ADDITION
1ST FLOOR = 9,738 SF GFA
2ND FLOOR = 9,738 GFA
GROSS SF = 19,476 SF
HEIGHT = 30'-8"
FFE = 40.50

EX. PROPERTY LINE, TYP.

EX. 6' WIDE CONCRETE SIDEWALK TO REMAIN AND TIE INTO PROPOSED CONCRETE SIDEWALK

EX. 18" PINE TREE TO BE REMOVED

EX. 24" PINE TREE TO BE REMOVED

EX. FENCE TO REMAIN, TYP.

PROPOSED FENCING WITH BRICK COLUMN WRAP POSTS. SEE ARCHITECTURAL PLANS FOR DETAILS.

PROPOSED LIFTMASTER DUAL LEAF MANUAL SWING BARRIER GATE (20') WITH RECEIVER POSTS, OR APPROVED EQUAL. GATES SHALL ONLY BE CLOSED DURING DROP-OFF AND PICK-UP ACTIVITIES AND SHALL REMAIN OPEN AT ALL OTHER TIMES.

EX. 6' WIDE CONCRETE SIDEWALK TO REMAIN

PROPOSED WET DETENTION POND

PROPOSED 4' HIGH BLACK VINYL CHAIN LINK FENCE WITH 12' WIDE GATE AND OWNER PROVIDED PADLOCK

EX. 20' WIDE ASPHALT DRIVEWAY TO REMAIN

EX. PARKING LOT

EX. WEST BRUNSWICK HIGH SCHOOL SIGN TO REMAIN

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EX. PARKING LOT

WHITEVILLE ROAD NW (U.S. HWY. 130)
100' PUBLIC R/W

LITTLE POND ROAD NW
PUBLIC R/W VARIES

20' FRONT SETBACK

GRAPHIC SCALE
0 10 20 40 80
SCALE: 1" = 20'

SEE SHEET C-2.5 FOR CONTINUATION

FINAL DESIGN - RELEASED FOR BIDDING ONLY

KEY NOTES:

1. LIGHT DUTY ASPHALT PAVING: REFER TO DETAILS
2. CONCRETE SIDEWALK: REFER TO DETAILS
3. STRIPING: PROVIDE 4" WIDE PARKING LOT STRIPING AS SHOWN. USE HIGHWAY MARKING PAINT - WHITE (2 COATS).
4. PROPOSED 4' BLACK VINYL CHAIN LINK FENCE: AS NOTED. SEE DETAILS.
5. PROPOSED 4" CONCRETE BOLLARDS SEE DETAILS

LEGEND:

- PROPOSED ASPHALT OVERLAY
- PROPOSED ASPHALT SECTION
- PROPOSED BUILDING
- PROPOSED ROOF OVERHANG
- PROPOSED CONCRETE
- EXISTING CONCRETE
- PROPOSED FENCE
- PROPOSED TREE PROTECTION FENCE
- EXISTING CONTOURS

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SITE PLAN

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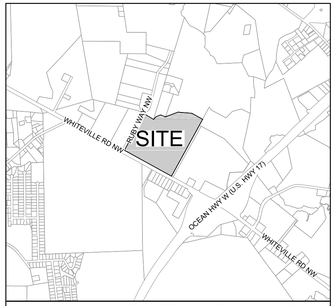
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 04/16/20
SCALE: 1" = 20'
DESIGNED: AEC
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

C-2.4

PEI JOB#: 19249.PE



VICINITY MAP
SCALE: 1" = 2,000'
NORTH

LEGEND:

- PROPOSED ASPHALT OVERLAY
- PROPOSED ASPHALT SECTION
- PROPOSED BUILDING
- PROPOSED ROOF OVERHANG
- PROPOSED CONCRETE
- EXISTING CONCRETE
- PROPOSED FENCE
- TP — PROPOSED TREE PROTECTION FENCE
- 20 — EXISTING CONTOURS

KEY NOTES:

1. LIGHT DUTY ASPHALT PAVING: REFER TO DETAILS
2. CONCRETE SIDEWALK: REFER TO DETAILS
3. STRIPING: PROVIDE 4" WIDE PARKING LOT STRIPING AS SHOWN. USE HIGHWAY MARKING PAINT - WHITE (2 COATS).
4. PROPOSED 4' BLACK VINYL CHAIN LINK FENCE: AS NOTED. SEE DETAILS.
5. PROPOSED 4" CONCRETE BOLLARDS SEE DETAILS

KEY MAP
(NOT TO SCALE)
NORTH

FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

CLIENT INFORMATION:
BECKER MORGAN GROUP
3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

PARAMOUNTE ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

SITE PLAN
W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

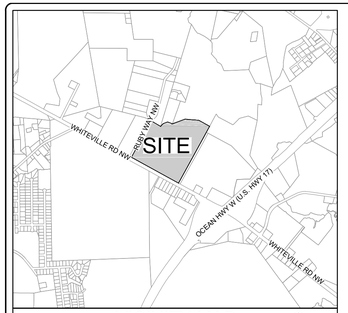
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 04/16/20
SCALE: 1" = 20'
DESIGNED: AEC
DRAWN: AEC
CHECKED: BJS

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLAND
04/16/20

C-2.5

PEI JOB#: 19249.PE



VICINITY MAP
SCALE: 1" = 2,000'
NORTH

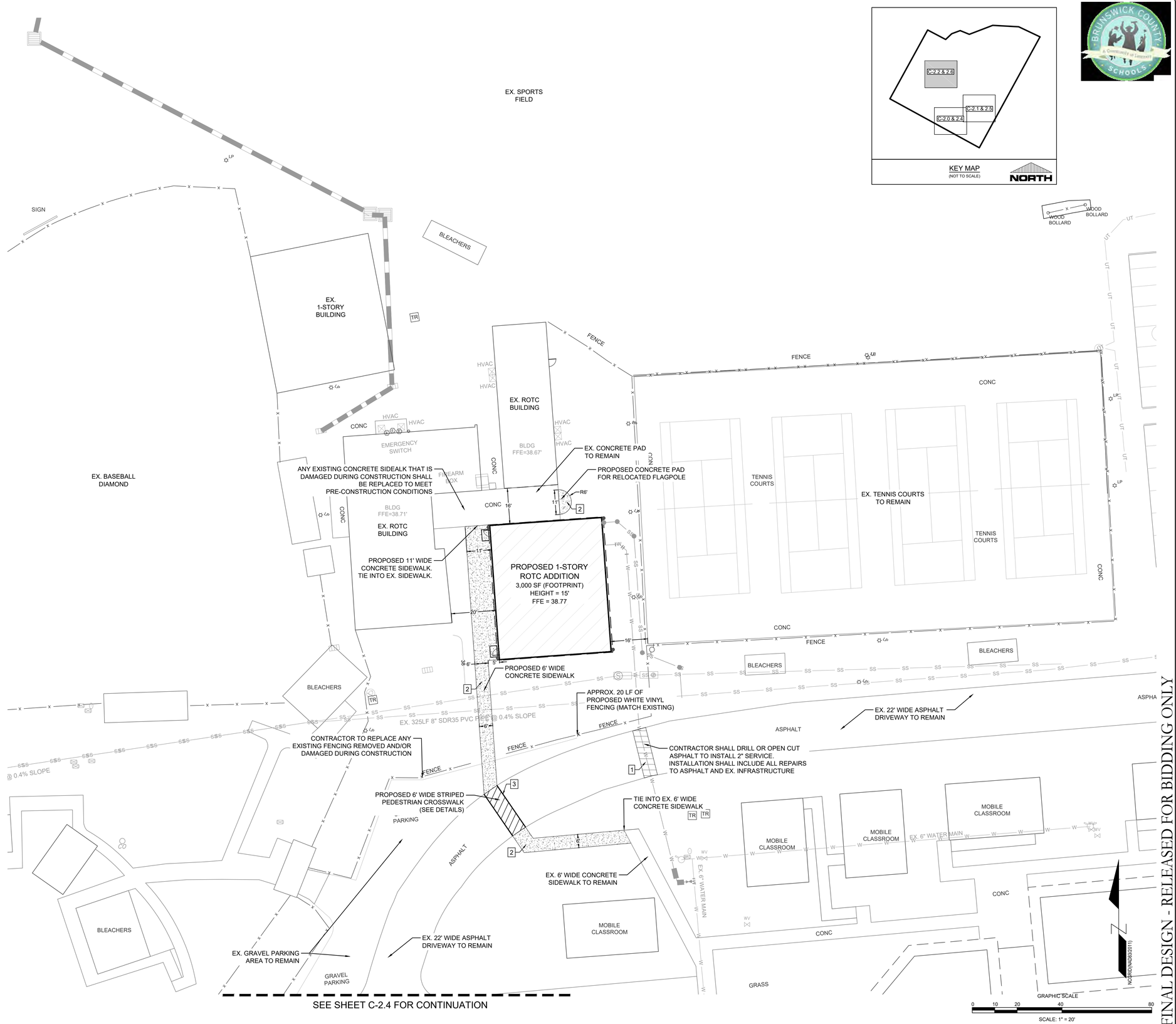
KEY MAP
(NOT TO SCALE)
NORTH

LEGEND:

- PROPOSED ASPHALT OVERLAY
- PROPOSED ASPHALT SECTION
- PROPOSED BUILDING
- PROPOSED ROOF OVERHANG
- PROPOSED CONCRETE
- EXISTING CONCRETE
- PROPOSED FENCE
- PROPOSED TREE PROTECTION FENCE
- EXISTING CONTOURS

KEY NOTES:

1. LIGHT DUTY ASPHALT PAVING: REFER TO DETAILS
2. CONCRETE SIDEWALK: REFER TO DETAILS
3. STRIPING: PROVIDE 4" WIDE PARKING LOT STRIPING AS SHOWN. USE HIGHWAY MARKING PAINT - WHITE (2 COATS).
4. PROPOSED 4' BLACK VINYL CHAIN LINK FENCE: AS NOTED. SEE DETAILS.
5. PROPOSED 4" CONCRETE BOLLARDS SEE DETAILS



SEE SHEET C-2.4 FOR CONTINUATION

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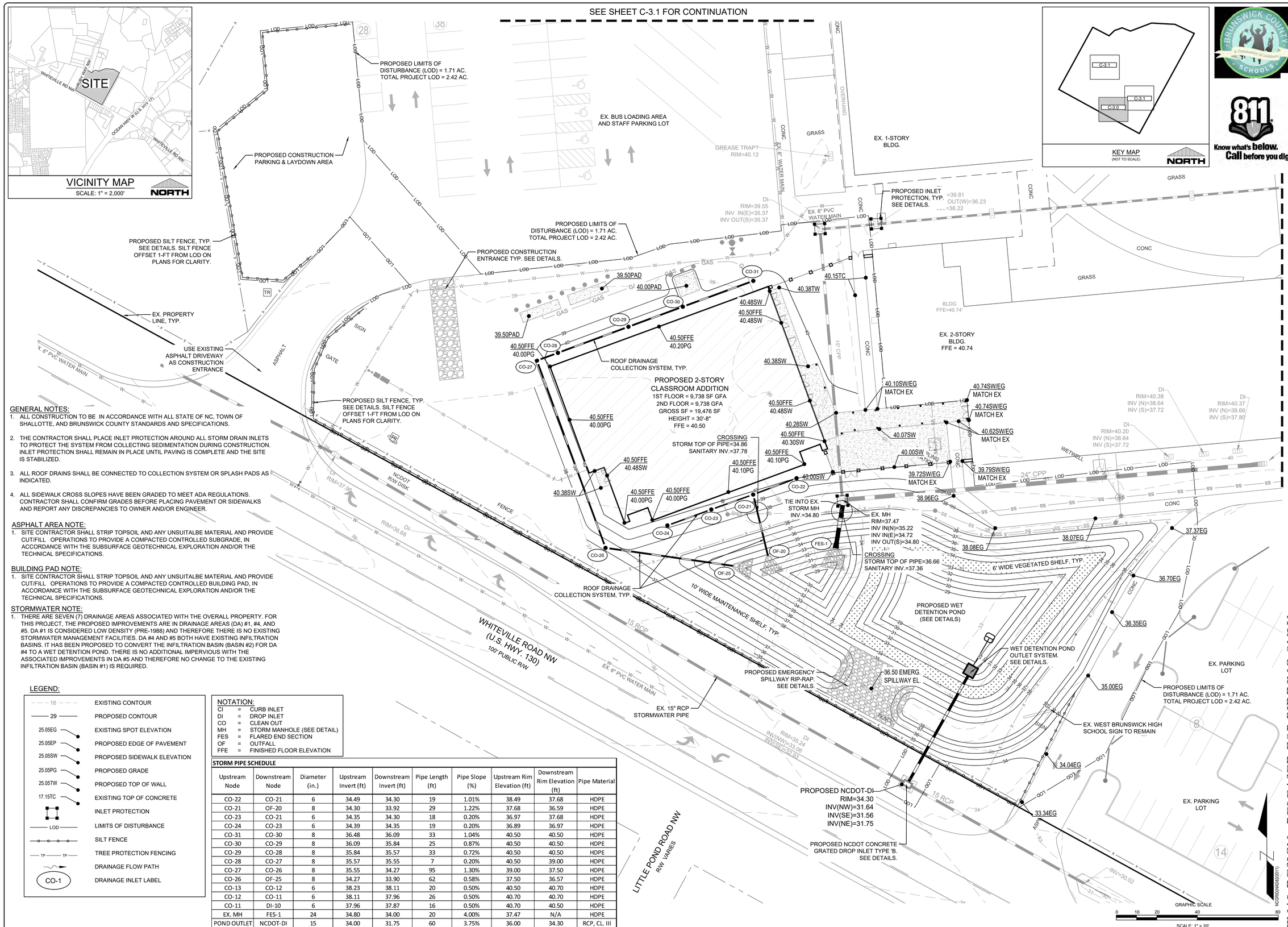
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

C-2.6

PEI JOB#: 19249.PE



GENERAL NOTES:

1. ALL CONSTRUCTION TO BE IN ACCORDANCE WITH ALL STATE OF NC, TOWN OF SHALLOTTE, AND BRUNSWICK COUNTY STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL PLACE INLET PROTECTION AROUND ALL STORM DRAIN INLETS TO PROTECT THE SYSTEM FROM COLLECTING SEDIMENTATION DURING CONSTRUCTION. INLET PROTECTION SHALL REMAIN IN PLACE UNTIL PAVING IS COMPLETE AND THE SITE IS STABILIZED.
3. ALL ROOF DRAINS SHALL BE CONNECTED TO COLLECTION SYSTEM OR SPLASH PADS AS INDICATED.
4. ALL SIDEWALK CROSS SLOPES HAVE BEEN GRADED TO MEET ADA REGULATIONS. CONTRACTOR SHALL CONFIRM GRADES BEFORE PLACING PAVEMENT OR SIDEWALKS AND REPORT ANY DISCREPANCIES TO OWNER AND/OR ENGINEER.

ASPHALT AREA NOTE:

1. SITE CONTRACTOR SHALL STRIP TOPSOIL AND ANY UNSUITALBE MATERIAL AND PROVIDE CUT/FILL OPERATIONS TO PROVIDE A COMPACTED CONTROLLED SUBGRADE, IN ACCORDANCE WITH THE SUBSURFACE GEOTECHNICAL EXPLORATION AND/OR THE TECHNICAL SPECIFICATIONS.

BUILDING PAD NOTE:

1. SITE CONTRACTOR SHALL STRIP TOPSOIL AND ANY UNSUITALBE MATERIAL AND PROVIDE CUT/FILL OPERATIONS TO PROVIDE A COMPACTED CONTROLLED BUILDING PAD, IN ACCORDANCE WITH THE SUBSURFACE GEOTECHNICAL EXPLORATION AND/OR THE TECHNICAL SPECIFICATIONS.

STORMWATER NOTE:

1. THERE ARE SEVEN (7) DRAINAGE AREAS ASSOCIATED WITH THE OVERALL PROPERTY. FOR THIS PROJECT, THE PROPOSED IMPROVEMENTS ARE IN DRAINAGE AREAS (DA) #1, #4, AND #5. DA #1 IS CONSIDERED LOW DENSITY (PRE-1988) AND THEREFORE THERE IS NO EXISTING STORMWATER MANAGEMENT FACILITIES. DA #4 AND #5 BOTH HAVE EXISTING INFILTRATION BASINS. IT HAS BEEN PROPOSED TO CONVERT THE INFILTRATION BASIN (BASIN #2) FOR DA #4 TO A WET DETENTION POND. THERE IS NO ADDITIONAL IMPERVIOUS WITH THE ASSOCIATED IMPROVEMENTS IN DA #5 AND THEREFORE NO CHANGE TO THE EXISTING INFILTRATION BASIN (BASIN #1) IS REQUIRED.

LEGEND:

16	EXISTING CONTOUR
29	PROPOSED CONTOUR
25.05EG	EXISTING SPOT ELEVATION
25.05EP	PROPOSED EDGE OF PAVEMENT
25.05SW	PROPOSED SIDEWALK ELEVATION
25.05PG	PROPOSED GRADE
25.05TW	PROPOSED TOP OF WALL
17.15TC	EXISTING TOP OF CONCRETE
	INLET PROTECTION
LOD	LIMITS OF DISTURBANCE
	SILT FENCE
TP TP	TREE PROTECTION FENCING
	DRAINAGE FLOW PATH
CO-1	DRAINAGE INLET LABEL

NOTATION:

CI	=	CURB INLET
DI	=	DROP INLET
CO	=	CLEAN OUT
MH	=	STORM MANHOLE (SEE DETAIL)
FES	=	FLARED END SECTION
OF	=	OUTFALL
FFE	=	FINISHED FLOOR ELEVATION

STORM PIPE SCHEDULE

Upstream Node	Downstream Node	Diameter (in.)	Upstream Invert (ft)	Downstream Invert (ft)	Pipe Length (ft)	Pipe Slope (%)	Upstream Rim Elevation (ft)	Downstream Rim Elevation (ft)	Pipe Material
CO-22	CO-21	6	34.49	34.30	19	1.01%	38.49	37.68	HDPE
CO-21	OF-20	8	34.30	33.92	29	1.22%	37.68	36.59	HDPE
CO-23	CO-21	6	34.35	34.30	18	0.20%	36.97	37.68	HDPE
CO-24	CO-23	6	34.39	34.35	19	0.20%	36.89	36.97	HDPE
CO-31	CO-30	8	36.48	36.09	33	1.04%	40.50	40.50	HDPE
CO-30	CO-29	8	36.09	35.84	25	0.87%	40.50	40.50	HDPE
CO-29	CO-28	8	35.84	35.57	33	0.72%	40.50	40.50	HDPE
CO-28	CO-27	8	35.57	35.55	7	0.20%	40.50	39.00	HDPE
CO-27	CO-26	8	35.55	34.27	95	1.30%	39.00	37.50	HDPE
CO-26	OF-25	8	34.27	33.90	62	0.58%	37.50	36.57	HDPE
CO-13	CO-12	6	38.23	38.11	20	0.50%	40.50	40.70	HDPE
CO-12	CO-11	6	38.11	37.96	26	0.50%	40.70	40.70	HDPE
CO-11	DI-10	6	37.96	37.87	16	0.50%	40.70	40.50	HDPE
EX. MH	FES-1	24	34.80	34.00	20	4.00%	37.47	N/A	HDPE
POND OUTLET	NCDOT-DI	15	34.00	31.75	60	3.75%	36.00	34.30	RCP, CL. III

FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

CLIENT INFORMATION:

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3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

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GRADING-DRAINAGE-EC PLAN

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

PROJECT STATUS
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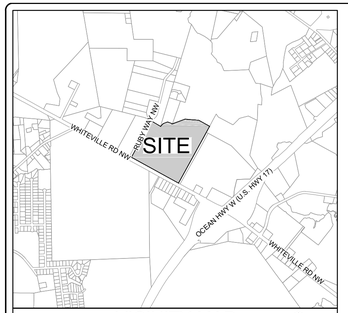
DRAWN:	AEC
CHECKED:	RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

C-3.0

PEI JOB#: 19249.PE



VICINITY MAP
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NOTATION:
CI = CURB INLET
DI = DROP INLET
CO = CLEAN OUT
MH = STORM MANHOLE (SEE DETAIL)
FES = FLARED END SECTION
FFE = FINISHED FLOOR ELEVATION

LEGEND:
- 16 — EXISTING CONTOUR
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- 25.05EG — EXISTING SPOT ELEVATION
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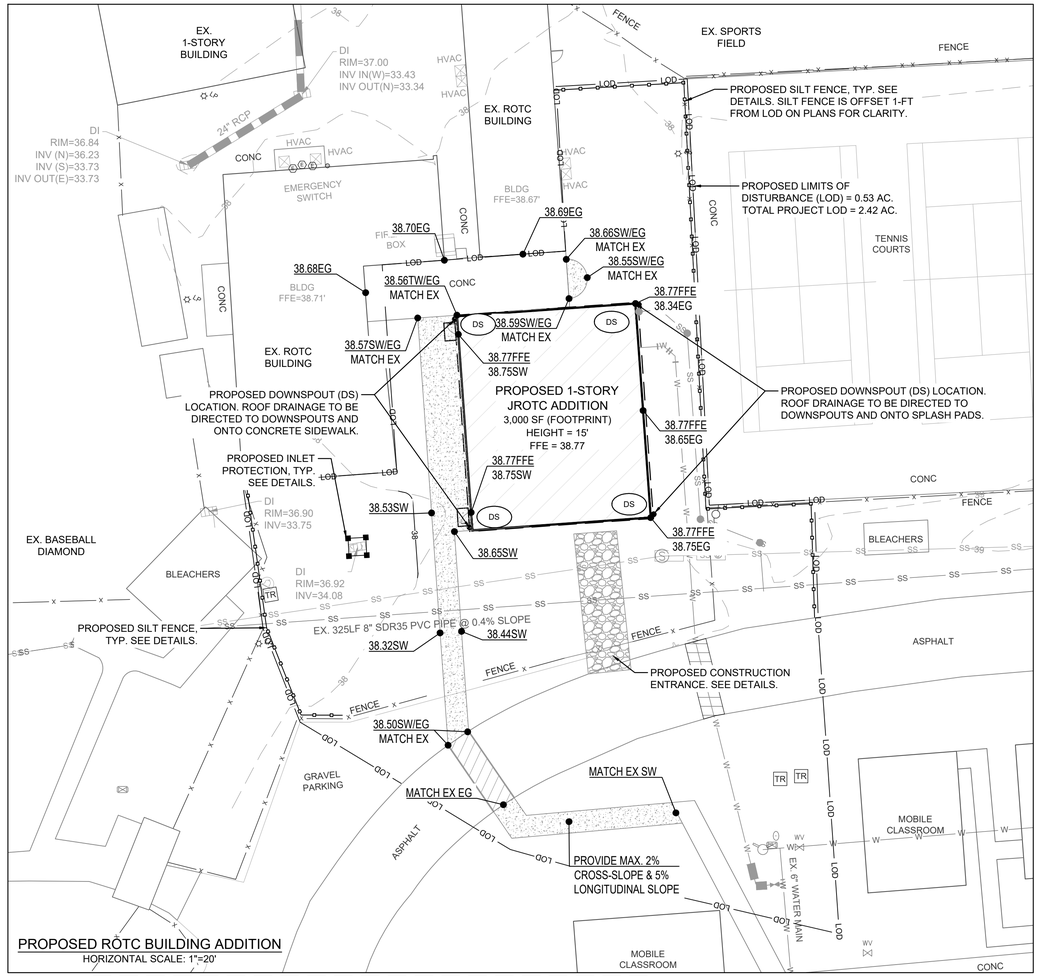
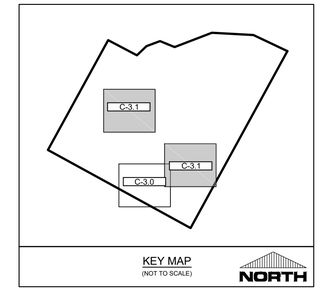
- 17.15TC — EXISTING TOP OF CONCRETE
- INLET PROTECTION
- LOD — LIMITS OF DISTURBANCE
- SILT FENCE
- TP — TREE PROTECTION FENCING
- DRAINAGE FLOW PATH
- CO-1 — DRAINAGE INLET LABEL



PROPOSED ROTC BUILDING ADDITION
HORIZONTAL SCALE: 1"=20'

SEE SHEET C-3.0 FOR CONTINUATION



KEY MAP
(NOT TO SCALE)

Know what's below. Call before you dig.

STORM PIPE SCHEDULE

Upstream Node	Downstream Node	Diameter (in.)	Upstream Invert (ft)	Downstream Invert (ft)	Pipe Length (ft)	Pipe Slope (%)	Upstream Rim Elevation (ft)	Downstream Rim Elevation (ft)	Pipe Material
CO-22	CO-21	6	34.49	34.30	19	1.01%	38.49	37.68	HDPE
CO-21	OF-20	8	34.30	33.92	29	1.22%	37.68	36.59	HDPE
CO-23	CO-21	6	34.35	34.30	18	0.20%	36.97	37.68	HDPE
CO-24	CO-23	6	34.39	34.35	19	0.20%	36.89	36.97	HDPE
CO-31	CO-30	8	36.48	36.09	33	1.04%	40.50	40.50	HDPE
CO-30	CO-29	8	36.09	35.84	25	0.87%	40.50	40.50	HDPE
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CO-28	CO-27	8	35.57	35.55	7	0.20%	40.50	39.00	HDPE
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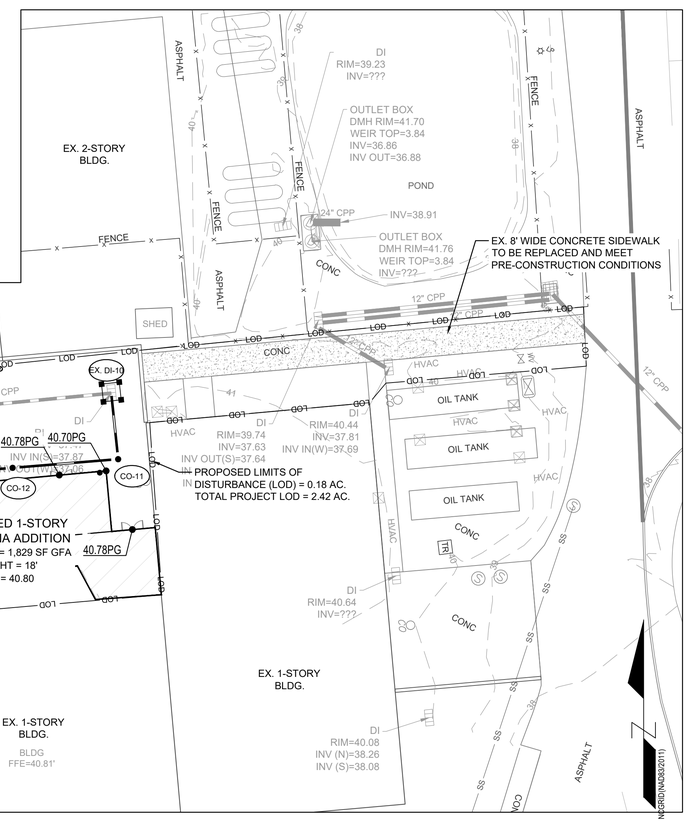
EX. MH	FES-1	24	34.80	34.00	20	4.00%	37.47	N/A	HDPE
POND OUTLET	NCDOT-DI	15	34.00	31.75	60	3.75%	36.00	34.30	RCP, CL. III



SEE SHEET C-3.0 FOR CONTINUATION

PROPOSED CAFETERIA ADDITION
HORIZONTAL SCALE: 1"=20'

GRAPHIC SCALE
0 10 20 40 80
SCALE: 1" = 20'

FINAL DESIGN - RELEASED FOR BIDDING ONLY

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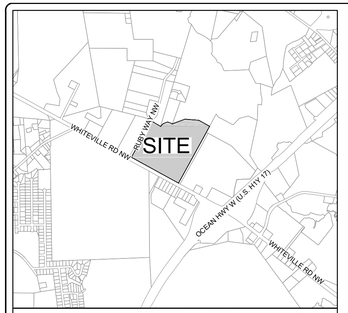
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

C-3.1

PEI JOB#: 19249.PE



VICINITY MAP
SCALE: 1" = 2,000'
NORTH

811 Know what's below. Call before you dig.

SEE SHEET C-4.1 FOR CONTINUATION

KEY MAP
(NOT TO SCALE)
NORTH

SITE INFORMATION

OWNER INFORMATION:	BRUNSWICK COUNTY SCHOOLS 35 REFERENDUM DRIVE NE BOLIVIA, NC 28422
PROJECT NAME:	W. BRUNSWICK HIGH SCHOOL ADDITIONS
PROJECT ADDRESS:	550 WHITEVILLE ROAD N.W. SHALLOTTE, NC 28470
PARCEL ID:	18100019
PARCEL PIN:	107816849878
RECORDED DEED BOOK:	BK 00010, PG 0010
CURRENT ZONING:	HB
EXISTING USE:	HIGH SCHOOL
PROPOSED USE:	HIGH SCHOOL
TOTAL SITE AREA:	53.58 AC (2,333,945 SF)
FLOOD INFORMATION:	THIS PARCEL LIES WITHIN AN AREA OF MINIMAL FLOOD HAZARD (ZONE X) AS INDICATED BY FEMA FLOOD ZONE MAP NUMBER 3720107800K BEARING AN EFFECTIVE DATE OF 08/28/2018.

UTILITY INFORMATION

CONTRACTOR SHALL INSTALL WATER AND SEWER SERVICES IN ACCORDANCE WITH TOWN OF SHALLOTTE AND BRUNSWICK COUNTY STANDARD DETAILS AND SPECIFICATION.

SANITARY SEWER

THIS PROJECT IS PROPOSING A 4" SANITARY SEWER SERVICE FOR BOTH THE ROTC AND CLASSROOM ADDITIONS. THESE SERVICES WILL BE CONNECTING TO THE EXISTING MAINS AND/OR SERVICES AS SHOWN. THERE ARE NO PROPOSED SANITARY SEWER MAINS WITH THIS PROJECT. THERE ARE NO PROPOSED SANITARY SERVICES FOR THE CAFETERIA ADDITION. ALL SANITARY SEWER ALLOCATION PROVIDED BY TOWN OF SHALLOTTE.

WATER

THIS PROJECT IS PROPOSING A 2" DOMESTIC SERVICE FOR THE ROTC BUILDING ADDITION AND A 2" DOMESTIC SERVICE FOR THE CLASSROOM ADDITION. THESE SERVICES WILL BE CONNECTING TO EXISTING WATER MAINS AND/OR SERVICES AS SHOWN. THIS PROJECT IS ALSO PROPOSING TO RELOCATE A PORTION OF AN EX. 6" PVC WATER MAIN AS SHOWN. THERE ARE NO PROPOSED WATER SERVICES FOR THE CAFETERIA ADDITION. ALL DOMESTIC WATER ALLOCATION PROVIDED BY BRUNSWICK COUNTY.

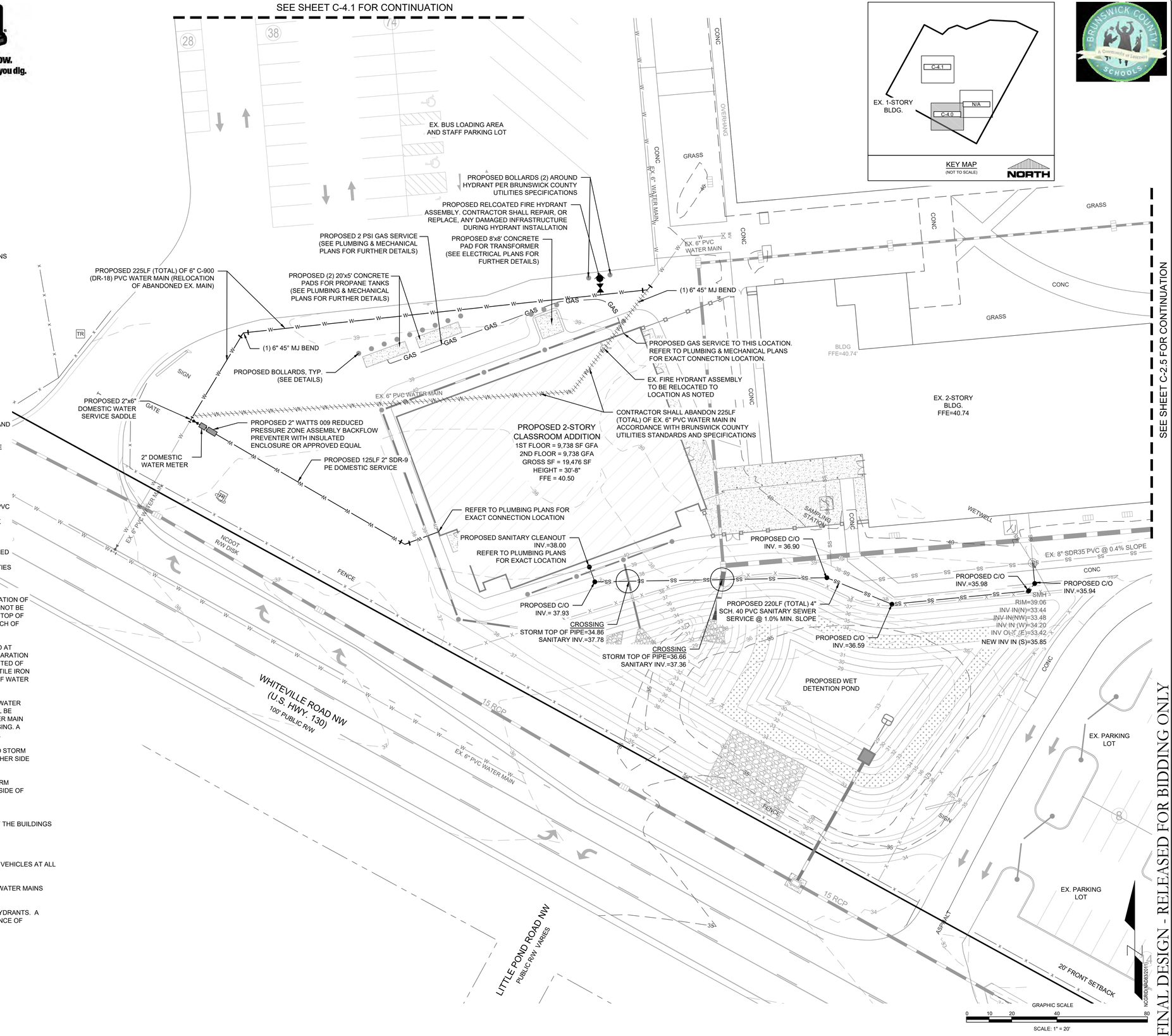
CONTRACTOR TO CONTACT BRUNSWICK COUNTY UTILITIES (WILLIAM PINNIX OR AMY AYCOCK) TO SCHEDULE PRE-CONSTRUCTION MEETING. PRE-CON MUST BE SCHEDULED AND COMPLETED PRIOR TO CONSTRUCTION START. CONTRACTOR TO COORDINATE SHUT DOWN AND RELOCATION OF EX. WATER MAIN WITH BRUNSWICK COUNTY UTILITIES AND BRUNSWICK COUNTY SCHOOLS.

UTILITY NOTES: (NCAC 15A.02T.0305 / T15A.18C.0906)

1. WATER MAINS SHALL BE LAID SO AS TO PROVIDE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET FROM SEWERS. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, THE WATER MAIN CAN BE INSTALLED AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, EITHER IN A SEPARATE TRENCH, OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH.
2. WHEN CROSSING A WATER MAIN OVER A SEWER, THE WATER MAIN SHALL BE LAID AT LEAST 18 INCHES ABOVE THE SEWER. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS THAT MEET WATER MAIN STANDARDS. THE DUCTILE IRON PIPE SHALL EXTEND 10 FEET ON EACH SIDE OF THE CROSSING WITH A SECTION OF WATER MAIN PIPE CENTERED ON THE CROSSING.
3. CROSSING A WATER MAIN UNDER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
4. WHERE VERTICAL CLEARANCE IS LESS THAN 24" BETWEEN SANITARY SEWER AND STORM DRAIN, SANITARY SEWER SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.
5. WHERE VERTICAL CLEARANCE IS LESS THAT 18" BETWEEN WATER MAIN AND STORM DRAIN, WATER MAIN SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.

FIRE & LIFE SAFETY NOTES:

1. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDINGS WITHIN ANY DEVELOPMENT.
2. HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
3. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
4. A MINIMUM OF 4' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER UNDERGROUND UTILITIES.
5. LANDSCAPING OR PARKING CAN NOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT (3') CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF HYDRANTS AND FDC.



SEE SHEET C-2.5 FOR CONTINUATION

FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

CLIENT INFORMATION:
BECKER MORGAN GROUP
3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

PARAMOUNTE ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

UTILITY PLAN

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

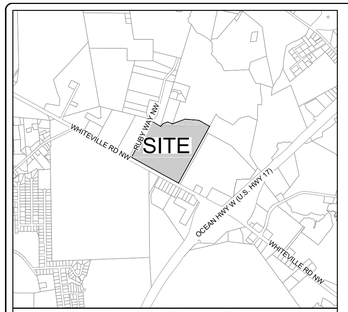
PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 04/16/20
SCALE: 1" = 20'
DESIGNED: AEC
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

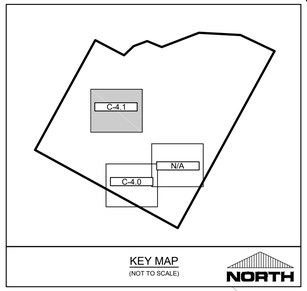
C-4.0

PEI JOB#: 19249.PE



VICINITY MAP
SCALE: 1" = 2,000'
NORTH

811 Know what's below. Call before you dig.



KEY MAP
(NOT TO SCALE)
NORTH

SITE INFORMATION

OWNER INFORMATION:	BRUNSWICK COUNTY SCHOOLS 35 REFERENDUM DRIVE NE BOLIVIA, NC 28422
PROJECT NAME:	W. BRUNSWICK HIGH SCHOOL ADDITIONS
PROJECT ADDRESS:	550 WHITEVILLE ROAD N.W. SHALLOTTE, NC 28470
PARCEL ID:	18100019
PARCEL PIN:	107816849878
RECORDED DEED BOOK:	BK 00010, PG 0010
CURRENT ZONING:	HB
EXISTING USE:	HIGH SCHOOL
PROPOSED USE:	HIGH SCHOOL
TOTAL SITE AREA:	53.58 AC (2,333,945 SF)
FLOOD INFORMATION:	THIS PARCEL LIES WITHIN AN AREA OF MINIMAL FLOOD HAZARD (ZONE X) AS INDICATED BY FEMA FLOOD ZONE MAP NUMBER 3720107800K BEARING AN EFFECTIVE DATE OF 08/28/2018.

UTILITY INFORMATION

CONTRACTOR SHALL INSTALL WATER AND SEWER SERVICES IN ACCORDANCE WITH TOWN OF SHALLOTTE AND BRUNSWICK COUNTY STANDARD DETAILS AND SPECIFICATION.

SANITARY SEWER

THIS PROJECT IS PROPOSING A 4" SANITARY SEWER SERVICE FOR BOTH THE ROTC AND CLASSROOM ADDITIONS. THESE SERVICES WILL BE CONNECTING TO THE EXISTING MAINS AND/OR SERVICES AS SHOWN. THERE ARE NO PROPOSED SANITARY SEWER MAINS WITH THIS PROJECT. THERE ARE NO PROPOSED SANITARY SERVICES FOR THE CAFETERIA ADDITION. ALL SANITARY SEWER ALLOCATION PROVIDED BY TOWN OF SHALLOTTE.

WATER

THIS PROJECT IS PROPOSING A 2" DOMESTIC SERVICE FOR THE ROTC BUILDING ADDITION AND A 2" DOMESTIC SERVICE FOR THE CLASSROOM ADDITION. THESE SERVICES WILL BE CONNECTING TO EXISTING WATER MAINS AND/OR SERVICES AS SHOWN. THIS PROJECT IS ALSO PROPOSING TO RELOCATE A PORTION OF AN EX. 6" PVC WATER MAIN AS SHOWN. THERE ARE NO PROPOSED WATER SERVICES FOR THE CAFETERIA ADDITION. ALL DOMESTIC WATER ALLOCATION PROVIDED BY BRUNSWICK COUNTY.

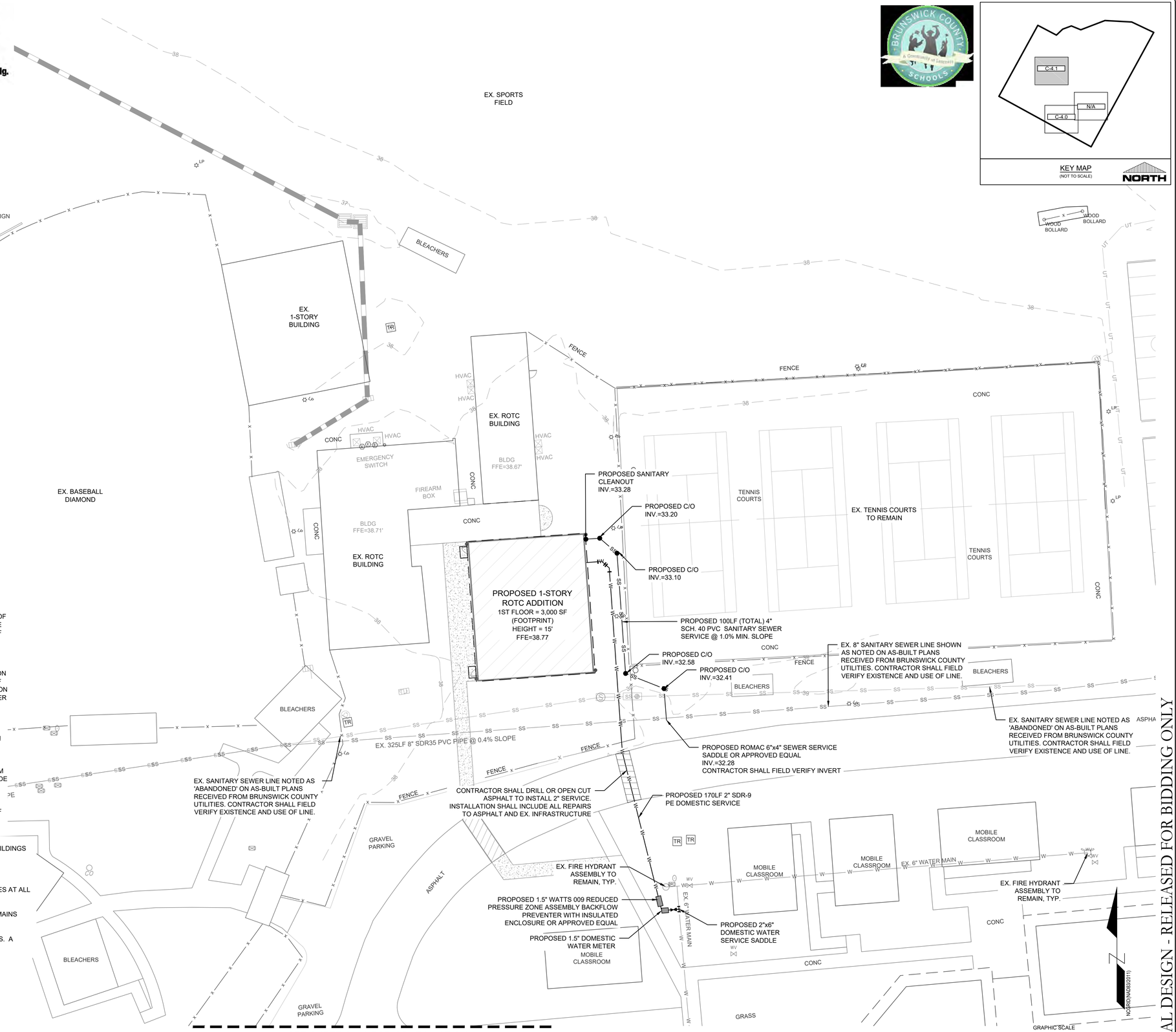
CONTRACTOR TO CONTACT BRUNSWICK COUNTY UTILITIES (WILLIAM PINNIX OR AMY AYCOCK) TO SCHEDULE PRE-CONSTRUCTION MEETING. PRE-CON MUST BE SCHEDULED AND COMPLETED PRIOR TO CONSTRUCTION START. CONTRACTOR TO COORDINATE SHUT DOWN AND RELOCATION OF EX. WATER MAIN WITH BRUNSWICK COUNTY UTILITIES AND BRUNSWICK COUNTY SCHOOLS.

UTILITY NOTES: (NCAC 15A.02T.0305 / T15A.18C.0906)

1. WATER MAINS SHALL BE LAID SO AS TO PROVIDE A MINIMUM HORIZONTAL SEPARATION OF 10 FEET FROM SEWERS. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, THE WATER MAIN CAN BE INSTALLED AT LEAST 18 INCHES ABOVE THE TOP OF THE SEWER, EITHER IN A SEPARATE TRENCH, OR IN THE SAME TRENCH ON A BENCH OF UNDISTURBED EARTH.
2. WHEN CROSSING A WATER MAIN OVER A SEWER, THE WATER MAIN SHALL BE LAID AT LEAST 18 INCHES ABOVE THE SEWER. IF CONDITIONS EXIST SUCH THAT THIS SEPARATION CANNOT BE ACHIEVED, BOTH THE WATER MAIN AND SEWER SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE WITH JOINTS THAT MEET WATER MAIN STANDARDS. THE DUCTILE IRON PIPE SHALL EXTEND 10 FEET ON EACH SIDE OF THE CROSSING WITH A SECTION OF WATER MAIN PIPE CENTERED ON THE CROSSING.
3. CROSSING A WATER MAIN UNDER A SEWER. WHENEVER IT IS NECESSARY FOR A WATER MAIN TO CROSS UNDER A SEWER, BOTH THE WATER MAIN AND THE SEWER SHALL BE CONSTRUCTED OF FERROUS MATERIALS AND WITH JOINTS EQUIVALENT TO WATER MAIN STANDARDS FOR A DISTANCE OF 10 FEET ON EACH SIDE OF THE POINT OF CROSSING. A SECTION OF WATER MAIN PIPE SHALL BE CENTERED AT THE POINT OF CROSSING.
4. WHERE VERTICAL CLEARANCE IS LESS THAN 24" BETWEEN SANITARY SEWER AND STORM DRAIN, SANITARY SEWER SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.
5. WHERE VERTICAL CLEARANCE IS LESS THAT 18" BETWEEN WATER MAIN AND STORM DRAIN, WATER MAIN SHALL BE DUCTILE IRON PIPE FOR A MINIMUM OF 10' EITHER SIDE OF CROSSING AND STORM DRAIN SHALL BE RC PIPE.

FIRE & LIFE SAFETY NOTES:

1. NEW HYDRANTS MUST BE AVAILABLE FOR USE PRIOR TO CONSTRUCTION OF THE BUILDINGS WITHIN ANY DEVELOPMENT.
2. HYDRANTS MUST BE LOCATED WITHIN 8' OF THE CURB.
3. CONTRACTOR SHALL MAINTAIN AN ALL WEATHER ACCESS FOR EMERGENCY VEHICLES AT ALL TIMES DURING CONSTRUCTION.
4. A MINIMUM OF 4' SHALL SEPARATE UNDERGROUND FIRE LINES OR PRIVATE WATER MAINS FROM OTHER UNDERGROUND UTILITIES.
5. LANDSCAPING OR PARKING CAN NOT BLOCK OR IMPEDE THE FDC OR FIRE HYDRANTS. A 3-FOOT (3') CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF HYDRANTS AND FDC.



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SEAL
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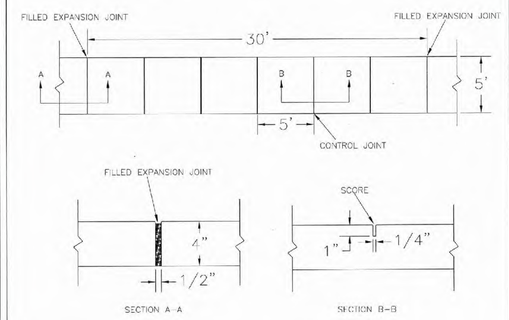
04/16/20

C-4.1

PEI JOB#: 19249.PE

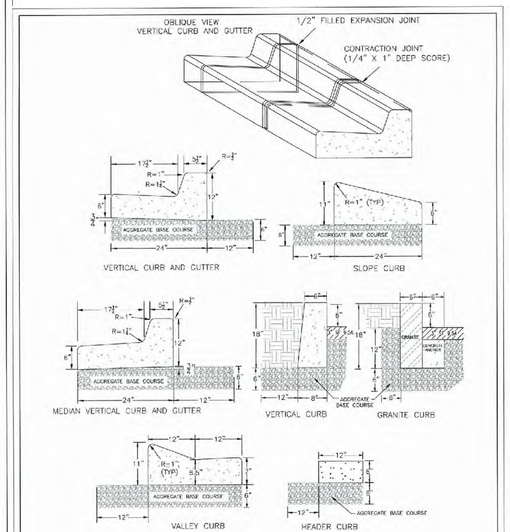


NOTES:

1. JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS.
2. SANITARY SEWER CLEAN-OUTS, WATER METERS, MANHOLES, AND VALVE LIDS TO BE LOCATED OUTSIDE SIDEWALK WHERE FEASIBLE.
3. MINIMUM SIDEWALK WIDTH TO BE 6' MINIMUM IF PLACED AT BACK OF CURB.
4. CONCRETE FOR ALL SIDEWALKS (EXCEPT ANY PORTION CONTAIN WITHIN A DRIVEWAY APRON) SHALL BE CLASS "A" – 3,000 PSI.
5. MINIMUM REPLACEMENT FOR REPAIRS IS A 5' X 5' PANEL
6. 4" STONE BASE MAY BE REQUIRED FOR POOR SOIL CONDITIONS
7. MINIMUM DEPTH FOR TUNNELING BELOW SIDEWALK IS 12"
8. MAX ADJACENT GROUND SLOPE WITHOUT RAILING IS 2:1
9. MIN GRADE FOR PROPER DRAINAGE IS 1% IN AT LEAST 1 DIRECTION. MAX CROSS SLOPE IS 2%. MAX LONGITUDINAL SLOPE IS 8.3%, 10% IF LIMITED BY EXISTING CONDITIONS, OR NO GREATER THAN THE SLOPE OF THE EXISTING ADJACENT ROAD.

TYPICAL SIDEWALK DETAIL

NOT TO SCALE



NOTES:

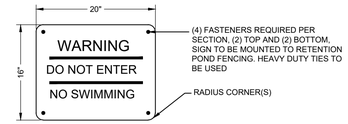
1. EXPANSION JOINT MATERIAL TO COMPLY WITH CURRENT NCDOT STANDARDS
2. 50' MAX. EXPANSION JOINT SPACING, 10' MAX CONTRACTION JOINT SPACING
3. MINIMUM INSTALLATION LENGTH IS 9 FT.
4. CONCRETE TO BE 3000 PSI MIN
5. VERTICAL CURB AND GUTTER BASE CAN BE SLOPED 3/4" OR USE A FLAT BASE

TYPICAL CURBING DETAIL

NOT TO SCALE

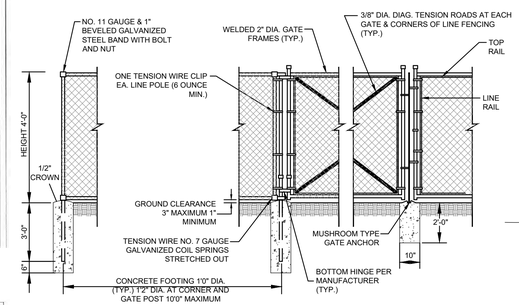
DIMENSIONS AND WEIGHTS: NOMINAL DIAMETER AND MINIMUM WEIGHTS FOR ALL CHAIN LINK POSTS, FRAMES AND GATES SHALL BE IN ACCORDANCE WITH THE FOLLOWING TABLE:

USE AND SECTION	OUTSIDE DIAMETER NOMINAL INCHES	MINIMUM WT. PER FOOT NOMINAL LBS.
END CORNER AND PULL POST (TUBULAR FABRIC HEIGHTS, 6'0" AND LESS: ROUND	2.375	3.65
OVER 6'0": ROUND	2.875	5.79
INTERMEDIATE POST FOR FABRIC HEIGHTS (TUBULAR) 6'0" AND LESS	1.90	2.72
OVER 6'0"	2.375	3.65
RAILS AND POST BRACES	1.66	1.35
GATE POSTS FOR NOMINAL WIDTH OF GATE SINGLE OR ONE LEAF OF DOUBLE GATE WIDTH 6'0" OR LESS: ROUND	2.875	5.79
13'0" OR LESS: ROUND	4.00	9.10
13'0" TO 18'0": ROUND	6.625	18.97
OVER 18'-0"	6.625	24.70
GATE FRAMES 6'0" OR LESS IN HEIGHT 8'0" OR LESS IN WIDTH: ROUND	1.660	1.806
GATE FRAMES OVER 6'0" IN HEIGHT OVER 8'0" IN WIDTH: ROUND	1.90	2.72



GENERAL SPECIFICATIONS:
.080" SINGLE FACE FLAT ALUMINUM DOUBLE PANEL LINEAR WALL SIGN WITH VINYL GRAPHICS IN COLORS AS SHOWN

COLORS:
BACKGROUND - GREEN (TBD)
LETTERING - WHITE



FENCING

A. FENCING SHALL CONFORM TO DETAIL SHOWN AND THE CURRENT STANDARDS ESTABLISHED BY THE CHAIN LINK FENCE MANUFACTURERS INSTITUTE.

B. FRAMES SHALL CONSIST OF CLFMI TYPE 1 MATERIALS SIZED TO ACCOMMODATE THE SPANS REQUIRED POSTS SHALL BE OF STANDARD WEIGHT, HOT DIPPED GALVANIZED PIPE CONFORMING TO ASTM A-120 SCHEDULE 40 FOR CORNER AND GATE POSTS, AND SCHEDULE 20 FOR LINE AND TOP RAILS.

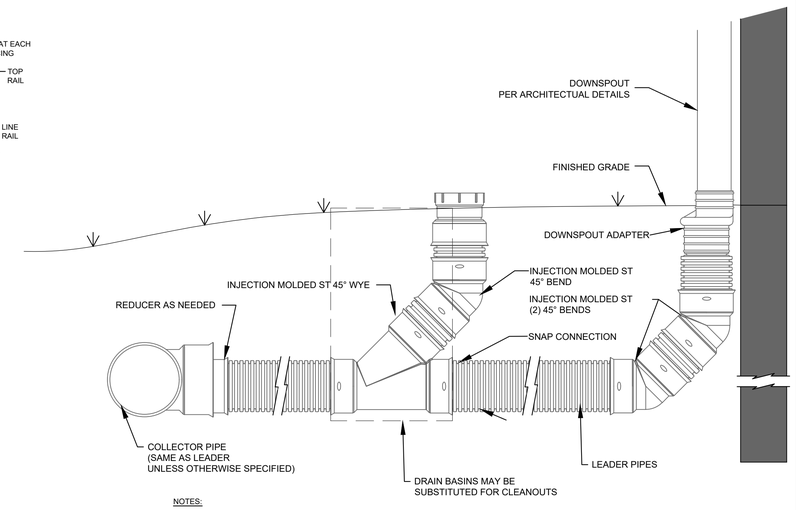
C. GATE FRAMES SHALL BE FABRICATED OF GALVANIZED STEEL AND SIZED TO ACCOMMODATE SPANS REQUIRED. GATES SHALL BE SWING TYPE, SUPPORTED WITH TENSION BARS AND BRACING AS REQUIRED. GATE POSTS SHALL BE SIZED TO ADEQUATELY SUPPORT THE GATE OVER THE SPAN SHOWN ON THE PLANS. GATE POSTS, GATE HINGES, GATE STOPS AND LATCHES SHALL BE OF ADEQUATE STRENGTH FOR THE GATE PROVIDED AND LATCHES SHALL BE SUITABLE FOR SECURING WITH A PADLOCK PROVIDED BY CLIENT.

D. EACH SWING GATE WITHIN ASPHALT AREA SHALL INCLUDE A GALVANIZED WHEEL ASSEMBLY CAPABLE OF SUPPORTING THE SWING GATE AND A GALVANIZED DROP ROD FOR SECURING THE GATE IN THE OPEN AND CLOSED POSITON.

E. FENCE FABRIC SHALL BE 2 INCH MESH, 9-GAUGE CHEMICALLY CLEANED AND ZINC COATED, BLACK VINYL, CONFORMING TO ASTM A-392 FOR CLASS 2 FABRIC.

CHAIN LINK FENCE DETAIL

NOT TO SCALE



NOTES:

1) FOR ALL DEPTHS OF COVER LESS THAN TWO (2) FEET, PIPE MUST BE SCHEDULE 40 PVC. FOR DEPTHS OF COVER GREATER THAN TWO (2) FEET, FLEXIBLE PIPE MAY BE USED.

2) THE DOWNSPOUT COLLECTOR DRAIN SHALL BE INSTALLED BEFORE THE DOWNSPOUTS ARE INSTALLED ON THE BUILDING. SITE WORK CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE PIPE LOCATIONS WITH DOWNSPOUTS PER THE ARCHITECTURE PLANS. BUILDING CONTRACTOR IS NORMALLY RESPONSIBLE FOR FOR EXTENDING DOWNSPOUT THROUGH CAP.

3) INSTALL PIPES CLEAR OF PORCHES, BOLLARDS, AND OTHER BUILDING APPURTENANCES.

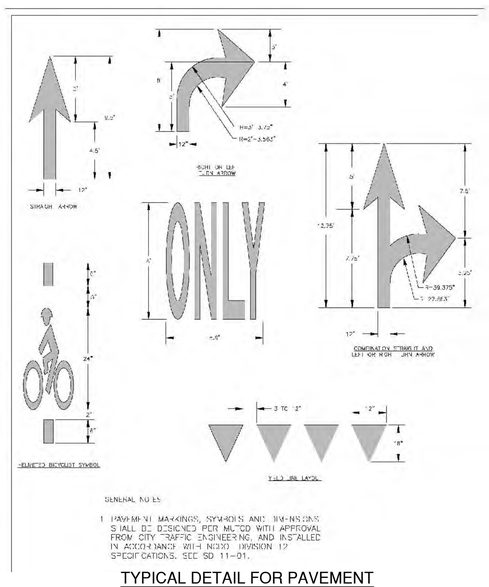
4) POP-UP DRAIN EMITTERS MAY BE USED AT THE END OF LEADER PIPES AS LONG AS WATER DRAINS TOWARD THE PERMITTED STORMWATER DEVICE AFTER SURFACING.

5.) STONE MAY BE ADDED AROUND PIPES FOR SOIL DRAINAGE AS WELL AS PIPE STRUCTURAL STABILITY.

Schedule	
Downspout	Leader Pipe
2" x 3"	6" Dia.
3" x 4"	6" Dia.
4" x 5"	8" Dia.
5" x 5"	8" Dia.
6" x 6"	12" Dia.
3"/4" Dia.	6" Dia.
5"/6" Dia.	8" Dia.

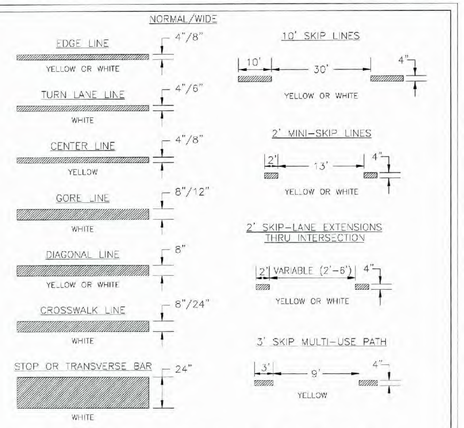
TYPICAL ROOF DRAINAGE WITH CLEANOUT

NOT TO SCALE



TYPICAL DETAIL FOR PAVEMENT MARKINGS & SYMBOLS

NOT TO SCALE



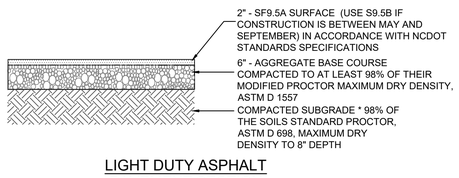
1-PAVEMENT MARKINGS AND SYMBOLS SHALL BE DESIGNED PER MUTCD WITH APPROVAL FROM CITY TRAFFIC ENGINEERING, AND INSTALLED IN ACCORDANCE WITH NCDOT DIVISION 12 SPECIFICATIONS.

2-GENERALLY, PERMANENT MARKINGS WILL BE UNIFORM AND SMOOTH AND WILL CONSIST OF 120MIL OF THERMOPLASTIC FOR ALL LINES AND SYMBOLS; TEMPORARY MARKINGS SHALL CONSISTS OF 15 MIL PAINT, EVERY 6 MONTHS.

3-DURING APPLICATION THE EXISTING PAVEMENT SHALL NOT SHOW SIGNS OF MOISTURE AND BE CLEAN, FREE OF DIRT AND OIL, ETC. THERMOPLASTIC SHALL ONLY BE INSTALLED WHERE PAVEMENT IS 50° F AND RISING. PAINT SHALL ONLY BE INSTALLED WHERE PAVEMENT IS 40° F AND RISING.

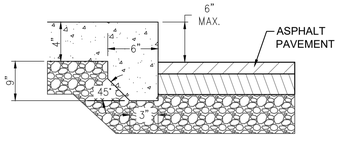
TYPICAL DETAIL FOR PAVEMENT MARKINGS LINE TYPES

NOT TO SCALE



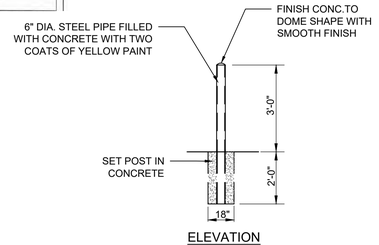
LIGHT DUTY ASPHALT PAVEMENT SECTION

N.T.S.



EXPOSED FACE CONCRETE WALK TO ASPHALT DETAIL

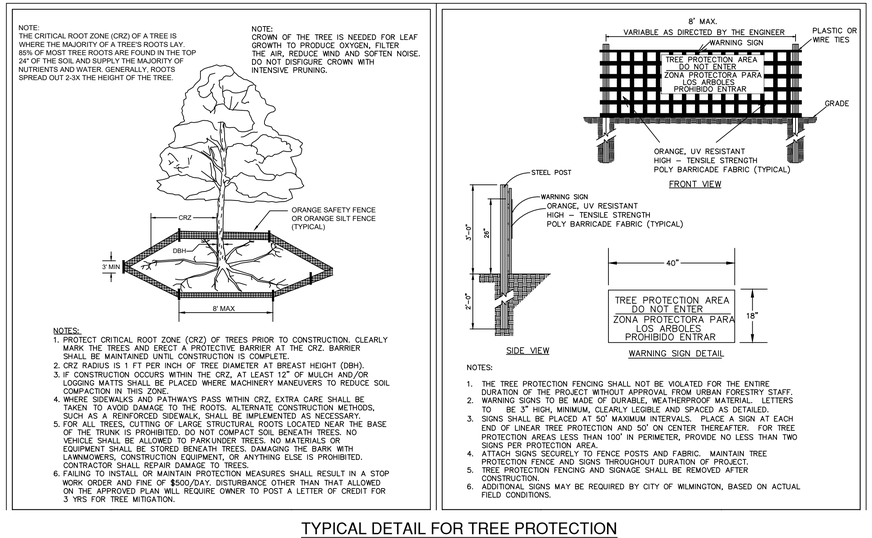
NOT TO SCALE



ELEVATION

CONCRETE BOLLARD DETAIL

NOT TO SCALE



NOTES:

1. PROTECT CRITICAL ROOT ZONE (CRZ) OF TREES PRIOR TO CONSTRUCTION. CLEARLY MARK THE TREES AND ERECT A PROTECTIVE BARRIER AT THE CRZ. BARRIER SHALL BE MAINTAINED UNTIL CONSTRUCTION IS COMPLETE.
2. CRZ RADIUS IS 1 FT PER INCH OF TREE DIAMETER AT BREAST HEIGHT (DBH).
3. IF CONSTRUCTION OCCURS WITHIN THE CRZ, AT LEAST 12" OF MULCH AND/OR LOGGING MATTS SHALL BE PLACED WHERE MACHINERY MANEUVERS TO REDUCE SOIL COMPACTION IN THIS ZONE.
4. WHERE SIDEWALKS AND PATHWAYS PASS WITHIN CRZ, EXTRA CARE SHALL BE TAKEN TO AVOID DAMAGE TO THE ROOTS. ALTERNATE CONSTRUCTION METHODS, SUCH AS A REINFORCED SIDEWALK, SHALL BE IMPLEMENTED AS NECESSARY.
5. FOR ALL TREES, CUTTING OF LARGE STRUCTURAL ROOTS LOCATED NEAR THE BASE OF THE TRUNK IS PROHIBITED. DO NOT COMPACT SOIL BENEATH TREES. NO VEHICLE SHALL BE ALLOWED TO PARKUNDER TREES. NO MATERIALS OR EQUIPMENT SHALL BE STORED BENEATH TREES. DAMAGING THE BARK WITH LAWNMOWERS, CONSTRUCTION EQUIPMENT, OR ANYTHING ELSE IS PROHIBITED. CONTRACTOR SHALL REPAIR DAMAGE TO TREES.
6. FAILING TO INSTALL OR MAINTAIN PROTECTION MEASURES SHALL RESULT IN A STOP WORK ORDER AND FINE OF $500/DAY. DISTURBANCE OTHER THAN THAT ALLOWED ON THE APPROVED PLAN WILL REQUIRE OWNER TO POST A LETTER OF CREDIT FOR 3 YRS FOR TREE MITIGATION.

NOTES:

1. THE TREE PROTECTION FENCING SHALL NOT BE VIOLATED FOR THE ENTIRE DURATION OF THE PROJECT WITHOUT APPROVAL FROM URBAN FORESTRY STAFF.
2. WARNING SIGNS TO BE MADE OF DURABLE, WEATHERPROOF MATERIAL. LETTERS TO BE 3" HIGH, MINIMUM, CLEARLY LEGIBLE AND SPACED AS DETAILED.
3. SIGNS SHALL BE PLACED AT 50' MAXIMUM INTERVALS. PLACE A SIGN AT EACH END OF LINEAR TREE PROTECTION AND 50' ON CENTER THEREAFTER. FOR TREE PROTECTION AREAS LESS THAN 100' IN PERIMETER, PROVIDE NO LESS THAN TWO SIGNS PER PROTECTION AREA.
4. ATTACH SIGNS SECURELY TO FENCE POSTS AND FABRIC. MAINTAIN TREE PROTECTION FENCE AND SIGNS THROUGHOUT DURATION OF PROJECT.
5. TREE PROTECTION FENCING AND SIGNAGE SHALL BE REMOVED AFTER CONSTRUCTION.
6. ADDITIONAL SIGNS MAY BE REQUIRED BY CITY OF WILMINGTON, BASED ON ACTUAL FIELD CONDITIONS.

TYPICAL DETAIL FOR TREE PROTECTION DURING CONSTRUCTION

NOT TO SCALE

Know what's below. Call before you dig.

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REVISIONS:

CLIENT INFORMATION:

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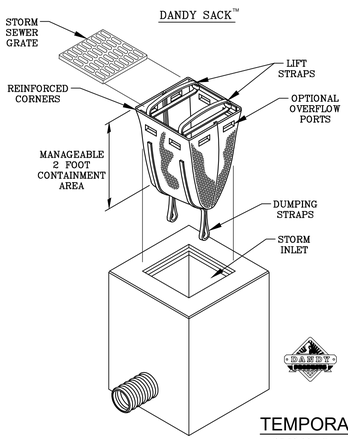


DANDY SACK™ SPECIFICATIONS

NOTE: THE DANDY SACK™ WILL BE **MANUFACTURED IN THE U.S.A.** FROM A WOVEN MONOFILAMENT FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

REGULAR FLOW DANDY SACK™ (BLACK)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.78 (400) x 1.40 (315)
Grab Tensile Elongation	ASTM D 4632	%	15 x 15
Puncture Strength	ASTM D 4833	kN (lbs)	0.67 (150)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	5506 (800)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.67 (150) x 0.73 (165)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m²(gal/min/ft²)	2852 (70)
Permittivity	ASTM D 4491	Sec⁻¹	0.90

HI-FLOW DANDY SACK™ (SAFETY ORANGE)

Mechanical Properties	Test Method	Units	MARV
Grab Tensile Strength	ASTM D 4632	kN (lbs)	1.62 (365) X 0.89 (200)
Grab Tensile Elongation	ASTM D 4632	%	24 X 10
Puncture Strength	ASTM D 4833	kN (lbs)	0.40 (90)
Mullen Burst Strength	ASTM D 3786	kPa (psi)	3097 (450)
Trapezoid Tear Strength	ASTM D 4533	kN (lbs)	0.51 (115) X 0.33 (75)
UV Resistance	ASTM D 4355	%	90
Apparent Opening Size	ASTM D 4751	Mm (US Std Sieve)	0.425 (40)
Flow Rate	ASTM D 4491	l/min/m²(gal/min/ft²)	5907 (145)
Permittivity	ASTM D 4491	Sec⁻¹	2.1

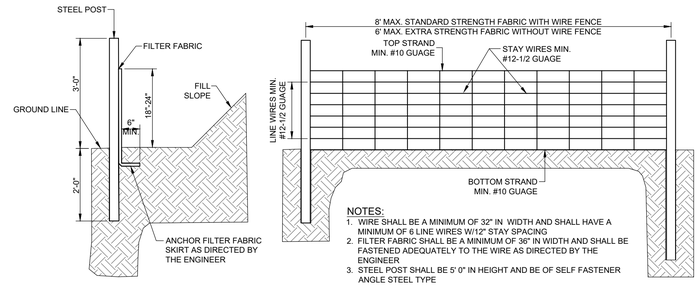
*Note: All Dandy Sacks™ can be ordered with our optional oil absorbent pillows

TEMPORARY DANDY SACK® INLET PROTECTION

NOT TO SCALE

NOTE

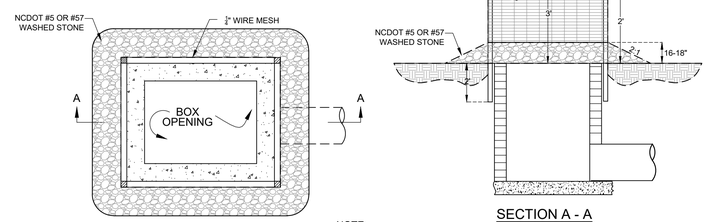
CONTRACTOR SHALL PROPERLY DISPOSE OF SEDIMENT IN A DESIGNATED DISPOSAL AREA AND NOT WITHIN LIMITS OF DISTURBANCE. SEDIMENT SHALL BE REMOVED FROM HARDWARE CLOTH AND GRAVEL, BLOCK AND GRAVEL, OR ROCK-PIPE INLETS, WHEN IT REACHES HALF-FILLED. ROCK WILL BE CLEANED OR REPLACED WHEN NO LONGER DRAINS. SILT SACKS, BEAVER DAMS, SANDY SACKS, AND SOCKS NEED CHECKING EVERY WEEK AND AFTER RAIN.



NOTES:
1. WIRE SHALL BE A MINIMUM OF 32" IN WIDTH AND SHALL HAVE A MINIMUM OF 6 LINE WIRES W/12" STAY SPACING
2. FILTER FABRIC SHALL BE A MINIMUM OF 36" IN WIDTH AND SHALL BE FASTENED ADEQUATELY TO THE WIRE AS DIRECTED BY THE ENGINEER
3. STEEL POST SHALL BE 5' 0" IN HEIGHT AND BE OF SELF FASTENER ANGLE STEEL TYPE

GUIDELINES FOR TEMPORARY SILT FENCE DETAIL

NOT TO SCALE

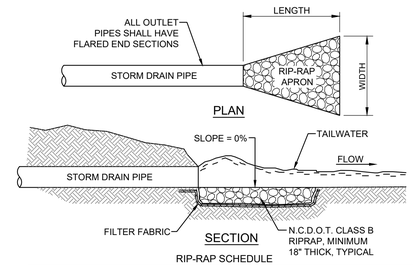


SECTION A - A

NOTE:
FOR CURB INLETS AND DROP INLETS

INLET PROTECTION

NOT TO SCALE

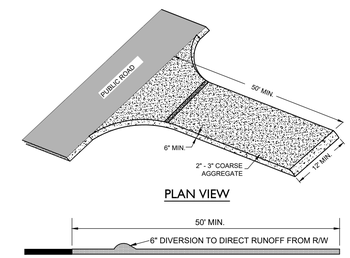


RIP-RAP SCHEDULE

ID	PIPE DIA. (IN.)	LENGTH (FT.)	UPSTREAM WIDTH (FT.)	DOWNSTREAM WIDTH (FT.)
OF-20	(1) 8"	9	2	11
OF-25	(1) 8"	9	2	11
FES-1	(1) 24"	10	6	12

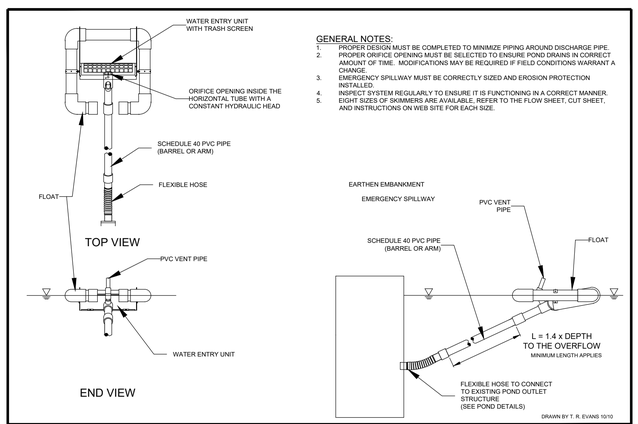
RIP-RAP APRON

NOT TO SCALE



TEMPORARY CONSTRUCTION ENTRANCE

NOT TO SCALE



GENERAL NOTES:
1. PROPER DESIGN MUST BE COMPLETED TO MINIMIZE PIPING AROUND DISCHARGE PIPE.
2. PROPER ORIFICE OPENING MUST BE SELECTED TO ENSURE POND DRAINS IN CORRECT AMOUNT OF TIME. MODIFICATIONS MAY BE REQUIRED IF FIELD CONDITIONS WARRANT A CHANGE.
3. EMERGENCY SPILLWAY MUST BE CORRECTLY SIZED AND EROSION PROTECTION INSTALLED.
4. INSPECT SYSTEM REGULARLY TO ENSURE IT IS FUNCTIONING IN A CORRECT MANNER.
5. EIGHT SIZES OF SKIMMERS ARE AVAILABLE. REFER TO THE FLOW SHEET, CUT SHEET, AND INSTRUCTIONS ON WEB SITE FOR EACH SIZE.

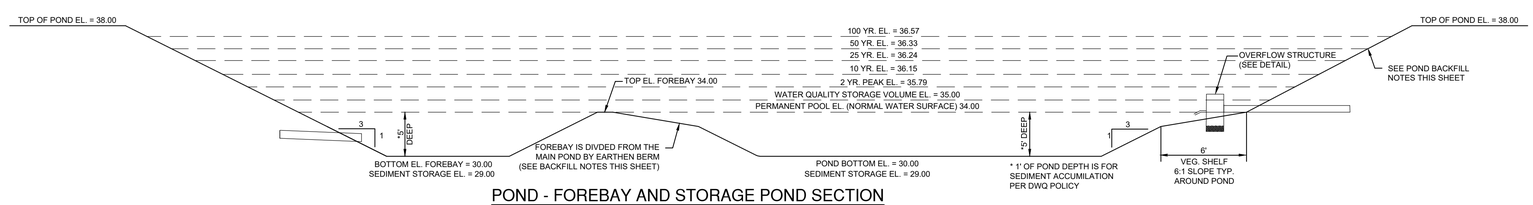
FAIRCLOTH SKIMMER TO POND OUTLET BOX

J. W. FAIRCLOTH & SON INC.
WWW.FAIRCLOTHSKIMMER.COM
TELEPHONE: (919) 732-1244
FAX: (919) 732-1266
EMAIL: WARREN@FAIRCLOTHSKIMMER.COM

BASIN #	SKIMMER SIZE (IN.)	SKIMMER ORIFICE (IN.)
TSB 1	2.0	1.8

TEMPORARY FAIRCLOTH SKIMMER DETAIL

NOT TO SCALE



POND - FOREBAY AND STORAGE POND SECTION

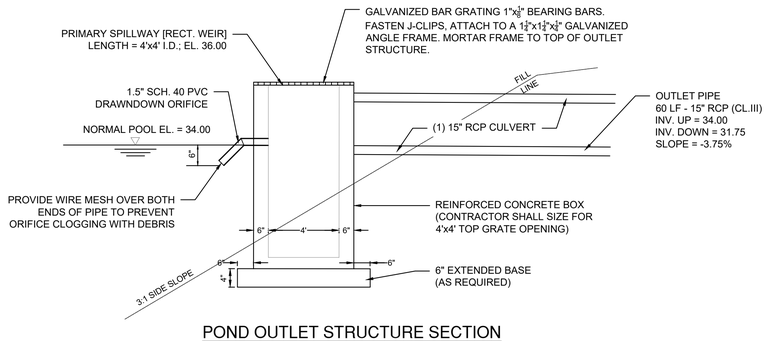
NOT TO SCALE

POND BACKFILL WITH SATISFACTORY SOILS SPECIFICATION

CLEAN SOILS WITH ORGANICS LESS THAN 2% WITH BETWEEN 40 AND 60% PASSING THE NO. 200 SIEVE WITH A PLASTICITY INDEX AND LIQUID LIMIT OF LESS THAN 20 AND 50 PERCENT, RESPECTIVELY; FREE OF ROCK OR GRAVEL LARGER THAN 2" IN ANY DIMENSION, ROOTS, DEBRIS, WASTE, FROZEN MATERIALS, VEGETATION, AND OTHER DELETERIOUS MATTER AS INDICATED BY ENGINEER. COMPACT TO MIN. 95% M.D.D. PER ASTM D 698.

NOTE

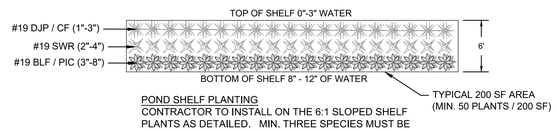
-POND TO BE USED AS TEMPORARY SEDIMENT BASIN DURING CONSTRUCTION. REFERENCE C-1.0 GENERAL NOTES FOR MAINTENANCE INFORMATION.



POND OUTLET STRUCTURE SECTION

NOT TO SCALE

NOTE: ALL HDPE OUTFALL PIPES SHALL BE PROPERLY ANCHORED FROM FLOTATION FOR SUBMERGED CONDITIONS



POND SHELF PLANTING

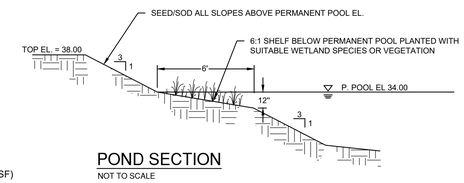
CONTRACTOR TO INSTALL ON THE 6:1 SLOPED SHELF PLANTS AS DETAILED. MIN. THREE SPECIES MUST BE PLANTED. TRIANGULAR SPACING @ 20" O.C.

SUITABLE PLANTS (PLANT SIZE = 2" PLUGS)
PIC - PICKERELWEED (PONTEDERIA CORDATA)
DJP - DWARF JOE PYE WEED (EUPATORIADELPHUS DUBIOUS)
SWR - SWAMP ROSE (HIBISCUS MOSHEUTOS)
BLF - BLUE FLAG (IRIS VIRGINICA)
CF - CARDINAL FLOWER (LOBELIA CARDINALIS)

POND VEGETATIVE SHELF PLANTINGS

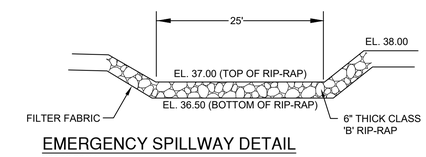
NOT TO SCALE

NOTE: DO NOT PLANT WETLAND PLANTS 10-FT ON EITHER SIDE OF OUTLET STRUCTURE



POND SECTION

NOT TO SCALE



EMERGENCY SPILLWAY DETAIL

NOT TO SCALE

Know what's below. Call before you dig.

FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

CLIENT INFORMATION:
BECKER MORGAN GROUP
3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

PARAMOUNTE ENGINEERING
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DETAILS

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 04/16/20
SCALE: N.T.S.
DESIGNED: AEC
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

C-5.1

PEI JOB#: 19249.PE

GENERAL NOTES

1. Pipe shall be laid in accordance with manufacturers' recommendations and the Project Drawings and Technical Specifications. Should a discrepancy exist between the manufacturers recommendations and the Project Drawings and Technical Specifications, the more stringent requirement shall control.

2. Trench shall be dug when laying pipe and ends plugged when laying is discontinued. Any water from the excavation shall be disposed of in such a manner that the natural drainage of the area shall not be disturbed.

3. Trench backfill is to be free of stones and any foreign material, and shall be placed in six (6) inch layers compacted in accordance with the Technical Specifications.

4. Detectable Terra Tape D is to be installed approximately one (1) foot below finished grade and directly over all pipe. All pipe and valves shall be affixed with #12 gauge copper locating wire.

5. The contractor is responsible for locating all underground utilities prior to digging, whether or not they are shown on the plans. Underground utility locations, if shown on the plans, are based upon the best available information and should be considered only as approximate.

6. Waterlines shall be installed at locations as shown on the Project Drawings unless otherwise approved by the Town and the Engineer in advance of installation.

7. The minimum depth of bury shall be three (3) feet from the top of pipe unless otherwise noted on the plans.

8. All fittings including reducers shall be blocked as specified and as shown on the Details and within the Project Technical Specifications.

9. Absolutely no work shall be performed on private property beyond any area which easements are to be provided by the Owner and dedicated to the Town of Shallotte.

10. Concrete thrust blocking shall not obstruct weep holes on any fire hydrant assembly, steel casing pipe, or bolts on any fittings.

11. Water in excess of that required to pressure test, flush, chlorinate and reflush more than allowed by the Technical Specifications shall be paid for by the contractor. Excess quantities shall be estimated by the Engineer.

12. The work shall be arranged in a manner that will cause a minimum of disturbance to vehicular and pedestrian traffic. Adequate ingress and egress to both private and public property shall be provided by the contractor during all stages of construction. Without written approval from the Town or utility company, existing services shall not be interrupted by the construction work. Any paved areas utilizing open-cut and patch shall be repaired the same day as construction occurs. Absolutely no open trenches shall be left overnight.

13. The Developer's Contractor shall install a water service assembly to each lot as shown on the details. The Town shall provide the water service meter.

14. The Contractor shall contact the Town of Shallotte Utilities Department (910/754-4032) and the Town Engineer (910/755-6526) a minimum of five (5) working days prior to the beginning of construction. Connection to the existing Town waterline shall be performed by the Contractor under the supervision of the Town of Shallotte Utilities Department and the Engineer's representative.

15. The Contractor shall keep the Engineer informed relative to the progress of the construction. The Engineer shall observe construction activities as required by North Carolina General Statutes 130A – 317. Failure of the Contractor to keep the Engineer informed may require uncovering of work to verify compliance with plans and specifications. Any cost associated with uncovering work and/or verifying compliance shall be borne by the Contractor.

15. Traffic control shall be in accordance with Section 150 of the NCDOT Standard Specifications for Roads and Structures.

No.	Revision	Date	Town of Shallotte PO Box 2287 Shallotte, NC 28459

4" PVC GRAVITY CLEANOUT WITH 45° BENDS FOR NON-TRAFFIC AREAS

NOT TO SCALE

No.	Revision	Date	Town of Shallotte PO Box 2287 Shallotte, NC 28459

NOTES:
1. VERTICAL PIPE AND ALL FITTINGS TO BE SCH. 40 PVC UNLESS OTHERWISE NOTED.
2. SLOPE FINISH GRADE TO DRAIN AWAY FROM BOX.

TYPICAL SEWER CLEANOUT AT END OF LINE

NOT TO SCALE

No.	Revision	Date	Town of Shallotte PO Box 2287 Shallotte, NC 28459

NOTES:

1. CONSTRUCTION SHALL ENSURE NO FROM OR BENCH IS SUITABLE FOR INSTALLATION AND DOES NOT REQUIRE FOUNDATION CONDITIONING STONE.
2. FILL SHALL BE SUITABLE MATERIAL THAT IS FREE FROM HEAVY CLAY, GUMBOS, DEBRIS, ORGANICS AND LITTLE TO NO EXPANSIVE MOISTURE.
3. SELECT BACKFILL MAY BE SUBSTITUTED OR REQUIRED BY CITY TO ACHIEVE COMPACTION. (I.E. #57, ABC, CRUSHED LIMESTONE, CLEAN SAND, FLOWABLE FILL, ETC).
4. SOIL SHALL BE INSTALLED IN 6"-8" LIFTS AND COMPACTED BY A VIBRATORY TAMPER (NOT JUMPING JACK), CONVENTIONAL VIBRATORY ROLLERS OR BY WATER MAY BE USED FOR LARGER EXCAVATIONS. THE PLATE TAMP METHOD SHALL NOT BE USED.
5. ALL APPROVED CASINGS SHALL BE SET FLUSH TO GRADE AND SUPPORTED PER APPROVED.
6. COMPACT MATERIALS TO MINIMUM % DENSITY SHOWN IN DIAGRAM AS DETERMINED BY THE STANDARD PROCTOR METHOD ASTM D 698 A FOR SOILS, AND ASTM D 698 C FOR ABC STONE, AND BY NUCLEAR GAUGE OR CORE SAMPLE FOR ASPHALT.
7. CUTBACKS OF ASPHALT SHALL BE PREPARED ON EDGE OF EXCAVATION OVER TOP OF UNDISTURBED SOIL.

TYPICAL DETAIL FOR PAVEMENT REPAIRS-UTILITY CUTS

NOT TO SCALE

Know what's below. Call before you dig.

FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

CLIENT INFORMATION:

BECKER MORGAN GROUP
3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

PARAMOUNTE ENGINEERING, P.C.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DETAILS

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
PER REVIEW:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 04/14/20
SCALE: N.T.S.
DESIGNED: AEC
DRAWN: AEC
REVIEWED: RPB
CHECKED:

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 031591 ENGINEER ROBERT P. BALLARD
04/16/20

C-5.2

PEI JOB#: 19249.PE

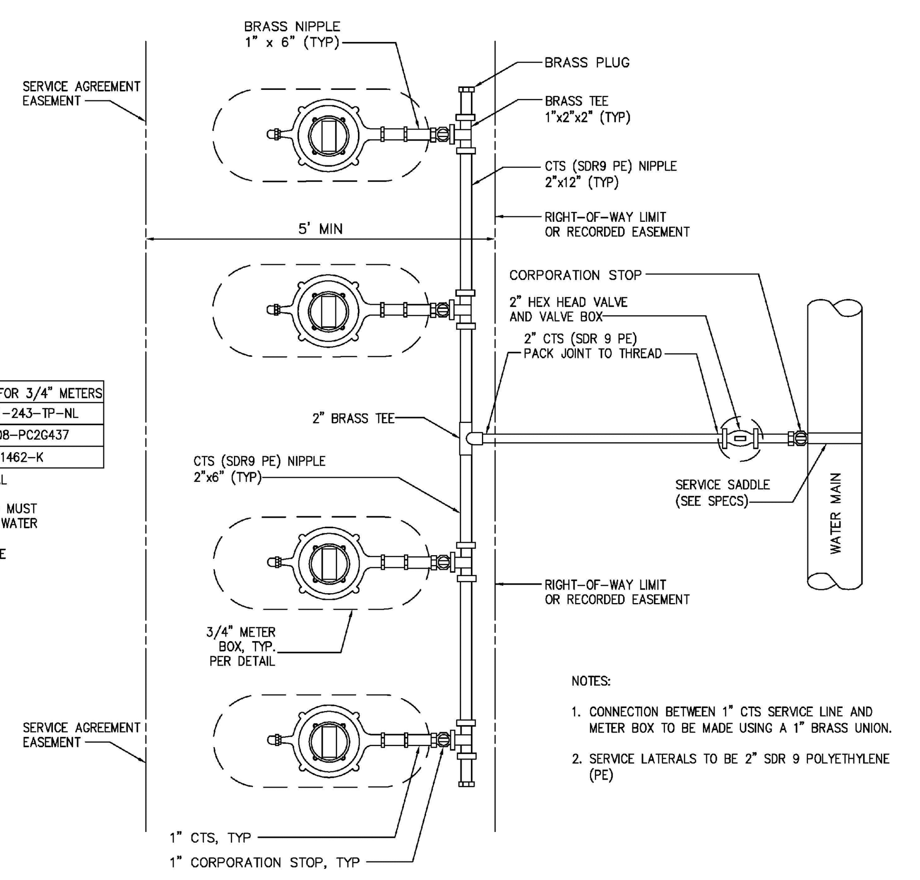
Revisions

1.1 - DATED 3/7/2013 Modified double meter box
1.2 - DATED 4/5/2013 Corrected meter box #'s
1.3 - DATED 7/15/2015 Updated meter box #'s
1.4 - DATED 10/27/2015 Modified W-7
1.5 - DATED 12/8/2016 Revise Detail Numbers
1.6 - DATED 3/6/2017 Revise Detail W-6
1.7 - DATED 3/22/2017 Revise Detail W-6
1.8 - DATED 10/29/2018 Updated acceptable double meter boxes

COUNTY OF BRUNSWICK

GENERAL WATER DETAILS FOR BRUNSWICK COUNTY NORTH CAROLINA

Date: 05-23-12
Scale: NTS
Drawn By: JDM
Checked By: WLP



APPROVED SINGLE METER BOXES FOR 3/4" METERS	
FORD	LYLV-141-243-TP-NL
McDONALD	776-208-PC2G437
MUELLER	H-1462-K

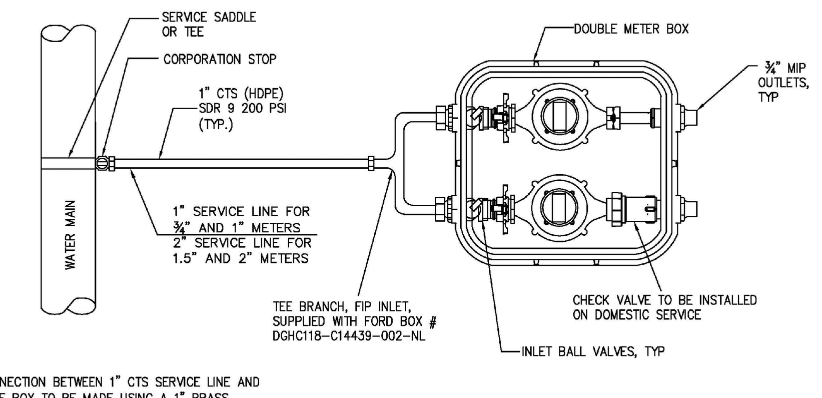
* OR APPROVED EQUAL

1. OR APPROVED EQUAL - MUST ACCOMMODATE SENSUS WATER METER WITH AMR/AMI
2. LID TO BE LOCKING TYPE

NOTES:

1. CONNECTION BETWEEN 1" CTS SERVICE LINE AND METER BOX TO BE MADE USING A 1" BRASS UNION.
2. SERVICE LATERALS TO BE 2" SDR 9 POLYETHYLENE (PE)

STANDARD GANG METER ASSEMBLY
DETAIL W-5



NOTES:

1. CONNECTION BETWEEN 1" CTS SERVICE LINE AND YOKE BOX TO BE MADE USING A 1" BRASS UNION.
2. ALL WATER SERVICE LATERALS SHALL HAVE A TRACER WIRE INSTALLED PER BRUNSWICK COUNTY WATER DISTRIBUTION TECHNICAL SPECIFICATIONS.

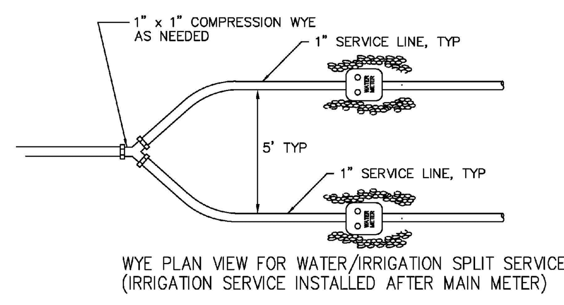
PLAN VIEW FOR WATER/IRRIGATION SPLIT SERVICE
(WATER/IRRIGATION SERVICES INSTALLED CONCURRENTLY)

**NOTE:
BACKFLOW PROTECTION DEVICE IS REQUIRED ON ALL IRRIGATION WATER METERS AND ON ALL COMMERCIAL/INDUSTRIAL WATER METERS

ACCEPTABLE DOUBLE METER BOXES	
FORD	DGHC118-C14439-002-NL
MCDONALD	773N208BCGP 434TCX001

* OR APPROVED EQUAL

1. OR APPROVED EQUAL - MUST ACCOMMODATE TWO (2) SENSUS WATER METERS WITH AMR/AMI
2. LID TO BE LOCKING TYPE
3. DOUBLE METER BOX IS FOR (2) 3/4" METERS ONLY

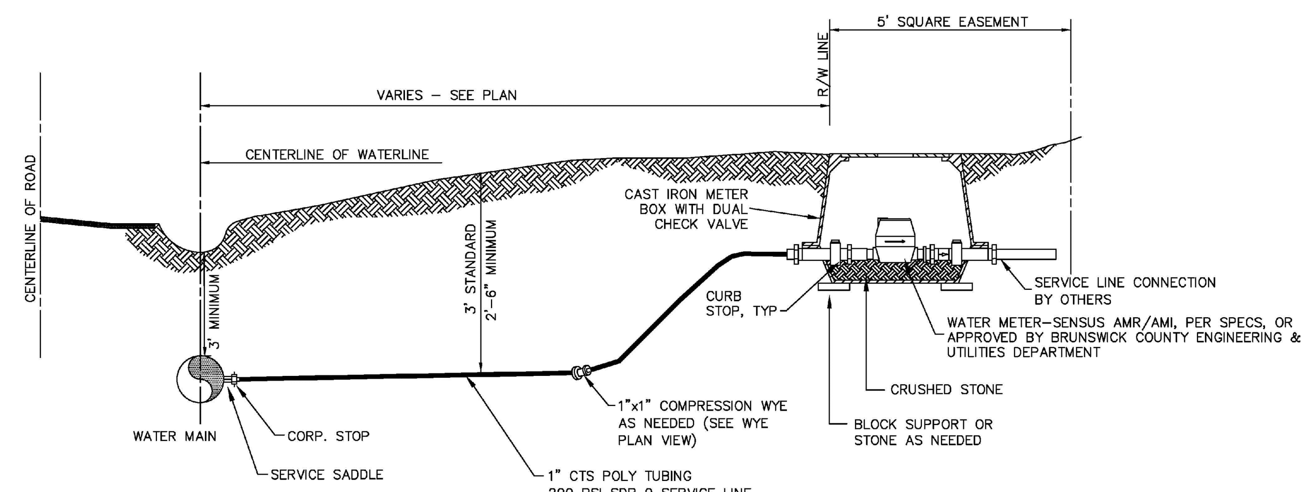


WYE PLAN VIEW FOR WATER/IRRIGATION SPLIT SERVICE
(IRRIGATION SERVICE INSTALLED AFTER MAIN METER)

APPROVED SINGLE METER BOXES FOR 3/4" METERS	
FORD	LYLV-141-243-TP-NL
McDONALD	776-208-PC2G437
MUELLER	H-1462-K

* OR APPROVED EQUAL

1. OR APPROVED EQUAL - MUST ACCOMMODATE SENSUS WATER METER WITH AMR/AMI
2. LID TO BE LOCKING TYPE



NOTE:

1) CONTRACTOR SHALL PLACE METER BOX IN NON-TRAFFIC AREA AT LOCATION SPECIFIED BY BRUNSWICK COUNTY ENGINEERING DEPARTMENT.
2) METER BOXES SHALL BE CAST IRON WITH DUAL CHECK VALVES.
3) 1-1/2" AND 2" METERS WILL REQUIRE 2" CTS POLY TUBING.
4) 1, 1-1/2" AND 2" METERS WILL REQUIRE A METER BOX SIZED ADEQUATELY TO HOUSE A 1, 1-1/2" OR 2" SENSUS METER, HORIZONTAL BYPASS SETTER, AND MXU. ALL REQUIRED ITEMS TO BE PROVIDED BY INSTALLER.
5) 1, 1-1/2" AND 2" METER BOXES SHALL BE MARKED WATER AND HAVE A HOLE FOR INSTALLATION OF THE MXU AND TOUCH PAD TO BE PROVIDED BY INSTALLER.
6) NO PLASTIC BOXES FOR 1 1/2" AND 2" METERS. BOX MUST BE DUCTILE IRON OR QUAZITE.
7) ALL WATER SERVICE LATERALS SHALL HAVE A TRACER WIRE INSTALLED PER BRUNSWICK COUNTY WATER DISTRIBUTION TECHNICAL SPECIFICATIONS.

3/4" – 2" STANDARD WATER TAP
INSTALLATION
DETAIL W-6

(FOR METERS LARGER THAN 2", REFER TO DETAIL ON PAGE 3 OF 5)

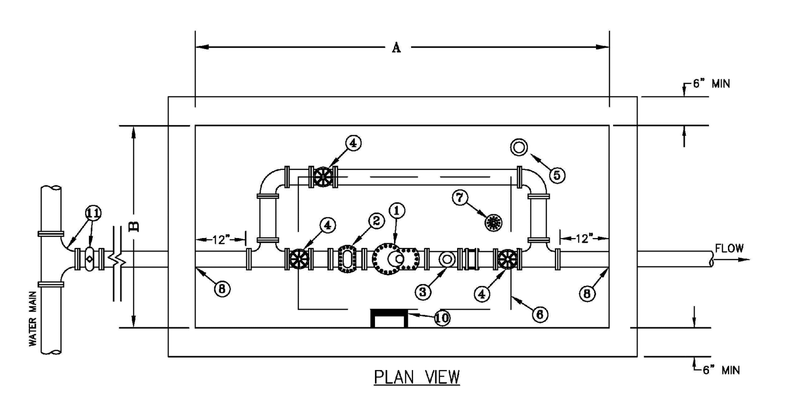
Revisions

1.1 - DATED 12/8/2016 Revise Detail Numbers
1.2 - DATED 3/10/2017 Revise Detail W-9

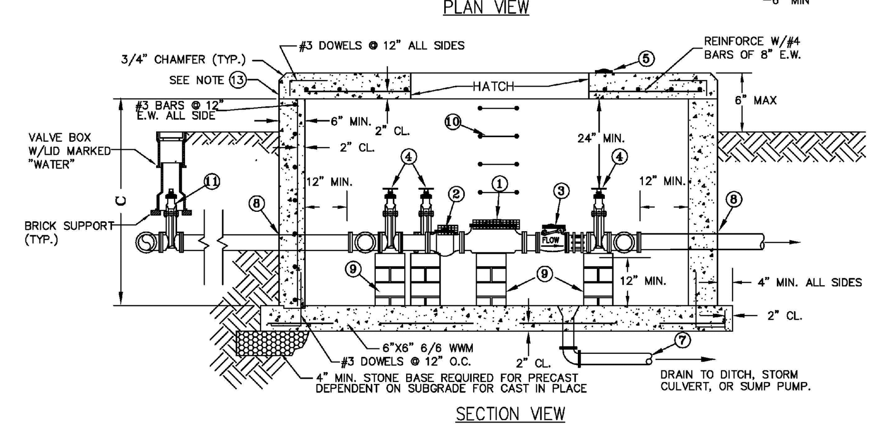
COUNTY OF BRUNSWICK

GENERAL WATER DETAILS FOR BRUNSWICK COUNTY NORTH CAROLINA

Date: 06-01-12
Scale: NTS
Drawn By: JDM
Checked By: WLP



PLAN VIEW



SECTION VIEW

WATER METER VAULTS (3" TO 10")
DETAIL W-7

CONSTRUCTION NOTES:

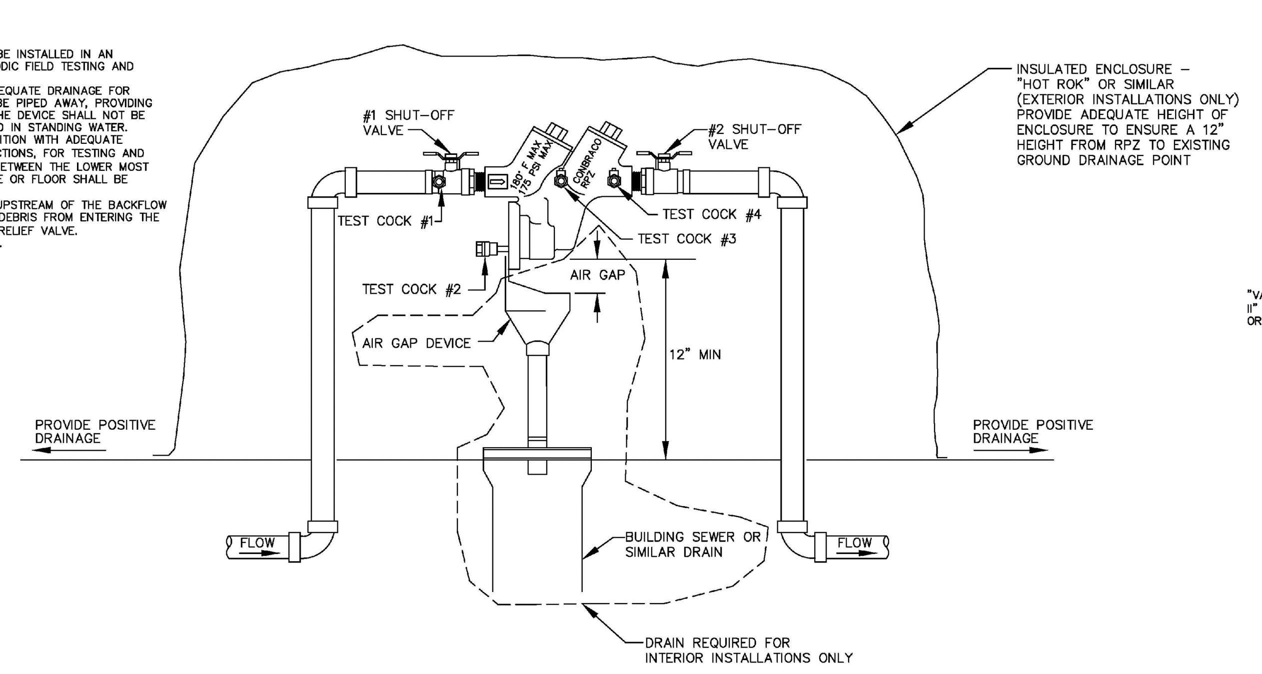
1. CONCRETE SHALL HAVE 4,000 PSI MIN. COMPRESSIVE STRENGTH AT 28 DAYS.
2. REINFORCING BARS SHALL BE GRADE 60 DEFORMED STEEL.
3. METERS SHALL BE APPROVED BY BRUNSWICK COUNTY.
4. WHERE WALL MOUNTED STEPS ARE NOT ACCESSIBLE FROM HATCH, A PERMANENTLY MOUNTED LADDER MEETING O.S.H.A. STANDARDS SHALL BE PROVIDED.
5. RELOCATE REINFORCEMENT AROUND HATCH TO PROVIDE EQUIVALENT STEEL CROSS-SECTION.
6. ALL PIPING SHALL BE DUCTILE IRON.

MIN. VAULT DIMENSIONS			
METER SIZE	A	B	C
3"	8'-6"	5'-6"	5'-0"
4"	9'-6"	5'-6"	5'-0"
6"	11'-0"	6'-0"	5'-6"
8"	12'-0"	7'-0"	6'-0"
10"	14'-0"	8'-0"	6'-0"

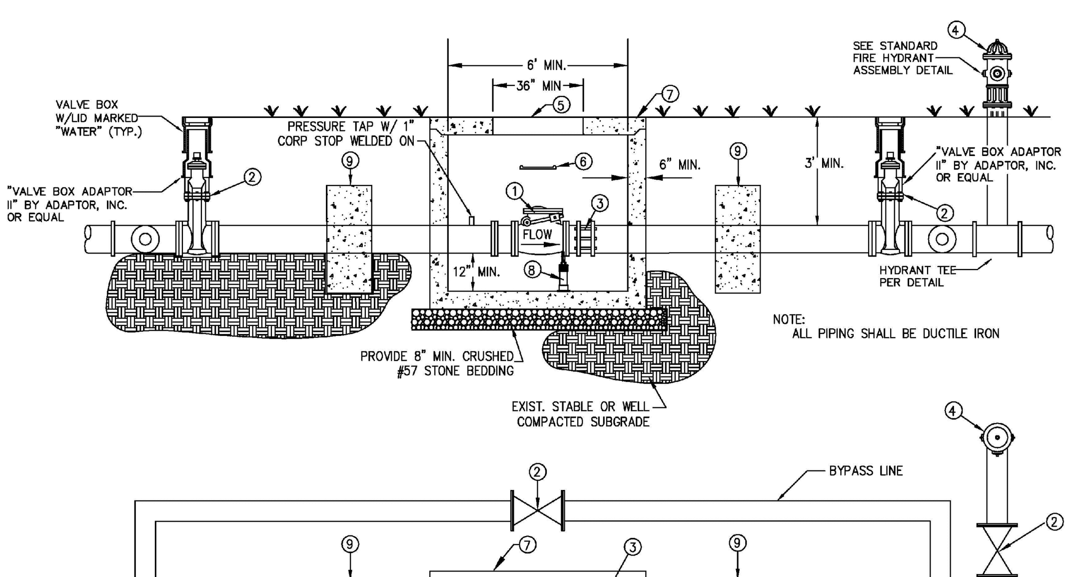
1. AWWA C701 TURBINE METER OR AWWA C702 COMPOUND METER w/ENCODING REGISTER FOR REMOTE READING (SENSUS OR APPROVED EQUAL) METER MUST BE SUBMITTED FOR REVIEW AND APPROVAL BY BRUNSWICK COUNTY ENGINEER
2. STRAINER BY METER MANUFACTURER
3. AS DETERMINED BY BRUNSWICK COUNTY, AWWA C508 SWING CHECK VALVE WITH LEVER & WEIGHT, OR SPRING, OR FLOMATIC MODEL 848/895 SPLIT DISC
4. AWWA C509 GATE VALVE w/HAND WHEEL
5. AMR ITRON 50W-2 PIT ERT WITH COMPATIBLE REGISTER OR EQUIVALENT-MUST BE APPROVED BY BRUNSWICK COUNTY
6. SINGLE OR DOUBLE LEAF ALUMINUM HATCH
7. GRAVITY DRAIN TO DAYLIGHT OR SUMP PUMP WITH FORCE MAIN TO STORM DRAINAGE
8. WATERTIGHT GASKET w/HYDRAULIC CEMENT SEAL
9. SOLID MASONRY PIER FIXTURE SUPPORTS
10. STEPS SPACED AT 16" O.C.
11. IN-LINE TEE OR TAPPING SLEEVE w/VALVE AND BOX TO GRADE WITH LID MARKED "WATER"
12. ALL WATER METER VAULTS MUST BE SUBMITTED TO BRUNSWICK COUNTY ENGINEERING DEPARTMENT AS A SHOP SUBMITTAL FOR REVIEW AND APPROVAL.
13. METER VAULT LID SHALL REST ON TOP OF VAULT WALLS- NO JOINTS ARE ALLOWED IN VAULT WALLS- VAULT BOTTOM AND SIDES MAY BE PRECAST BUT TOP SHALL BE PLACED ON TOP OF WALLS.

NOTES:

1. THE BACKFLOW PREVENTION DEVICE MUST BE INSTALLED IN AN ACCESSIBLE LOCATION TO FACILITATE PERIODIC FIELD TESTING AND MAINTENANCE.
2. THE LOCATION SELECTED SHOULD HAVE ADEQUATE DRAINAGE FOR RELIEF VALVE DISCHARGE. DRAINAGE MAY BE PIPED AWAY, PROVIDING AN APPROVED AIR GAP DEVICE IS USED. THE DEVICE SHALL NOT BE PLACED WHERE IT MAY BECOME SUBMERGED IN STANDING WATER.
3. INSTALL THE DEVICE IN A HORIZONTAL POSITION WITH ADEQUATE CLEARANCE FROM WALLS AND/OR OBSTRUCTIONS, FOR TESTING AND MAINTENANCE. A 12" TO 30" CLEARANCE BETWEEN THE LOWER MOST PORTION OF THE DEVICE AND FLOOD GRADE OR FLOOR SHALL BE PROVIDED.
4. A "Y" STRAINER MAY BE INSTALLED JUST UPSTREAM OF THE BACKFLOW PREVENTION ASSEMBLY TO ELIMINATE ANY DEBRIS FROM ENTERING THE DEVICE AND FOULING THE CHECK AND/OR RELIEF VALVE.
5. NO UNDERGROUND INSTALLATIONS ALLOWED.



STANDARD BACKFLOW PREVENTION DEVICE
DETAIL W-8



CHECK VALVE VAULT
DETAIL W-9

1. AS DETERMINED BY BRUNSWICK COUNTY, AWWA C508 SWING CHECK VALVE WITH LEVER & WEIGHT OR SPRING OR FLOMATIC MODEL 848/895 SPLIT DISC.
2. GATE VALVE WITH VALVE BOX MARKED "WATER".
3. FLANGED COUPLING ADAPTER
4. HYDRANT ASSEMBLY INSTALLED ON DOWNSTREAM SIDE WITHIN 50' OF CHECK VALVE.
5. ALUMINUM HATCH W/ COMPRESSION SPRING OPERATORS OR APPROVED EQUAL.
6. STEPS SPACED AT 16" O.C.
7. PRECAST REINFORCED CONCRETE VAULT WITH H20 LOAD RATING AND MIN. INSIDE DIMENSIONS: 6' L x 5' W x 4' D
8. STANDON MODEL S89 OR APPROVED EQUAL FIXTURE SUPPORT.
9. CONCRETE THRUST COLLAR PER SPECIFICATIONS.

Know what's below. Call before you dig.

FINAL DESIGN - RELEASED FOR BIDDING ONLY

PROJECT STATUS	
CONCEPTUAL LAYOUT:	
PRELIMINARY LAYOUT:	
FINAL DESIGN:	
RELEASED FOR CONST:	

DRAWING INFORMATION	
DATE:	04/16/20
SCALE:	N.T.S.
DESIGNED:	AEC
DRAWN:	AEC
CHECKED:	RPB

SEAL: NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031591 ROBERT P. BALLAND 04/16/20

DETAILS

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

PARAMOUNTE ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

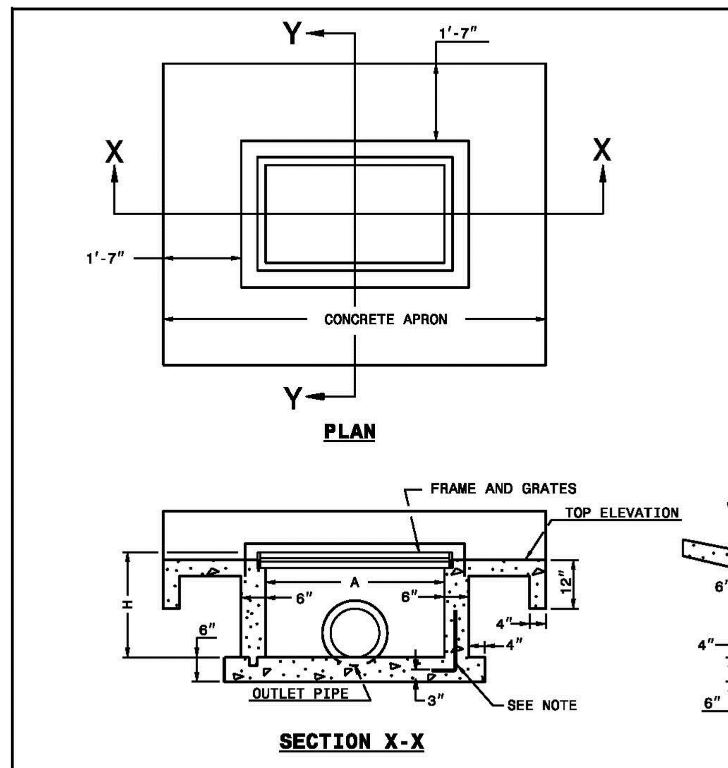
CLIENT INFORMATION:

BECKER MORGAN GROUP
3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

REVISIONS:

C-5.3

PEI JOB#: 19249.PE



GENERAL NOTES:

USE CLASS "B" CONCRETE THROUGHOUT.

PROVIDE ALL GRATED DROP INLETS OVER 3'-6" IN DEPTH WITH STEPS 12" ON CENTER. USE STEPS WHICH COMPLY WITH STD. DRAWING 840.66.

OPTIONAL CONSTRUCTION - MONOLITHIC POUR, 2" KEYWAY, OR #4 BAR DOWELS AT 12" CENTERS AS DIRECTED BY THE ENGINEER.

USE FORMS FOR THE CONSTRUCTION OF THE BOTTOM SLAB.

IF REINFORCED CONCRETE PIPE IS SET IN BOTTOM SLAB OF BOX, ADD TO SLAB AS SHOWN ON STD. NO. 840.00.

CONSTRUCT WITH PIPE CROWNS MATCHING.

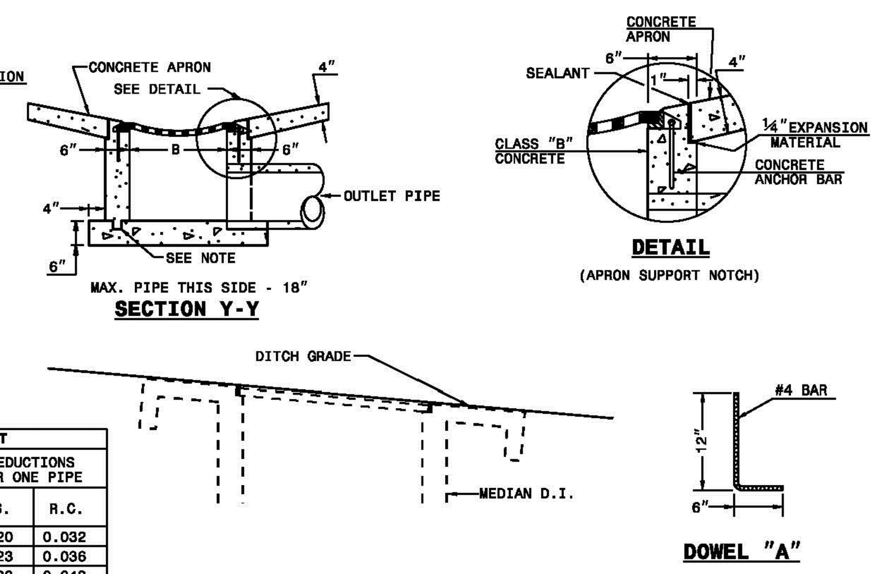
MAX. DEPTH OF THIS STRUCTURE FROM TOP OF BOTTOM SLAB TO TOP ELEVATION IS 12 FEET.

USE STANDARD FRAMES AND GRATES 840.22 (SHOWN), 840.24(SHOWN), 840.20, 840.29, AND 840.33.

SEE STANDARD DRAWING 840.25 FOR ATTACHMENT OF FRAMES AND GRATES NOT SHOWN.

CHAMFER ALL EXPOSED CORNERS 1".

DRAWING NOT TO SCALE.



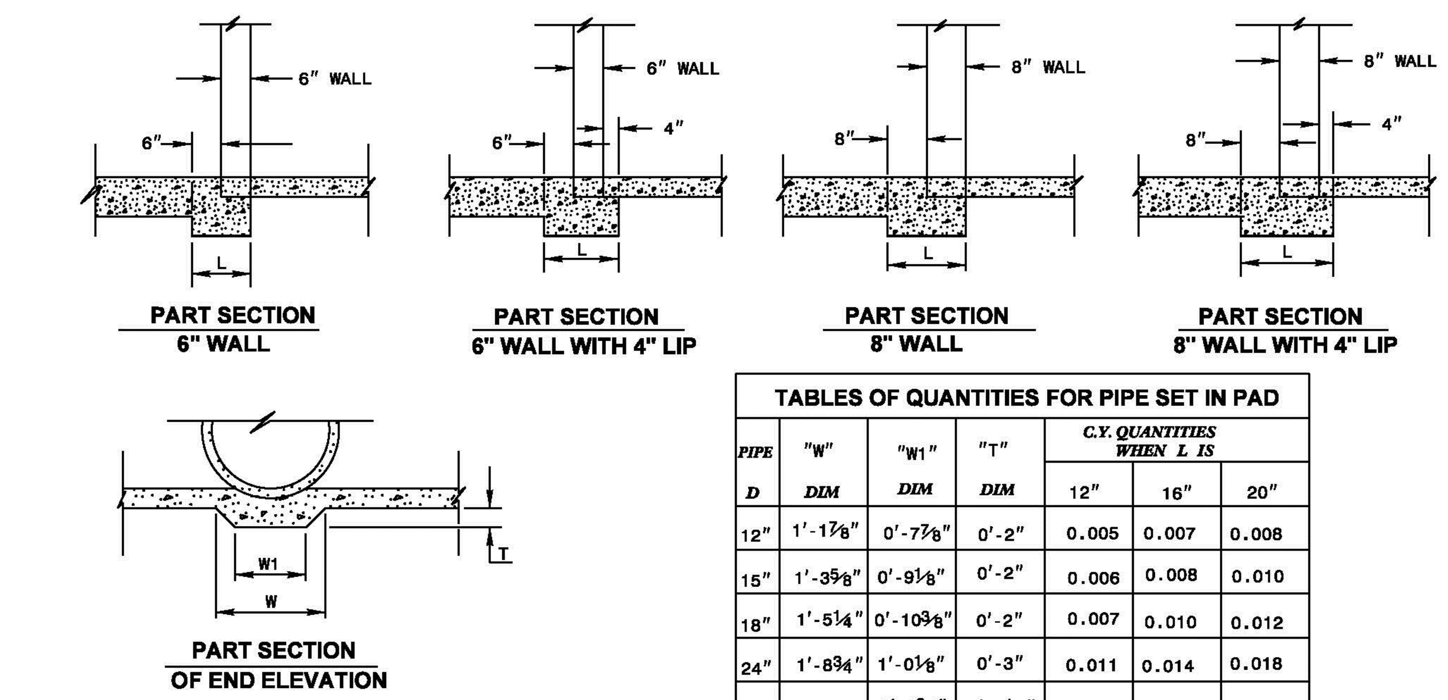
MINIMUM DIMENSIONS AND QUANTITIES FOR CONCRETE GRATED DROP INLET

PIPE	SPAN	WIDTH	HEIGHT	CUBIC YARDS OF CONCRETE IN BOX				DEDUCTIONS FOR ONE PIPE	
D	A	B	H	BOTTOM SLAB	H PER FT. HT.	H MIN. TOTAL	TOTAL	C.S.	R.C.
12"	3'-8"	2'-0"	2'-6"	0.362	0.247	0.597	0.958	0.020	0.032
15"	3'-8"	2'-0"	2'-9"	0.362	0.247	0.659	1.021	0.023	0.036
18"	3'-8"	2'-0"	3'-0"	0.362	0.247	0.720	1.082	0.033	0.049
24"	3'-8"	2'-0"	3'-6"	0.362	0.247	0.865	1.227	0.059	0.085
30"	3'-8"	2'-0"	4'-0"	0.362	0.247	0.988	1.350	0.092	0.127
36"	3'-8"	2'-0"	4'-6"	0.362	0.247	1.112	1.474	0.132	0.178

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **CONCRETE GRATED DROP INLET TYPE 'B'** 12" THRU 36" PIPE

SHEET 1 OF 1 **840.18**



TABLES OF QUANTITIES FOR PIPE SET IN PAD

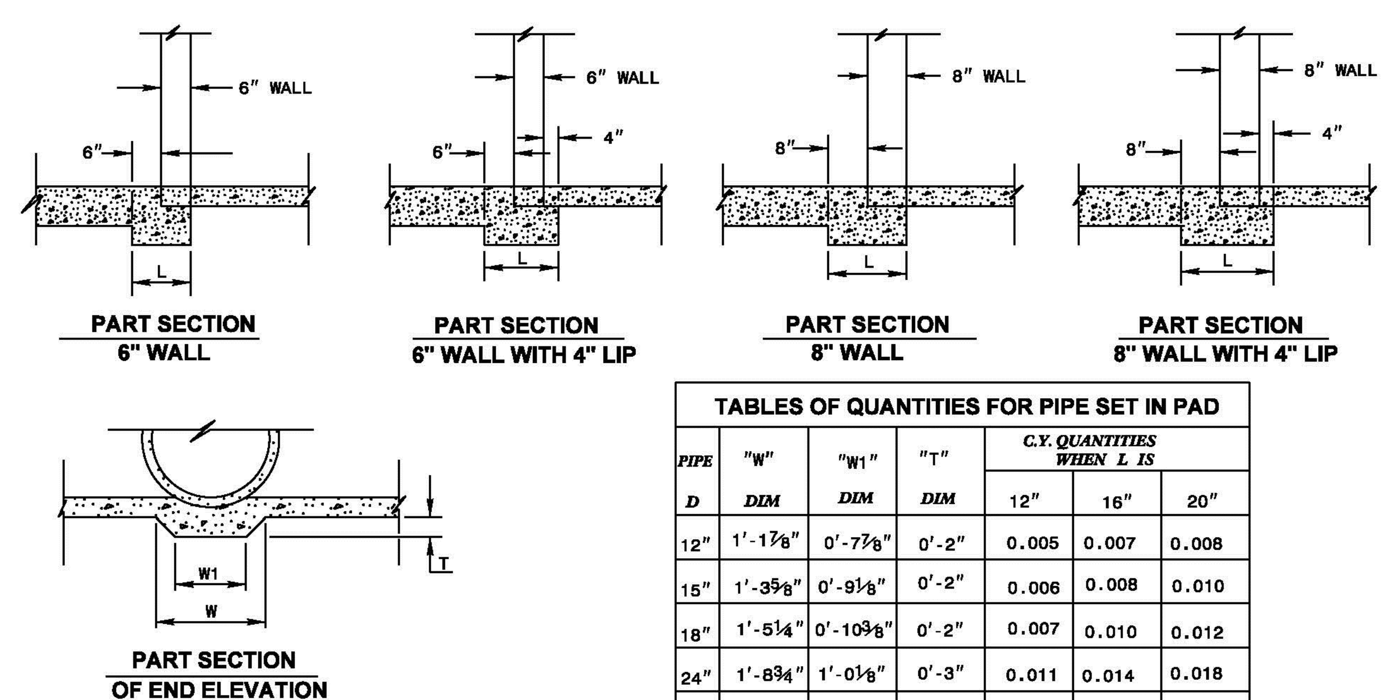
PIPE	"W"	"W1"	"T"	C.Y. QUANTITIES WHEN L IS		
D	DIM	DIM	DIM	12"	16"	20"
12"	1'-1⅞"	0'-7⅞"	0'-2"	0.005	0.007	0.008
15"	1'-3⅝"	0'-9⅛"	0'-2"	0.006	0.008	0.010
18"	1'-5¼"	0'-10⅜"	0'-2"	0.007	0.010	0.012
24"	1'-8¾"	1'-0⅛"	0'-3"	0.011	0.014	0.018
30"	2'-0¼"	1'-2¾"	0'-3½"	0.014	0.018	0.023
36"	2'-3¾"	1'-5⅜"	0'-4"	0.017	0.023	0.025
42"	2'-7⅛"	1'-7"	0'-5¼"	0.025	0.030	0.038
48"	2'-10⅝"	1'-8¾"	0'-5¾"	0.028	0.038	0.047
54"	3'-2⅛"	1'-10½"	0'-6¼"	0.035	0.047	0.058
60"	3'-5⅝"	2'-0¼"	0'-6¾"	0.042	0.056	0.071
66"	3'-9"	2'-2¼"	0'-7¼"	0.050	0.067	0.084
72"	4'-0½"	2'-3¾"	0'-7¾"	0.059	0.078	0.098

GENERAL NOTES:
USE THIS STANDARD WITH ALL DRAINAGE STRUCTURES USING REINFORCED CONCRETE PIPE SET IN BASE SLAB.

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **CONCRETE BASE PAD FOR DRAINAGE STRUCTURES**

SHEET 1 OF 1 **840.00**



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15"	1'-3⅝"	0'-9⅛"	0'-2"	0.006	0.008	0.010
18"	1'-5¼"	0'-10⅜"	0'-2"	0.007	0.010	0.012
24"	1'-8¾"	1'-0⅛"	0'-3"	0.011	0.014	0.018
30"	2'-0¼"	1'-2¾"	0'-3½"	0.014	0.018	0.023
36"	2'-3¾"	1'-5⅜"	0'-4"	0.017	0.023	0.025
42"	2'-7⅛"	1'-7"	0'-5¼"	0.025	0.030	0.038
48"	2'-10⅝"	1'-8¾"	0'-5¾"	0.028	0.038	0.047
54"	3'-2⅛"	1'-10½"	0'-6¼"	0.035	0.047	0.058
60"	3'-5⅝"	2'-0¼"	0'-6¾"	0.042	0.056	0.071
66"	3'-9"	2'-2¼"	0'-7¼"	0.050	0.067	0.084
72"	4'-0½"	2'-3¾"	0'-7¾"	0.059	0.078	0.098

GENERAL NOTES:
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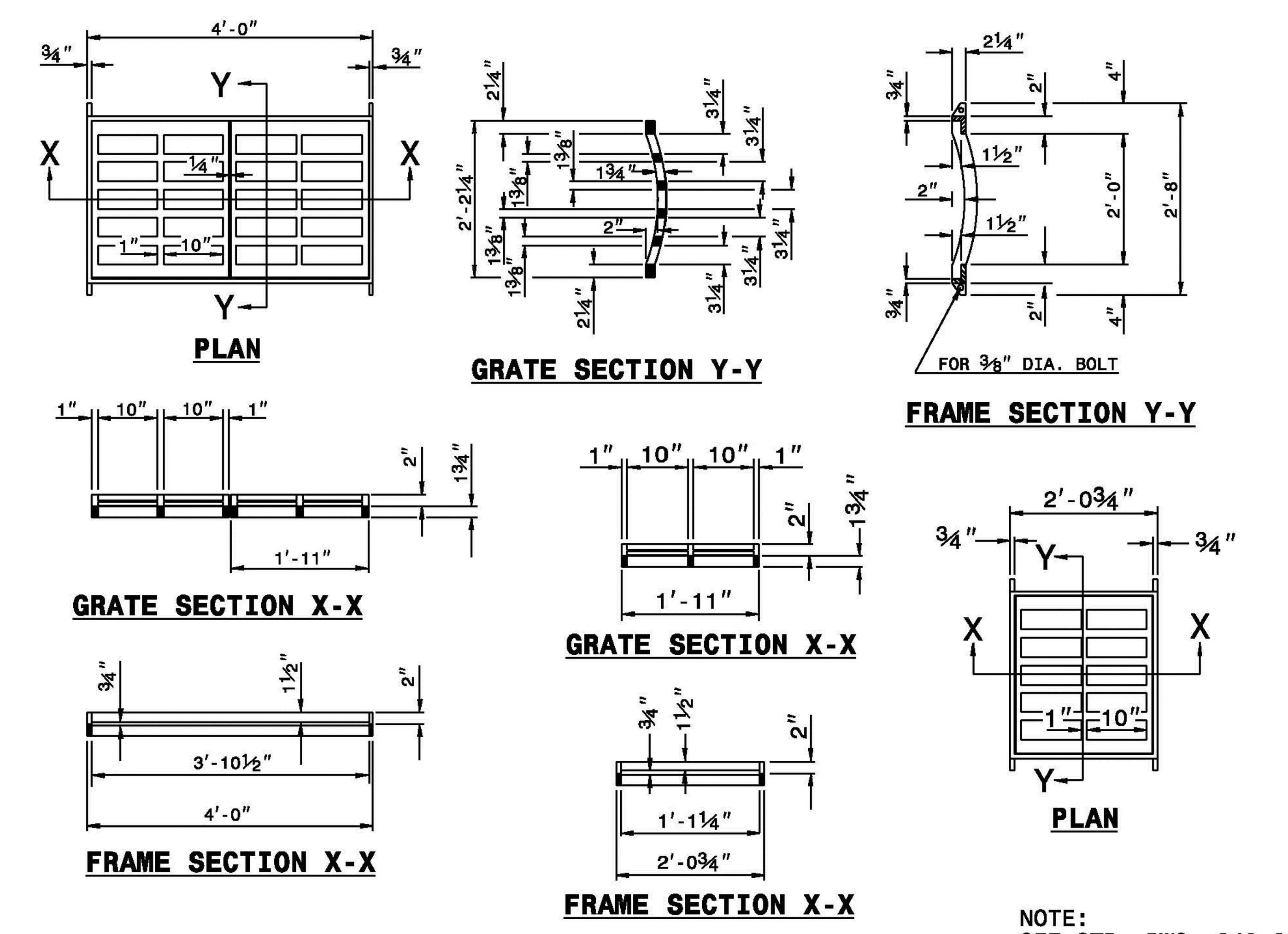
1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **CONCRETE BASE PAD FOR DRAINAGE STRUCTURES**

SHEET 1 OF 1 **840.00**

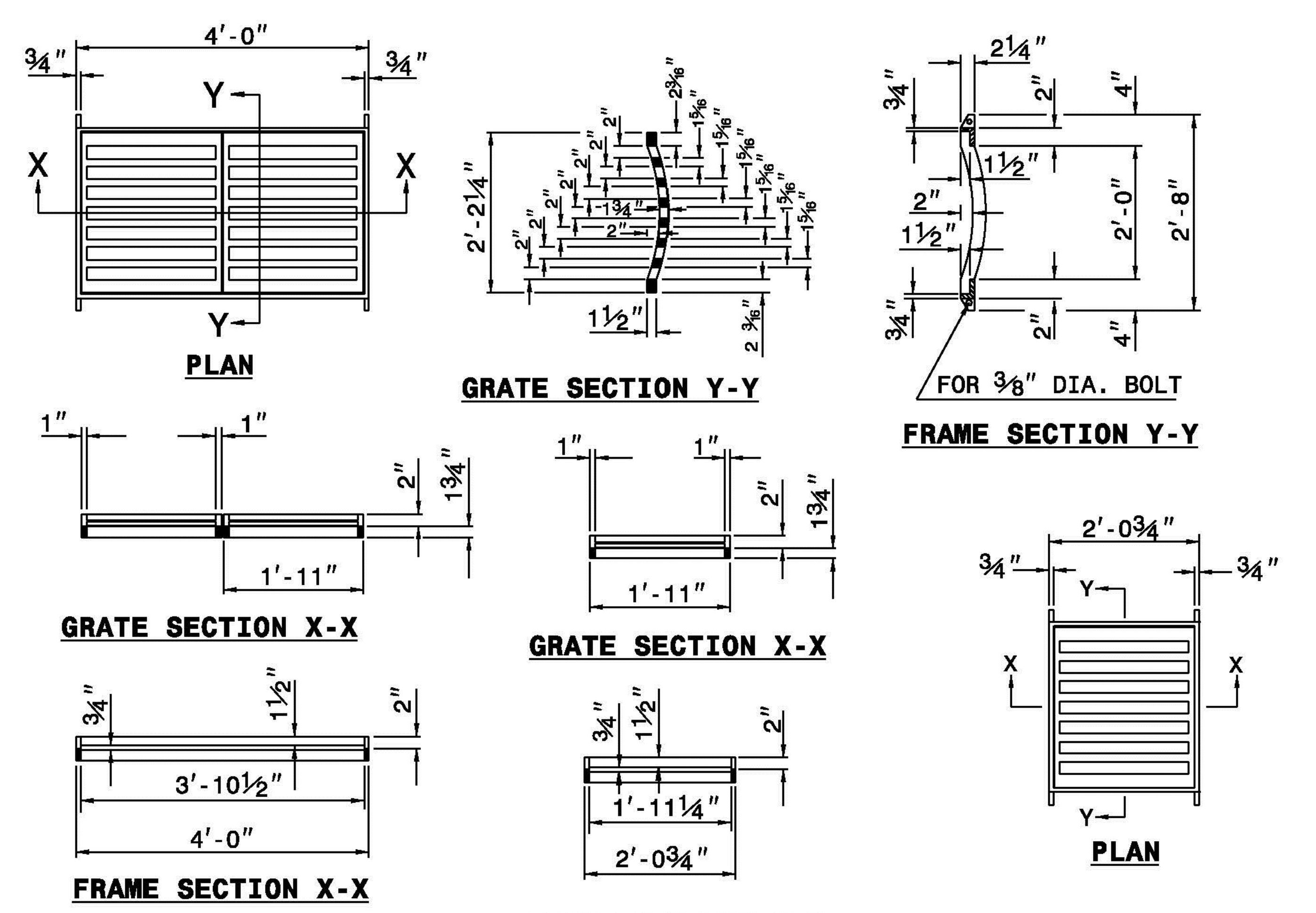


NOTE:
SEE STD. DWG. 840.25
FOR FRAME ANCHORAGE.

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **FRAMES AND WIDE SLOT SAG GRATES**

SHEET 1 OF 1 **840.22**

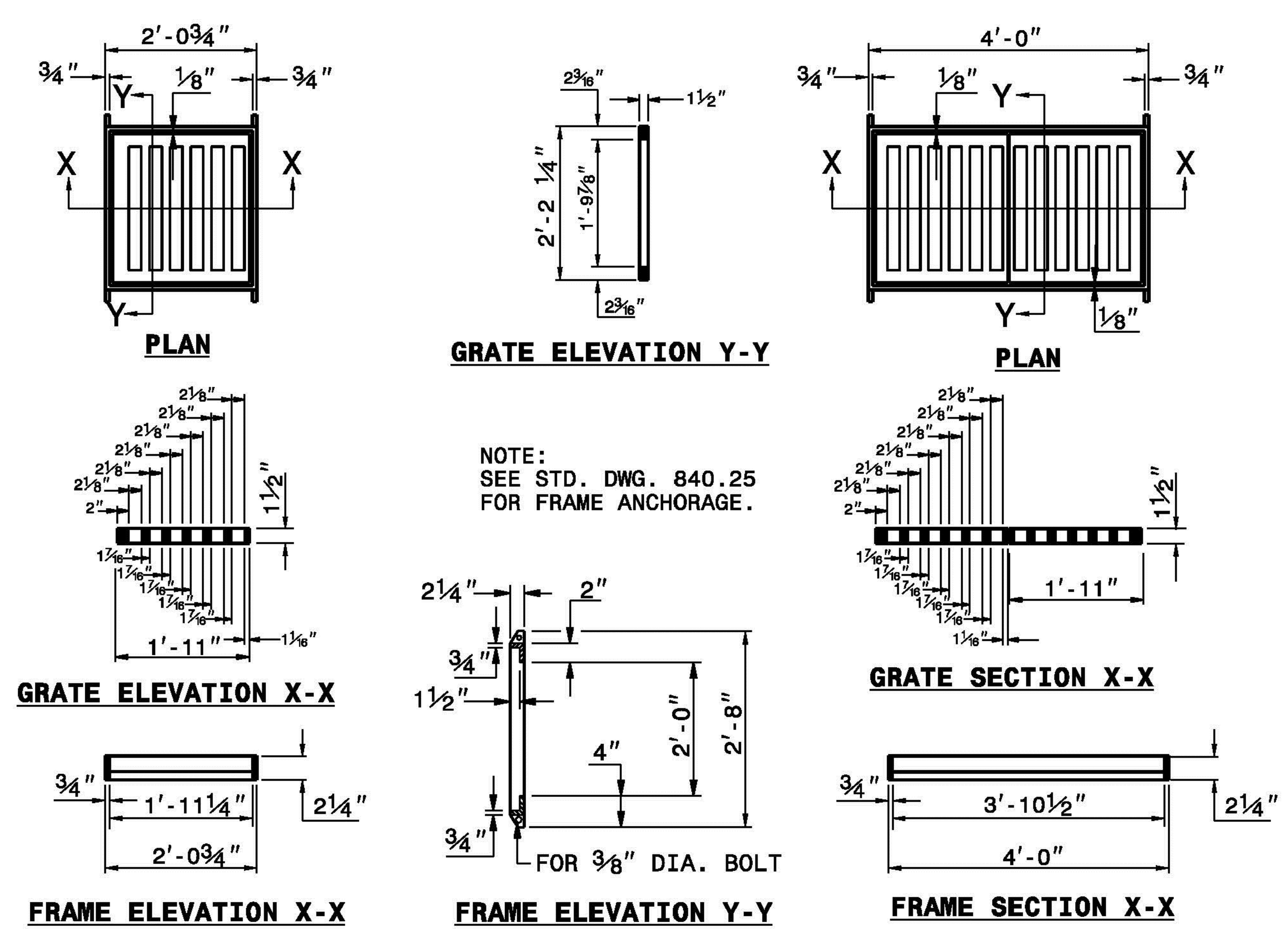


NOTE:
SEE STD. DWG. 840.25
FOR FRAME ANCHORAGE.

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **FRAMES AND NARROW SLOT SAG GRATES**

SHEET 1 OF 1 **840.24**



NOTE:
SEE STD. DWG. 840.25
FOR FRAME ANCHORAGE.

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

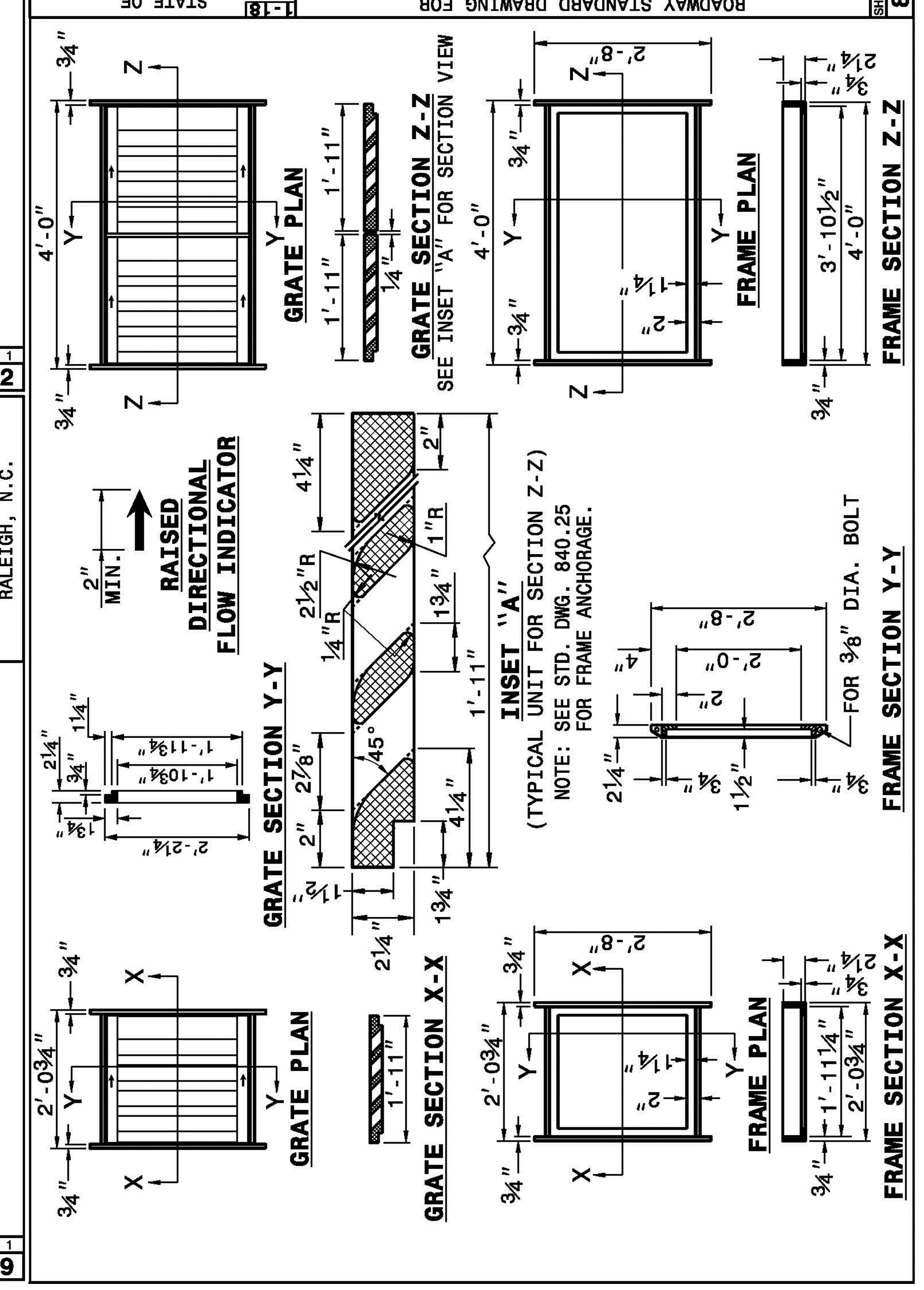
ROADWAY STANDARD DRAWING FOR **FRAMES AND NARROW SLOT FLAT GRATES**

SHEET 1 OF 1 **840.29**

1-18 STATE OF NORTH CAROLINA DEPT. OF TRANSPORTATION DIVISION OF HIGHWAYS RALEIGH, N.C.

ROADWAY STANDARD DRAWING FOR **ANGLED VANE GRATES AND FRAMES**

SHEET 1 OF 1 **840.33**



FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

CLIENT INFORMATION:
BECKER MORGAN GROUP
3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

PARAMOUNTE ENGINEERING, INC.
122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

DETAILS

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
FINAL DESIGN:
RELEASED FOR CONST:

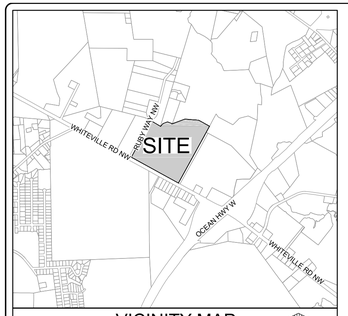
DRAWING INFORMATION
DATE: 04/16/20
SCALE: N.T.S.
DESIGNED: AEC
DRAWN: AEC
CHECKED: RPB

SEAL
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 031591 ROBERT P. BALLAND
04/16/20

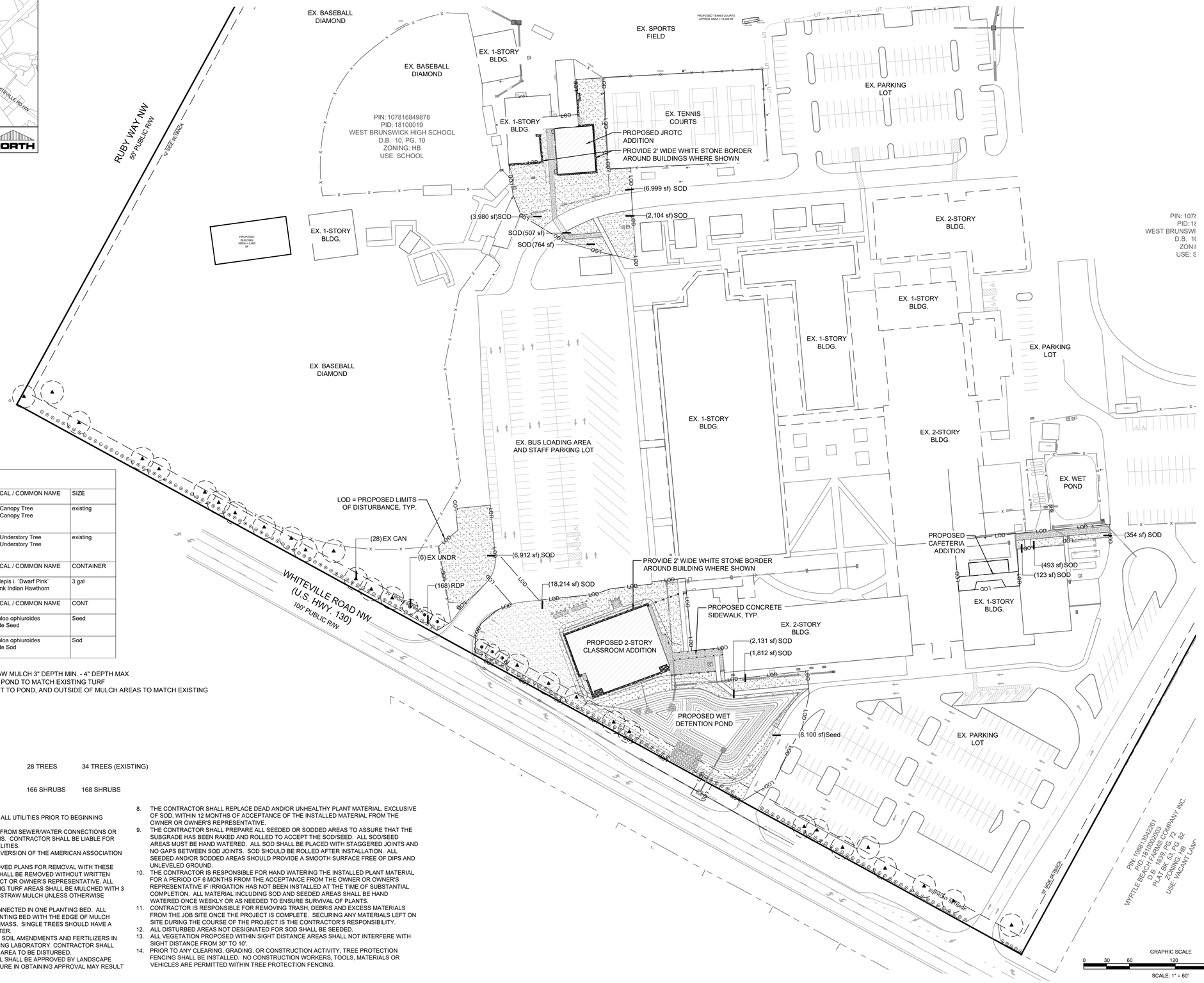
C-5.4

PEI JOB#: 19249.PE

Know what's below. Call before you dig. 811



VICINITY MAP
SCALE: 1" = 2,000'
NORTH



PLANT SCHEDULE

EXISTING TREES	CODE	QTY	BOTANICAL / COMMON NAME	SIZE
	EX CAN	28	Existing Canopy Tree Existing Canopy Tree	existing
	EX UNDR	6	Existing Understory Tree Existing Understory Tree	existing
SHRUBS	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONTAINER**
	RDP	168	Rhaphiolepis i. 'Dwarf Pink' Dwarf Pink Indian Hawthorn	3 gal
SOD/SEED	**CODE**	**QTY**	**BOTANICAL / COMMON NAME**	**CONT**
	Seed	8,100 sf	Eremochloa ophiuroides Centipede Seed	Seed
	SOD	44,393 sf	Eremochloa ophiuroides Centipede Sod	Sod

PLANTING NOTES:
1. ALL PLANT BEDS SHALL RECEIVE PINE STRAW MULCH 3" DEPTH MIN. - 4" DEPTH MAX
2. PROVIDE SOD ADJACENT TO STORMWATER POND TO MATCH EXISTING TURF
3. SEED ALL DISTURBED AREAS NOT ADJACENT TO POND, AND OUTSIDE OF MULCH AREAS TO MATCH EXISTING ADJACENT TURF

LANDSCAPE REQUIREMENTS
STREET BUFFERS (SECTION 17-13)

ROAD FRONTAGE - WHITEVILLE ROAD = 1,378 LF
(1,500 LF - 122' LF DRIVEWAYS)

PLANTING REQUIRED:
1 TREE / 50 LF OF ROAD FRONTAGE — 28 TREES — 34 TREES (EXISTING)
1,378 / 50 = 27.56

6 SHRUBS / 50 LF OF ROAD FRONTAGE — 166 SHRUBS — 168 SHRUBS
1,378 / 50 = 27.56 * 6 = 165.36

LANDSCAPE NOTES:
1. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING ALL UTILITIES PRIOR TO BEGINNING CONSTRUCTION.
2. TREES SHALL BE LOCATED A MINIMUM OF 5 FEET FROM SEWER/WATER CONNECTIONS OR AS OTHERWISE DICTATED BY LOCAL REGULATIONS. CONTRACTOR SHALL BE LIABLE FOR DAMAGE TO ANY AND ALL PUBLIC OR PRIVATE UTILITIES.
3. ALL PLANT MATERIAL SHALL MEET THE CURRENT VERSION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S STANDARDS.
4. NO TREE, OTHER THAN THOSE SHOWN ON APPROVED PLANS FOR REMOVAL WITH THESE PLANS AND/ OR TREE REMOVAL PERMIT PLANS, SHALL BE REMOVED WITHOUT WRITTEN AUTHORIZATION FROM THE LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. ALL SHRUB BEDS AND/OR PLANTING AREAS EXCLUDING TURF AREAS SHALL BE MULCHED WITH 3 INCH MINIMUM AND 4 INCH MAXIMUM DEPTH PINE STRAW MULCH UNLESS OTHERWISE NOTED.
5. ALL PLANTS, 4 FEET OR LESS APART, WILL BE CONNECTED IN ONE PLANTING BED. ALL GROUPS OF PLANTS SHOULD BE WITHIN ONE PLANTING BED WITH THE EDGE OF MULCH EXTENDING 2 FEET BEYOND THE EDGE OF PLANT MASS. SINGLE TREES SHOULD HAVE A CIRCLE OF MULCH NOT LESS THAN 5 FEET DIAMETER.
6. PLANTING SOIL MIX: MIX EXISTING SOIL WITH THE SOIL AMENDMENTS AND FERTILIZERS IN THE QUANTITIES RECOMMENDED BY A SOIL TESTING LABORATORY. CONTRACTOR SHALL PROVIDE LABORATORY SOIL SAMPLES FOR EACH AREA TO BE DISTURBED.
7. ANY AND ALL SUBSTITUTIONS OF PLANT MATERIAL SHALL BE APPROVED BY LANDSCAPE ARCHITECT OR OWNER'S REPRESENTATIVE. FAILURE IN OBTAINING APPROVAL MAY RESULT IN LIABILITY TO THE CONTRACTOR.
8. THE CONTRACTOR SHALL REPLACE DEAD AND/OR UNHEALTHY PLANT MATERIAL, EXCLUSIVE OF SOD, WITHIN 12 MONTHS OF ACCEPTANCE OF THE INSTALLED MATERIAL FROM THE OWNER OR OWNER'S REPRESENTATIVE.
9. THE CONTRACTOR SHALL PREPARE ALL SEEDED OR SODDED AREAS TO ASSURE THAT THE SUBGRADE HAS BEEN RAKED AND ROLLED TO ACCEPT THE SOD/SEED. ALL SOD/SEED AREAS MUST BE HAND WATERED. ALL SOD SHALL BE PLACED WITH STAGGERED JOINTS AND NO GAPS BETWEEN SOD JOINTS. SOD SHOULD BE ROLLED AFTER INSTALLATION. ALL SEEDED AND/OR SODDED AREAS SHOULD PROVIDE A SMOOTH SURFACE FREE OF DIPS AND UNLEVELED GROUND.
10. THE CONTRACTOR IS RESPONSIBLE FOR HAND WATERING THE INSTALLED PLANT MATERIAL FOR A PERIOD OF 6 MONTHS FROM THE ACCEPTANCE FROM THE OWNER OR OWNER'S REPRESENTATIVE IF IRRIGATION HAS NOT BEEN INSTALLED AT THE TIME OF SUBSTANTIAL COMPLETION. ALL MATERIAL INCLUDING SOD AND SEEDED AREAS SHALL BE HAND WATERED ONCE WEEKLY OR AS NEEDED TO ENSURE SURVIVAL OF PLANTS.
11. CONTRACTOR IS RESPONSIBLE FOR REMOVING TRASH, DEBRIS AND EXCESS MATERIALS FROM THE JOB SITE ONCE THE PROJECT IS COMPLETE. SECURING ANY MATERIALS LEFT ON SITE DURING THE COURSE OF THE PROJECT IS THE CONTRACTOR'S RESPONSIBILITY.
12. ALL DISTURBED AREAS NOT DESIGNATED FOR SOD SHALL BE SEEDED.
13. ALL VEGETATION PROPOSED WITHIN SIGHT DISTANCE AREAS SHALL NOT INTERFERE WITH SIGHT DISTANCE FROM 30" TO 10'.
14. PRIOR TO ANY CLEARING, GRADING, OR CONSTRUCTION ACTIVITY, TREE PROTECTION FENCING SHALL BE INSTALLED. NO CONSTRUCTION WORKERS, TOOLS, MATERIALS OR VEHICLES ARE PERMITTED WITHIN TREE PROTECTION FENCING.

FINAL DESIGN - RELEASED FOR BIDDING ONLY

REVISIONS:

CLIENT INFORMATION:

BECKER MORGAN GROUP
3333 JAECKLE DRIVE, SUITE 120
WILMINGTON, NC 28403

P:\Marketing\Logo\Updated Logo 111714.jpg

122 Cinema Drive
Wilmington, North Carolina 28403
(910) 791-6707 (O) (910) 791-6760 (F)
NC License #: C-2846

LANDSCAPE PLAN

W. BRUNSWICK HIGH SCHOOL IMPROVEMENTS
550 WHITEVILLE RD NW, SHALLOTTE
BRUNSWICK COUNTY, NC 28470

PROJECT STATUS
CONCEPTUAL LAYOUT:
PRELIMINARY LAYOUT:
PERMIT SET:
RELEASED FOR CONST:

DRAWING INFORMATION
DATE: 4/16/20
SCALE: 1" = 60'
DESIGNED: JRC
DRAWN: JRC
CHECKED: AE

SEAL
NORTH CAROLINA PROFESSIONAL SEAL 1449 ENGINEER JAMES R. CIRELLO
04/16/20

L-1.0

PEI JOB#: 19249.PE

1.0 CODES AND STANDARDS:

1.1 "2018 North Carolina State Building Code" and "International Building Code", 2015.

1.2 "Minimum Design Loads for Buildings and other Structures" SEI/ASCE 7-10.

1.3 "Building Code Requirements for Structural Concrete (ACI 318-14)" American Concrete Institute 2014.

1.4 "Manual of Standard Practice", Concrete Reinforcing Steel Institute, latest edition.

1.5 "Specification for Structural Steel Buildings (AISC 360-10)" American Institute of Steel Construction, 2011 – 14th Edition

1.6 "Structural Welding Code – Steel (AWS D1.1)" and "Structural Welding Code – Reinforcing Steel (AWS D1.4)", American Welding Society.

1.7 "Building Code Requirements for Masonry Structures", ACI 530-13, ASCE 5-13, TMS 402-13.

1.8 "Design Manual For Floor Decks and Roof Decks", Steel Deck Institute, latest edition.

2.0 DESIGN LOADS:
Project Located in: Town of Shallotte, County of Brunswick, State of North Carolina.

2.1 Gravity Loads: (Reduced where allowed)

GRAVITY LOADS		
Location	Uniform (psf)	Concentrated (lbs) (Over 2.5'x2.5')
Roof Loads:		
Dead Load	20	
Live Load	20	300
Floor Loads		
Dead Load	50	
Live Load	100	

2.2 Drifting Snow Loads per N.C. Building Code.

Pg = 10 psf
I = 1.1
Ce = 0.9
Ct = 1.0

2.3 Risk Category = III

2.4 Wind Loads per N.C. State Building Codes, 2018 edition (IBC 2015) & ASCE 7-10 (3-second gust)

Main Wind Force Resisting System:
V= 156 mph
Exposure Category "B"

Building is enclosed & Internal Pressure coefficient (GCpi) = +0.18 & -0.18
Topographic Factor Kzt = 1.0
Wind Directionality Factor, Kd = 0.85

Calculated Wind Base Shear (For MWFRS)
Vx = 6K Vy = 20K

Components and Cladding:
V 156 mph
Exposure Category "B"

Components and Cladding Wind Pressure (psf)

Walls	Area < 10ft²		< 20ft²		Area < 50ft²		Area < 100ft²		Area < 500ft²	
Zone 4	43.9	-47.5	41.9	-45.6	39.2	-43.0	37.3	-41.0	32.7	-36.4
Zone 5	43.9	-58.7	41.9	-54.7	39.2	-49.5	37.3	-45.6	32.7	-36.4
Roof	**Area < 10ft²**		**Area < 20ft²**		**Area < 50ft²**		**Area < 100ft²**		**Area < 500ft²**	
Zone 1	17.8	-43.9	16.7	-42.7	15.3	-41.3	14.1	-40.1	14.1	-40.1
Zone 2	17.8	-73.6	16.7	-65.7	15.3	-55.3	14.1	-47.5	14.1	-47.5
Zone 3	17.8	-110.7	16.7	-91.7	15.3	-66.6	14.1	-47.5	14.1	-47.5

Notes:
1. Areas noted are effective wind areas as per ASCE 7-10, 26.2 definitions.
2. See figures below for Zone locations.
3. Plus and minus signs signify pressures acting toward and away from surfaces, respectively.
4. Design pressures shown in table are strength design wind pressures. Allowable stress design wind pressures may be calculated by factoring the pressures by 0.6.
5. Design pressures for effective wind areas between those noted in schedule may be interpolated.
6. Tributary area = greater of LxW or LxL/3.
7. Deflections may be calculated based on 42% of these loads.

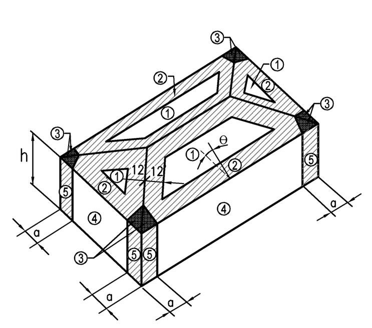
2.5 Seismic Loads per 2018 North Carolina State Building Code (IBC 2015) & ASCE 7-10

Risk Category = III
Site class = "F" (Per Geotechnical Report – spectral response based on site class 'D' per IBC 2015 exception.)
Spectral Response Coefficients:
SDS = 0.311g
SD1 = 0.182g

Cs = 0.097
Seismic Design Category = C
Seismic Importance Factor = 1.25
Basic Seismic – Force – Resisting System
Light frame (cold formed steel) wall systems using flat strap bracing
RX=RY=4.0, ΩY=2.0, CDY=3.5
Design Base Shear Vx = Vy =2k
Building Height Limit = NL
Analysis Procedure – 12.8.1 ASCE 7-10
Equivalent Lateral Force Procedure

2.6 Guardrail designed per North Carolina State Building Code, Section 1607.8
Guardrail:
Uniform load = 50 plf, any direction – per 1607.8.1
Concentrated load = 200 lbs, any direction – per 1607.8.1.1
Intermediate Rail: (all those expect handrail) per 1607.8.1.2

2.7 Flood Loads:
Project is not located in a flood zone.



Hip Roof (7°< θ ≤27°)

a = 5ft "corner zone"

3.0 FOUNDATIONS:

3.1 Foundation design is based on geotechnical report #1306-19-016 by SM&E Inc, Wilmington, NC dated August 21, 2019. This report is available in the project specifications book. The recommendations contained in this report are herein made part of the requirements of these contract documents.

3.2 Based on the Geotechnical Report by SM&E Inc, this site has a low to moderate risk of liquifaction during the maximum considered earthquake (MCE). The MCE has a 2% probability of excedance in 50 years or once every 2,500 years. Based on the estaimated total and differential settlements of less than 4 inches and less than 3 inches, respectively, the structure should not collapse. During the design seismic event, the structure should not collapse, however extensive unrepairable damage should be expected unless liquifaction mitigation (i.e earthquake drains) are implemented. The owner should be made aware of the risk associated and determine if liquifaction mitigation should be implemented.

3.3 New footings shall bear on strata capable of sustaining a minimum bearing pressure of 2,500 psf. The bearing capacity shall be verified by a qualified Geotechnical Engineer.

3.4 Top of footing (T/FTG) elevations are shown on the drawings or are to be determined by the Contractor in the field in accordance with the guidelines set forth in the drawings.

3.5 Bottom of exterior footings, grade beams and walls shall bear at a minimum depth of 1'-6" below final grade for frost protection.

3.6 Testing and Inspection:
a. All areas to have slabs on grade shall be proof rolled in accordance with and under observation fo the Geotechnical Engineer and approved prior to preparation for concrete placement.

b. All foundation bearing strata shall be inspected and approved by the Geotechnical Engineer prior to any concrete placement.

c. Geotechnical Engineer shall be the sole judge as to suitability of all foundation and/or slab bearing strata.

d. Footing bearing elevations shall be adjusted in the field as required to meet the design bearing pressures by additional excavation or compaction and/or backfilling or by other means acceptable to the Geotechnical Engineer.

3.7 Undercutting to remove existing fill beneath footings and slab shall be performed at the direction of the Geotechnical Engineer.

3.8 Engineered Fill: All fill material shall be selected in accordance with the Geotechnical Report Material shall be a clean, low plastic soil with a plasticity index less than 30 (less than 15 is preferred), liquid limit less than 50, and unit weight of 120 pcf (+ 5 pcf)

3.9 Compaction: All fill shall be placed in loose lifts not exceeding 8 inches in thickness and compacted to a minimum of 96 percent Standard Proctor (ASTM D-698) except that the top 12 inches shall be compacted to a minimum of 98 percent Standard Proctor. Moisture shall be controlled to within 3 percent above or below optimum content.

3.10 Remove all topsoil and organic materials. The stripping should extend at least 10' beyond the proposed construction limits.

3.11 Subsurface Water: Due to the relatively shallow groundwater encountered, (2'-3' noted during boring) temporary construction dewatering may be necessary to facilitate efficient below-grade construction. Dewatering operations for the majority of the site can be handled by the use of conventional submersible pumps directly in the excavation or temporary trenches or French drains.

3.12 Protection of Foundation Excavations: Exposure to the environment may weaken the soils at the footing bearing level if the foundation excavations remain open for too long a time. Therefore, foundation concrete should be placed the same day that excavations are made. If the bearing soils are softened by the surface water intrusion or exposure, the softened soils must be removed from the foundation excavation bottom immediately prior to placement of concrete. If the excavation must remain open overnight, or if rainfall becomes imminent while the bearing soils are exposed, a 2 to 3-inch "mud mat" of "lean" concrete should be placed on the bearing soils before the placement of reinforcing steel.

4.0 CONCRETE:

4.1 Concrete Strength:
All concrete shall be in accordance with the American Concrete Institute (ACI) 301 and 318.

4.2 Concrete shall have a 28 day compressive strength and density as follows:
a. Footings....................3,000psi, Density = ±145pcf
b. Interior Slab on Grade....................3,000psi, Density = ±145pcf
c. CMU Grout Fill....................3,000psi, Density = ±145pcf, Slump 8"-11" or per structural masonry note 6.5

d. Exterior Slab on Grade....................4,000psi, Density = ±145pcf

4.3 Concrete Mix Designs:
d. Submittals: Submit written reports of each proposed concrete mix not less than 15 days prior to the start of work.
e. Mix designs, including water, cement ratios and slumps, shall be prepared in accordance with ACI 301-05, Section 4, Cement shall conform to ASTM C 150 Type 1 or at contractor's option, ASTM C 595 Type IP where fly ash is permitted. Normal weight aggregate shall conform to ASTM C 33 and light weight aggregate shall conform to ASTM C 330. No admixtures containing calcium chloride shall be permitted in any concrete.
f. Aggregate size shall be #67 stone for supported slabs or other formed concrete elements; #57 stone for slabs on grade and footings or other concrete elements formed from and poured against earth; #89 stone for masonry grout.
g. Water reducing admixture shall be used in all concrete.
h. Air entraining admixture in accordance with ACI 301 shall be used in all concrete exposed freezing and thawing during construction or service conditions.
i. Concrete subjected to freezing/thawing shall have a maximum water/cement ratio of 0.45 and shall contain the amount of air entraining agent specified in ACI 301-05 Section 4.

4.4 Curing:
See specifications for curing method options and apply within two (2) hours after completion of finishing to all concrete flatwork and walls, U.N.O., other than footings and grade beams.

4.5 Use a non-corrosive, non-chloride accelerating admixture in concrete exposed to temperatures below 40 degrees. Uniformly heat the water and aggregates to a temperature of not less than 50 degrees. Place and cure concrete in accordance with ACI 306.

4.6 When hot weather conditions exist, place and cure concrete in accordance with ACI 301. Cool ingredients before mixing to maintain concrete temp. at time of placement below 90 degrees.

4.7 Reinforcing in all abutting concrete, including footings shall be continuous through or around all corners or intersections. Dowels or splices shall be equal in size and spacing to the reinforcing in the abutting members.

4.8 Refer to architectural drawings for door and window openings, drips, reglets, washes, masonry anchors, brick ledge elevations, slab depressions and miscellaneous embedded plates, bolts, anchors, angles, etc.

4.9 Refer to plumbing, mechanical and electrical drawings for underfloor, perimeter and other drains and for sleeves, outlet boxes, conduit, anchors, etc. The various trades are responsible for their items.

4.10 Base plates, anchor rods, support angles and other steel exposed to earth or granular fill shall be covered with a minimum of 3" of concrete.

4.11 Finish surfaces to the following tolerances, according to ASTM E 1155, for a randomly trafficked floor surface:
a. Specified overall values of flatness, F(F) 25; and of levelness, F(L) 20; with minimum local values equal to ⅗ of the overall flatness and levelness values.
b. The composite F(F) and F(L) numbers shall be measured and reported within 72 hours after completion of slab concrete finishing operations and before removal of any supporting shores.

4.12 Non-shrink grout shall be pre-mixed, non-corrosive, non-metallic, non-staining containing silica sands, Portland cement, shrinkage compensating and water reducing agents. Product shall only require the addition of water. Minimum compressive strength shall be 2500 psi after one day and 7000 psi after 28 days. Grout shall be free of gas producing or air releasing and oxidizing agents and contain no corrosive iron, aluminum or gypsum.

4.13 Provide concrete grout – not mortar – for reinforced masonry lintel and bond beams where indicated on drawing or as scheduled.

4.14 Tolerance for anchor rods and other embedded items shall be per the AISC Code of Standard Practice Section 7.5.

4.15 Unless otherwise shown in the architectural drawings, provide 3/4-inch chamfers at all column, wall, slab or beam edges that are exposed to view in the finished structure.

4.16 Concrete cover for cast-in-place concrete reinforcement:
Concrete cast against & permanently exposed to earth:....................3 Inches
Concrete exposed to earth or weather:
No. 6 through No. 18 Bars:....................2 Inches
No. 5 Bar and smaller:....................1½" Inches
Concrete not exposed to weather or in contact with ground:
Slabs:
No. 11 Bar and smaller:....................¾" Inches

5.0 REINFORCING STEEL:

5.1 Reinforcing shall be domestic new billet steel conforming to ASTM A615, Grade 60 or 60S including stirrups and ties, except that reinforcing which is required to be welded shall conform to ASTM A706.

5.2 Field bending of concrete reinforcing steel is not permitted.

5.3 Welded wire mat and fabric shall conform to ASTM A184 and A185 respectively and shall be provided in flat sheets. Welded wire mat/fabric shall be lapped 0'-6" at all splices.

5.4 Bar Splices:

	f'c = 3,000psi		f'c = 4,000psi		f'c = 5,000psi	
Bar Size	**Ld (in)**	**Class "B" Lap Splice (in)**	**Ld (in)**	**Class "B" Lap Splice (in)**	**Ld (in)**	**Class "B" Lap Splice (in)**
#3	17	22	15	19	13	17
#4	22	29	19	25	17	23
#5	28	36	24	31	22	28
#6	33	43	29	37	26	34
#7	48	63	42	54	38	49
#8	55	72	48	62	43	56

1. Values are based on normal weight concrete.
2. Ld = minimum embed of rebar
3. Class "B" lap splice refers to minimum distance bars must be lapped for a full tension splice.

6.0 STRUCTURAL MASONRY:

6.1 All structural masonry shall conform to ACI 530 standards as appropriate to the material.

6.2 Concrete Masonry Units (CMU):
a. Units shall be lightweight cellular units conforming to ASTM C 90, Grade N-2. Concrete masonry net area unit strength shall be no less than 2000 psi in accordance with ASTM C 140, with a unit weight not exceeding 95 pcf.
b. Design compressive strength of CMU (fm) = 2000 psi.

6.3 Mortar shall conform to ASTM C 270. Mortar shall be type "S" and shall conform to the ASTM C270 proportion requirements.

6.4 Neither type "N" mortar nor masonry cement shall be used as part of the lateral force resisting system.

6.5 Grouting:
a. Grout shall conform to ASTM C476 as specified by proportion. Masonry grout shall conform to the ASTM proportion requirements for coarse grout with a slump of 8 to 11 inches. Contractor may substitute grout with pea gravel concrete masonry fill, see note 4.2 this sheet.
b. All bond beams shall be filled with grout and reinforced as indicated on the drawings (details or schedules). Mortar fill is not permitted.
c. All masonry wall cells or cavities indicated as reinforced shall be grouted for the full height of the wall, unless specifically noted otherwise on the drawings. Unreinforced walls indicated as grouted shall be grouted full height, unless specifically noted otherwise. Mortar fill is not permitted.
d. All masonry cells or cavities below grade shall be grouted solid unless specifically noted otherwise on the drawings. Mortar fill is not permitted.
e. Vertical grouting shall be low lift or high lift as follows:
(1) Low lift grouting shall be used for all cavity walls and may be used for all walls at the option of the Contractor. Lifts shall not exceed 4'-0" in height.
(2) High lift grouting is permissible only for filling of cellular masonry units and shall not exceed 12'-8" in height. Clean out holes shall be provided at the base of each grouted cell.
f. Grouting shall be stopped 1-1/2" below the top of a course to form a key at the joint.
g. Grouting of masonry beams or lintels shall be done in one continuous operation.

6.6 Masonry Reinforcing:
a. Foundation dowels may slope a maximum of 1:6 to align with wall cavities or vertical CMU cores. Greater slopes will require replacement of the foundation dowels.
b. Spliced reinforcing shall be lapped a length calculated per IBC 2107.5 OR 15" OR as shown on drawings, whichever is greatest. All splices shall be wired together.
c. Vertical reinforcing bars shall have a minimum clearance of ¾" from masonry and shall be held in position top and bottom and at intervals not exceeding 4'-0". Accessories for such support shall be used. Provide "AA Wire Products Company" (or approved equal) Rebar Positioner AA225 or AA239 for vertical bars and AA238 for horizontal bars or approved equal products from other suppliers.
d. Horizontal joint reinforcing shall be lapped no less than 6" all splices, including corners and tees where no control joint is used.
e. All horizontal joint reinforcing shall stop at control joints.
f. Horizontal reinforcing in bond beams shall be continuous through control joints.
g. All CMU walls shall have joint reinforcing @ 16"o.c. All joint reinforcing shall have (2) 9 gauge (0.148"ø or W1.7) side rods and cross rods @ 16"o.c.

6.7 Masonry contractor shall provide for and coordinate with other trades for placement of all items to be embedded or built into the masonry.

MINIMUM SPLICING LENGTH (L_d) FOR MASONRY	
BAR SIZE	SPLICE LENGTH
#3	16"
#4	22"
#5	26"
#6	43"
#7	60"

7.0 STEEL DECK:

7.1 Steel roof deck shall be galvanized, Type B, 1 1/2" deep, 20 gauge, U.N.O.

7.2 For steel roof deck spans, mechanically fasten side laps at mid-span using "Buildex", self-tapping TEKS No. 10 or larger machine screws or as noted on plan.
Provide additional sidelap fasteners where noted on plan.
Fasten roof deck to supporting members as noted on plan.

7.3 Do not hang pipes or ducts from steel roof deck. Fasten roof deck to supporting members as noted on plan.

8.0 LIGHT GAUGE STEEL FRAMING (DIETRICH):

8.1 All members shall be designed in accordance with the American Iron and Steel Institute (AISI) "Specifications for the Design of Cold-formed Steel Structural Members", Latest Edition.

8.2 All framing members shall be formed from corrosion-resistant steel corresponding to the requirements of ASTM A446, with a minimum yield strength of 33 ksi for joists and studs and 33 ksi for runners. All exterior tracks, studs and roof trusses to have G90 Galvanization.

8.3 All members shown are standard designations of "Dietrich Industries, Inc."

8.4 Design of members indicated in structural drawings is based on minimum properties of products produced by "Dietrich Industries." No substitution of materials is acceptable for use without prior approval of the structural engineer. Substitutions shall meet or exceed all properties produced by "Dietrich Industries, Inc."

8.5 All shop drawing submittals shall show layout, spacing, sizes, thicknesses and types of cold-formed metal framing, fabrication, and fastening and anchorage details, including mechanical fasteners. Show reinforcing channels, opening framing, supplemental framing, strapping, bracing, bridging, splices, accessories, connection details and attachment to adjoining work.

8.6 Shop drawings, design calculations and other structural data shall be prepared and sealed by a qualified engineer. The Structural Engineer shall be legally qualified to practice in the jurisdiction where the project is located and shall be experienced in providing engineering services of the kind indicated.

8.7 All framing components shall be cut squarely for attachment to perpendicular members or as required for an angular fit tight against abutting members. All load bearing stud/walls shall be factory assembled into panels with studs bearing squarely and fully in top and bottom tracks.

8.8 Fastening components shall be by self-drilling screws or by welding as defined below UNO on the drawings.

8.9 Screwed connections:
a. Screws shall be type S-12 or type S-4 for all framing members per manufacturer's recommendations.
b. A minimum of three (3) exposed threads shall penetrate through at joined materials.
c. Corrosion-resistant cadmium-plated screws shall be used for screws attaching metal lath, masonry ties, and other exterior materials.

8.10 Welded connections:
a. Gas metal arc welding (GMAW) shall be used for 20 ga. Or lighter members. AWSE-705-3, E-705-E, E-705-6 wire electrodes .030"-.035" diameter shall be used with carbon dioxide, argon-oxygen or argon-carbon dioxide shielding. Welding equipment 60-100 amperes at 25 volts using 220-volt 3-phase electric service.
b. Shielded metal arc welding (SMAW) shall be used for 18 ga' and heavier members. AWS E-6012, E-6013, or E-7014 electrodes of 3/32" or 1/8" diameter shall be used. Welding equipment heat setting shall be varied dependent on material thickness.
c. All welds shall be touched up with zinc rich paint, or paint similar to that used by the framing member manufacturer.

8.11 Alignment of studs (plumbness) and walls (straightness) shall be within 1/960 of their respective heights and lengths.

8.12 Studs shall be plumbed, aligned, and securely attached to top and bottom runners. Splices in studs are not permitted.

8.13 Where manufacturer's recommendations for erection, attachment, assembly, bracing, alignment, or other installation, or assembly requirements are more stringent than indicated in these drawings, the manufacturer's recommendations shall apply.

STEEL THICKNESS						
Gauge:	Mils	Design Thickness		Minimum Thickness		Yield Strength
		Inches	mm	Inches	mm	ksi
20	33	0.0346	0.879	0.0329	0.836	33
18	43	0.0451	1.146	0.0428	1.087	33
16	54	0.0566	1.438	0.0538	1.367	50
14	68	0.0713	1.811	0.0677	1.720	50
12	97	0.1017	2.583	0.0966	2.454	50

9.0 POST-INSTALLED ANCHORS:

9.1 Except where indicated on the drawings, post-installed anchors shall consist of the following anchor types as provided by HILTI, Inc. Contact HILTI at (800) 879-8000 for product related questions.

Anchorage to Concrete
a. Adhesive anchors for cracked and uncracked concrete use:
1. HILTI HIT-HY 200 Safe Set System with HILTI HIT-Z Rod per ICC ESR-3187 (pending).
2. HILTI HIT-HY 200 Safe Set System with HILTI Hollow Drill Bit System with HAS-E threaded rod per ICC ESR-3187.
3. HILTI HIT-RE 500-SD Epoxy Adhesive Anchoring system with HAS-E threaded rod per ICC ESR-2322 for slow cure applications.

b. Medium duty mechanical anchors for cracked and uncracked concrete use:
1. HILTI KWIK HUS EZ and KWIK HUS EZ-I Screw Anchors per ICC ESR-3027
2. HILTI KWIK BOLT-TZ Expansion Anchors per ICC ESR-1917
3. HILTI KWIK Bolt 3 Expansion Anchors (uncracked concrete only) per ICC ESR-2302

c. Heavy duty mechanical anchors for cracked and uncracked concrete use:
1. HILTI HDA Undercut Anchors per ICC ESR 1546
2. HILTI HSL-3 Expansion Anchors per ICC ESR 1545

Rebar Doweling into Concrete
a. Adhesive anchors for cracked and uncracked concrete use:
1. HILTI HIT-HY 200 Safe Set System with HILTI Hollow Drill Bit System with continuously deformed rebar per ICC ESR-3187.
2. HILTI HIT-RE 500-SD Epoxy Adhesive Anchoring System with continuously deformed rebar per ICC ESR-2322.

Anchorage to Solid Grouted Masonry
a. Adhesive Anchors use:
1. HILTI HIT-HY 70 Masonry Adhesive Anchoring System (ICC pending).
2. Steel anchor element shall be HILTI HAS-E continuously threaded rod or continuously deformed steel rebar.
b. Mechanical Anchors use:
1. HILTI KWIK BOLT-3 Expansion Anchors per ICC ESR 1385.

Anchorage to Hollow/Multi-wythe Masonry
a. Adhesive Anchors use:
1. HILTI HIT-HY 70 Masonry Adhesive Anchoring System per ICC ESR-3342.
2. Steel anchor element shall be HILTI HAS-E continuously threaded rod or continuously deformed steel rebar.
3. The appropriate size screen tube shall be used per adhesive manufacturer's recommendation.

9.2 Anchor capacity used in design shall be based on the technical data published by HILTI or such other method as approved by the Structural Engineer of record. Substitution requests for alternate products must be approved in writing by the Structural Engineer of record prior to use. Contractor shall provide calculations demonstrating that the substituted product is capable of achieving the performance values of the specified product. Substitutions will be evaluated by their having and ICC ESR showing compliance with the relevant building code for seismic uses, load resistance, installation category, and availability of comprehensive installation instructions. Adhesive anchor evaluation will also consider creep, in-service temperature and installation temperature.

9.3 Install anchors per the manufacturer instructions, as included in the anchor packaging.

9.4 Overhead adhesive anchors must be installed using the HILTI PROFI System.

9.5 The contractor shall arrange an anchor manufacturer's representative to provide onsite installation training for all of their anchoring products specified. The Structural Engineer of record must receive documented confirmation that all of the contractor's personnel who install anchors are trained prior to the commencement of installing anchors.

9.6 Anchor capacity is dependant upon spacing between adjacent anchors and proximity of anchors to edge of concrete. Install anchors in accordance with spacing and edge clearances indicated on the drawings.

9.7 Existing reinforcing bars in the concrete structure may conflict with specific anchor locations. Unless noted on the drawings that the bars can be cut, the contractor shall review the existing structural drawings and shall undertake to locate the position of the reinforcing bars at the locations of the concrete anchors, by HILTI FERROSCAN, GPR, X-ray, chipping or other means.

10.0 CONSTRUCTION AND SAFETY:

10.1 Woods Engineering P.A.'s responsibility is limited to the details and information shown on these drawings. It is the responsibility of the Contractor to provide adequate safety measures required by local codes as well as OSHA Standards for the Construction Industry.
This should include, but not be limited to the following:
Shoring to protect new as well as existing structures.
Necessary Scaffolding.
Material Handling Equipment.
Trench Boxing.

11.0 SPECIAL INSPECTIONS:

11.1 Refer to Specification Section 014533 for all Special Inspections requirements.

12.0 SHOP DRAWING SUBMITTAL:

12.1 See Project Manual

12.2 Contractor shall submit Electronic copies (PDF format) of each shop drawing for review. Shop drawings shall be reviewed by the Contractor prior to submission to the Engineer. The Contractor shall allow 10 working days for shop drawing approval.

ABBREVIATIONS

@	AT
&	AND
AB	ANCHOR BOLTS
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALT	ALTERNATE
ARCH	ARCHITECTS – ARCHITECTURAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
B, BOTT	BOTTOM
BCX	BOTTOM CHORD EXTENSION
BFF	BELOW FINISHED FLOOR
BLDG	BUILDING
BM	BEAM
BOS	BOTTOM OF STEEL
BRG	BEARING
BTWN	BETWEEN
CJ	CONTRACTION JOINT
CL	CENTERLINE
CLR	CLEAR
CMU	CONCRETE MASONRY UNITS
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST JT	CONSTRUCTION JOINT
CONT	CONTINUOUS
CONTR	CONTRACTOR
CSJ	COMPOSITE STEEL JOIST
CTRD	CENTERED
DBA	DEFORMED BAR ANCHOR
DD	DELEGATED DESIGN
DEFL	DEFLECTION
DEPR	DEPRESSION – DEPRESSED
DET	DETAIL
DIAG	DIAGONAL
ø	DIAMETER
DIM	DIMENSION
DIST	DISTANCE
DWG(S)	DRAWING(S)
DWL(S)	DOWEL(S)
EA	EACH
ELEV	ELEVATION
EMBED	EMBEDDED – EMBEDMENT
ENG	ENGINEER
EOR	ENGINEER OF RECORD
EQ	EQUAL
EQUIP	EQUIPMENT
EF	EACH FACE
EJ	EXPANSION JOINT
EOD	EDGE OF DECK
EOS	EDGE OF SLAB
EOW	EDGE OF WALL
EW	EACH WAY
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
FS	FAR SIDE
FTG	FOOTING
GA	GAUGE
GALV	GALVANIZED
GT	GIRDER TRUSS
HD	HEADED
HI	HIGH
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
HT	HIP TRUSS
IFM	INSIDE FACE OF MASONRY
INT	INTERIOR
JBE	JOIST BEARING ELEVATION
JT	JOINT
K	KIP-S
KB	KICKER BRACE
KSI	KIPS PER SQUARE INCH
(L)	LONG SIDE REINFORCEMENT
LB	LONG BAR
LBS	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LO	LOW
LOC	LOCATION
LWC	LIGHT WEIGHT CONCRETE
MAX	MAXIMUM
MC	MOMENT CONNECTION
MECH	MECHANICAL
MFR	MANUFACTURER
MID	MIDDLE
MIN	MINIMUM
MISC	MISCELLANEOUS
MOW	MIDDLE OF WALL
MP	MASONRY PILASTER
d	NAILS – PENNY
No	NUMBER
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OC	ON CENTER
OFB	OUTSIDE FACE OF BRICK
OFM	OUTSIDE FACE OF MASONRY
OFS	OUTSIDE FACE OF STUD
OPNG	OPENING
OPP	OPPOSITE HAND
PEBS	PRE-ENGINEERED BUILDING SUPPLIER
PED	PEDESTAL
PL	PLATE
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PSL	PARALLEL STRAND LUMBER
PLF	POUNDS PER LINEAR FOOT
PT	PRESSURE TREATED
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
(S)	SHORT SIDE REINFORCEMENT
SB	SHORT BAR
SCHD	SCHEDULE
SF	STEP FOOTING
SIM	SIMILAR
SOG	SLAB ON GRADE
SPEC(S)	SPECIFICATION(S)
SPF	SPRUCE PINE FUR
SQ	SQUARE
STD	STANDARD
STIFF	STIFFENER
STIRR	STIRRUP
STL	STEEL
STR	STRUCTURAL
SW	SHEAR WALL
SYP	SOUTHERN YELLOW PINE
T	TOP
TCX	TOP CHORD EXTENSION
TOC	TOP OF CONCRETE
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VB	VEHICLE BARRIER
VERT	VERTICAL
VIF	VERIFY IN FIELD
W	WITH
WWF	WELDED WIRE FABRIC

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ISSUED
FOR BIDDING
NOT FOR CONSTRUCTION
ISSUED: 04.16.2020

WOODS ENGINEERING, P.A. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 041563 ENGINEER ADAM L SISK

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD, N.W.
SHALLOTTE, N.C. 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

GENERAL NOTES

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	01.29.20	EARLY SITE PACKAGE
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019082.00
DATE: 04.16.2020
SCALE: 1 1/2" = 1'-0"
DRAWN BY: MBK PROJ MGR: ALS

S101

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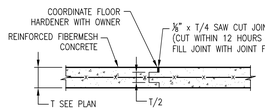
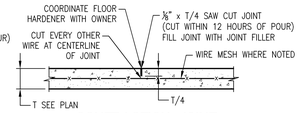
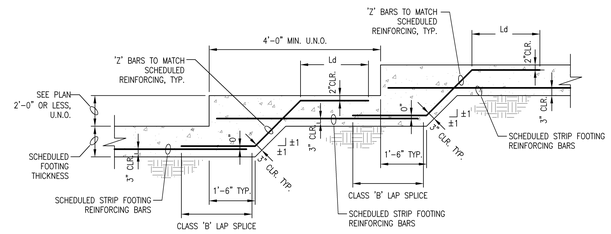


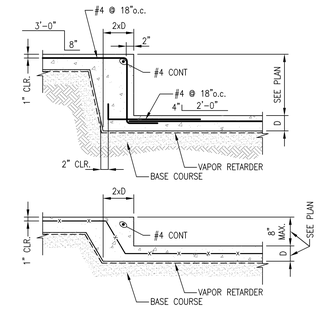
CONSTRUCTION JOINT
SCALE: 1" = 1'-0"



CONTRACTION JOINT
SCALE: 1" = 1'-0"



STEP FOOTING DETAIL
SCALE: 1/2" = 1'-0"

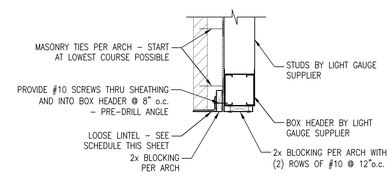


TYPICAL SLAB STEP
SCALE: 3/4" = 1'-0"

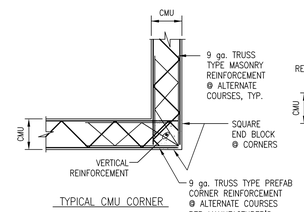
STEEL LINTEL SCHEDULE

CLEAR OPENING	ONE ANGLE FOR EA 4"WYTHE	MIN BRG	MAX. HEIGHT OF BRICK
0'-8" TO 6'-0"	∠6" x 4" x 5/16" LLH	8"	9'-0"
6'-0" TO 8'-0"	∠6"x6"x5/16"	8"	9'-0"
8'-0" TO 12'-0"	∠8"x6"x7/16" LLV	8"	9'-0"

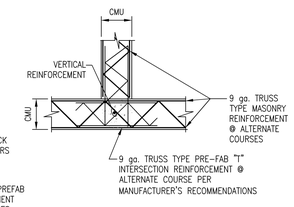
NOTES:
1. WHERE LINTELS BEAR ON HOLLOW MASONRY UNITS FILL ALL CORES UNDER BEARING WITH GROUT FROM BOTTOM OF LINTEL TO 16" MINIMUM BELOW.
2. THESE LINTELS ARE NOT DESIGNED FOR MASONRY WALLS THAT CARRY FLOOR OR ROOF LOAD.
3. LINTELS ARE DESIGNED TO CARRY THE MAXIMUM HEIGHT OF BRICK LISTED IN SCHEDULE. IF STACKED BRICK HEIGHT EXCEEDS LISTED VALUE, THEN CONTACT STRUCTURAL ENGINEER FOR ALTERNATE DESIGN.
4. ALL STEEL LINTELS SHALL BE HOT DIP GALVANIZED AND PAINTED.
5. SEE DETAIL BELOW FOR REQUIREMENTS



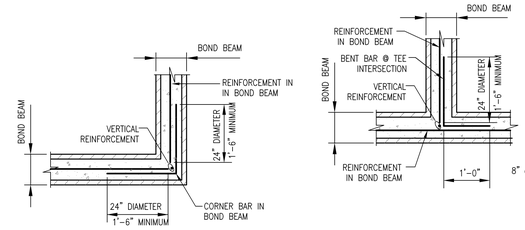
LOOSE LINTEL DETAIL
SCALE: 3/4" = 1'-0"



TYPICAL CMU CORNER
DETAIL "B"
SCALE: 3/4" = 1'-0"



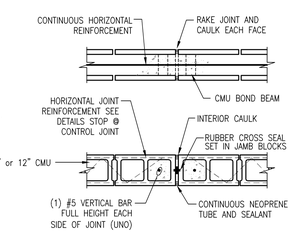
TYPICAL CMU INTERSECTION
DETAIL "C"
SCALE: 3/4" = 1'-0"



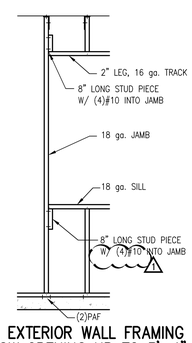
TYPICAL BOND BEAM REINFORCING
DETAIL "D"
SCALE: 3/4" = 1'-0"

NOTE: TRUSS TYPE REINFORCEMENT SHOWN, HOWEVER LADDER OR TRUSS TYPES ARE ACCEPTABLE.

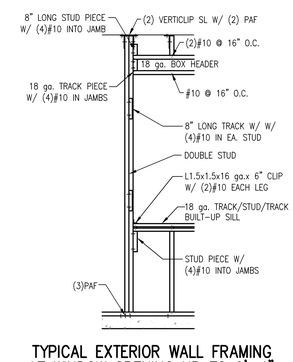
TYPICAL BOND BEAM INTERSECTION REINFORCING
DETAIL "E"
SCALE: 3/4" = 1'-0"



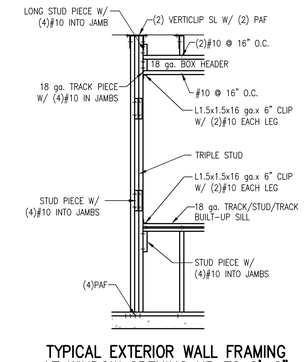
TYPICAL CONTROL JOINT
DETAIL "F"
SCALE: 3/4" = 1'-0"



TYPICAL EXTERIOR WALL FRAMING AT WINDOW OPENING UP TO 3'-4"
SCALE: 1/2" = 1'-0"



TYPICAL EXTERIOR WALL FRAMING AT WINDOW OPENING UP TO 6'-4"
SCALE: 1/2" = 1'-0"



TYPICAL EXTERIOR WALL FRAMING AT WINDOW OPENING UP TO 8'-8"
SCALE: 1/2" = 1'-0"

TYPICAL LIGHT GAUGE CONSTRUCTION DETAILS FOR NON-LOAD BEARING EXTERIOR WALLS

NOTE: THESE DETAILS ARE GENERIC AND ARE FOR GENERAL INFORMATION AND BUDGET PRICING. ACTUAL DESIGN BY LIGHT GAUGE SUPPLIER AND ENGINEER.

GENERAL NOTE:
DETAILS SHOWN ON THIS SHEET ARE GENERIC IN NATURE AND MAY NOT PORTRAY EXACT CONDITIONS. THESE DETAILS ARE INTENDED TO PROVIDE GENERAL GUIDELINES FOR TYPICAL CONSTRUCTION CONDITIONS.

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WOODS ENGINEERING, P.A. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 041563 ENGINEER ADAM L. SISK

PROJECT TITLE
WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD, N.W.
SHALLOTTE, N.C. 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE
TYPICAL DETAILS

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	01.29.20	EARLY SITE PACKAGE
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019082.00
DATE: 04.16.2020
SCALE: 1 1/2" = 1'-0"
DRAWN BY: MBK | PROJ MGR: ALS

S102

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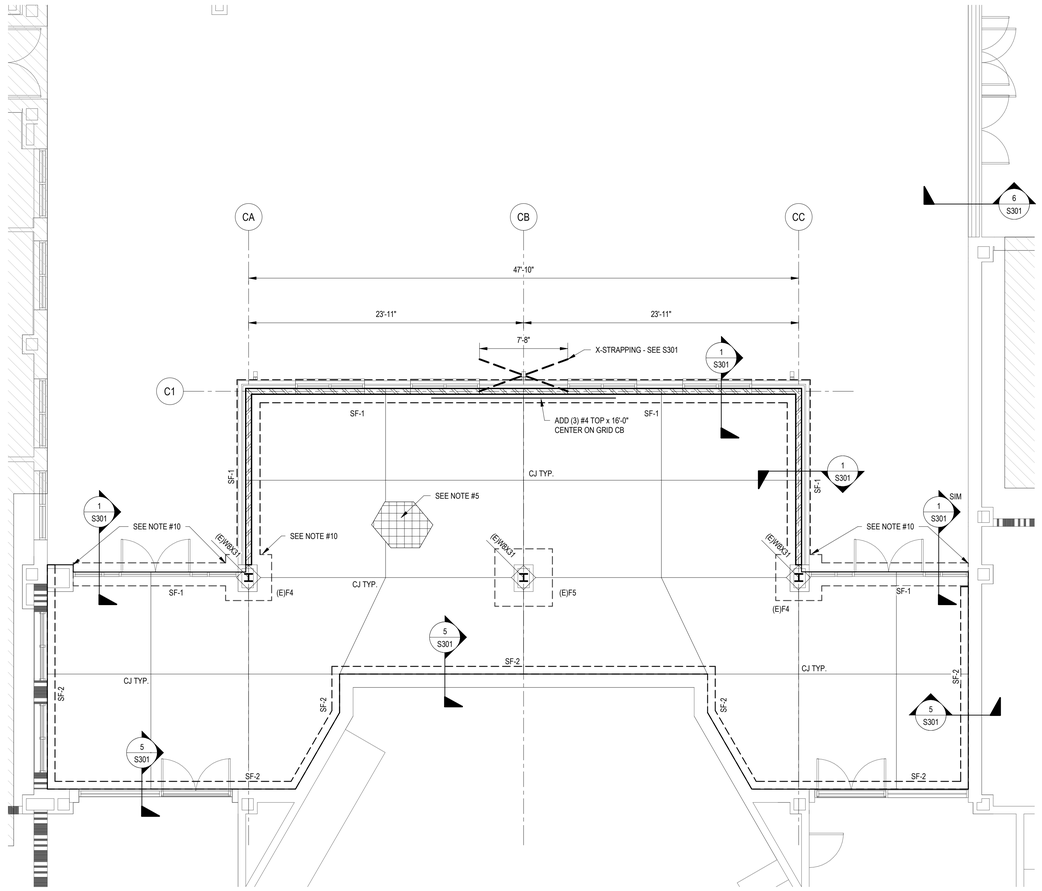


CAFETERIA FOUNDATION PLAN

SCALE: 3/16" = 1'-0"

LEGEND - FOUNDATION

- INDICATES LIGHT GAUGE METAL STUD WALL
- SF-X — STRIP FOOTING DESIGNATION SEE SCHEDULE THIS SHEET
- 0 — GRID DESIGNATION FOR CENTERLINE OF COLUMN
- GRID DESIGNATION FOR OUTSIDE FACE OF STUD OR CMU
- CJ — INDICATES CONCRETE SLAB CONTRACTION JOINTS, SEE S1.02 FOR TYPICAL DETAILS.
- (E) — INDICATES EXISTING

NOTES - FOUNDATION PLAN

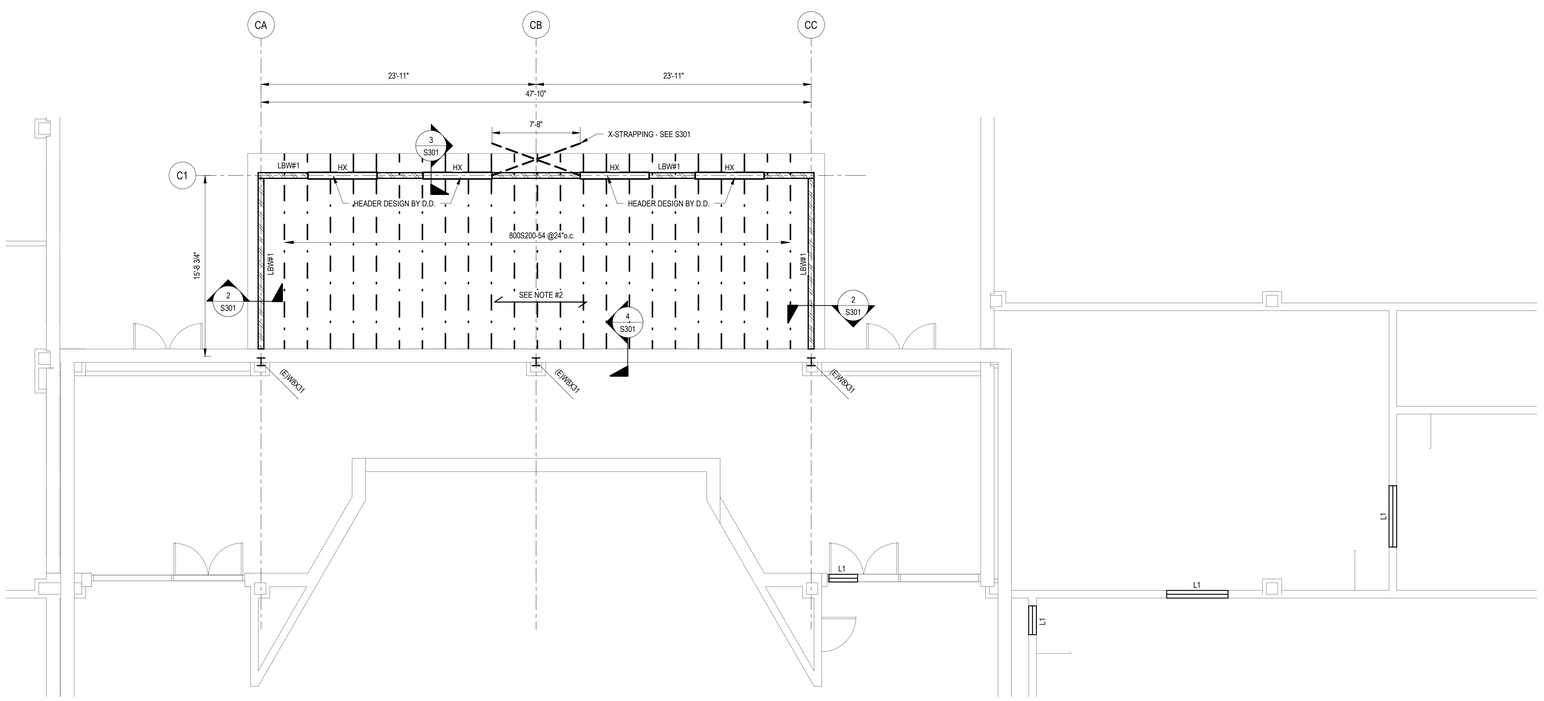
1. SEE SHEET S101 FOR ADDITIONAL GENERAL NOTES, FOUNDATION NOTES, CONCRETE NOTES, AND REINFORCING STEEL NOTES. ALSO, SEE SHEET S102 FOR TYPICAL DETAILS. TYPICAL DETAILS ARE GENERALLY NOT SHOWN ON PLAN BUT RATHER ARE INTENDED TO DEFINE TYPICAL CONSTRUCTION CONDITIONS.
2. DATUM ELEVATION = TOP OF SLAB ELEVATION = ASSUMED 0'-0". OTHER ELEVATIONS ARE NOTED AS (+ OR -) FROM DATUM ELEVATION.
3. TOP OF FOOTINGS SHALL BE (-1'-4") FROM DATUM ELEVATION, U.N.O. ON PLAN AS (+/- X'-X") FROM DATUM ELEVATION.
4. RELOCATE ANY UTILITY LINES THAT CONFLICT WITH THE FOUNDATIONS OR DROP THE FOUNDATIONS TO AN ELEVATION BELOW THE PROPOSED UTILITIES. RELOCATE ANY GRAVITY FLOW LINES THAT CONFLICT WITH SPREAD FOOTINGS AS SHOWN ON STRUCTURAL FOUNDATION PLANS. IF A GRAVITY FLOW LINE TRAVELS UNDER A CONTINUOUS STRIP FOOTING EITHER
   a. DROP THE FOOTING ELEVATION BELOW THE PROPOSED LINE
   b. ENCASE THE LINE IN A STEEL PIPE 2' LARGER IN DIAMETER THAN THE LINE AND EXTEND THE PIPE 1'-0" PAST EACH SIDE OF THE CONCRETE FOOTING. BACKFILL THE TRENCH WITH #57 STONE. THE BEARING CAPACITY OF THIS AREA MUST MEET OR EXCEED THE ALLOWABLE SOIL BEARING CAPACITY.
5. SLAB-ON-GRADE SHALL BE 4" THICK (SEE PLAN) 3000 psi CONCRETE WITH WWM 6x6xW2.0xW2.0 ON SUPPORT CHAIRS ON 15 mil VAPOR BARRIER, ON 6" COMPACTED SELECT GRANULAR MATERIAL ON WELL COMPACTED SUB GRADE. SEE S1.01 FOUNDATION NOTES FOR COMPACTION REQUIREMENTS, VERIFY COMPACTION w/QUALIFIED GEOTECHNICAL ENGINEER.
6. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND OTHER DISCIPLINE DRAWINGS FOR OPENINGS AND DEPRESSIONS NOT SHOWN ON THESE DRAWINGS.
7. G.C. TO COORDINATE STEPS IN FOUNDATION FOR PLUMBING, ELECTRICAL, AND MECHANICAL.
8. PROVIDE STEEL SLEEVE FOR PLUMBING LINES UNDER FOUNDATIONS. SLEEVE SHALL BE 2" LARGER IN DIAMETER THAN PLUMBING LINE AT THAT LOCATION.
9. DIMENSIONS ARE FROM EDGE OF SLAB (E.O.S.) AND OUTSIDE FACE OF STUD (O.F.S.) / CURTAINWALL (O.F.CW.) TO COLUMN CENTERLINE UNLESS NOTED OTHERWISE.
10. DRILL AND EPOXY CONT. BARS FORM SF-1 INTO EXISTING FOOTING W/ 6" EMBEDMENT.

STRIP FOOTING (SF-x) SCHEDULE

MARK	WIDTH x THICKNESS x LENGTH	REINFORCEMENT		COMMENTS
		TOP BARS	BOTTOM BARS	
SF-1	2'-0" x 1'-0" x CONT.	(2) #5 CONT.	(3) #4 CONT.	
SF-2	8" x 2'-0" x CONT.	(1) #4	(1) #4	

LOAD BEARING WALL (LBW#X) SCHEDULE

Mark	STUD WALL REQUIREMENT	REMARKS
LBW#1	600S162-43 @16"o.c.	FINAL DESIGN BY D.D.



CAFETERIA ROOF FRAMING PLAN

SCALE: 3/16" = 1'-0"

LEGEND - ROOF FRAMING

- LIGHT GAUGE ROOF RAFTERS @ 24"o.c.
- 0 — GRID DESIGNATION FOR CENTERLINE OF COLUMN
- GRID DESIGNATION FOR OUTSIDE FACE OF STUD OR CMU
- (E) — INDICATES EXISTING
- INDICATES X-STRAPPING
- Lx — INDICATES NEW LINTEL IN EXISTING NON-LOAD BEARING CMU WALL - SEE DETAILS ON S301 COORDINATE EXACT LOCATION AND SIZE WITH MECHANICAL DRAWINGS

NOTES - ROOF FRAMING

1. SEE SHEET S101 FOR JOIST, DECK AND LIGHT GAUGE FRAMING NOTES. ALSO SEE SHEETS S102 FOR TYPICAL DETAILS NOT SHOWN ON PLAN.
2. TYPICAL ROOF DECK IS 1 1/2" DEEP, 20 ga., GALVANIZED, TYPE 'B' METAL ROOF DECK.
3. METAL ROOF DECK SHALL BE ATTACHED TO STEEL SUPPORTING MEMBERS WITH #12 TEK SCREWS IN A 36/4 PATTERN. PROVIDE (1)- #10 TEK SIDELAP SCREW PER SPAN, U.N.O. ON PLAN.

8' 4' 0' 8'
SCALE : 1/8" = 1'-0"

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WOODS ENGINEERING, P.A. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 041563 ENGINEER PAUL A. SEKI

PROJECT TITLE

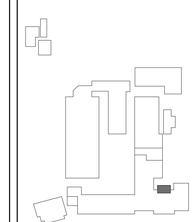
WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA ADDITION FOUNDATION & FRAMING PLAN



KEY PLAN

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	07.30.19	SD PROGRESS DRAWINGS
	07.11.19	NCDPI SD SUBMISSION

PROJECT NO:
DATE: 04.16.2020
SCALE: As indicated
DRAWN BY: MBK PROJ MGR: ALS

S201

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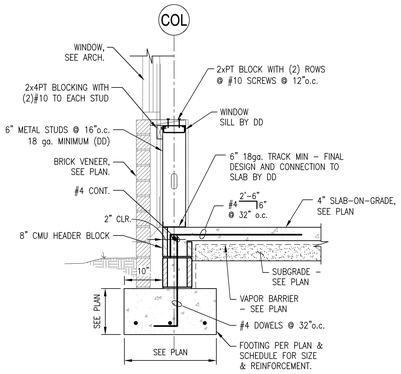
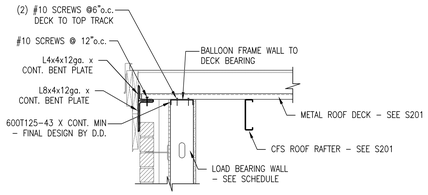


SECTION 1–1
SCALE: 3/4" = 1'–0"



SECTION 2–2
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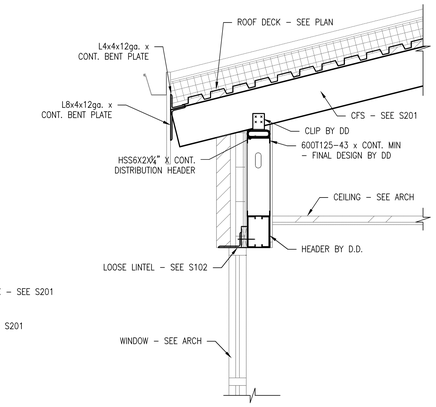
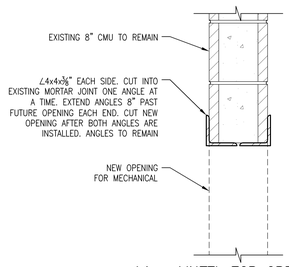
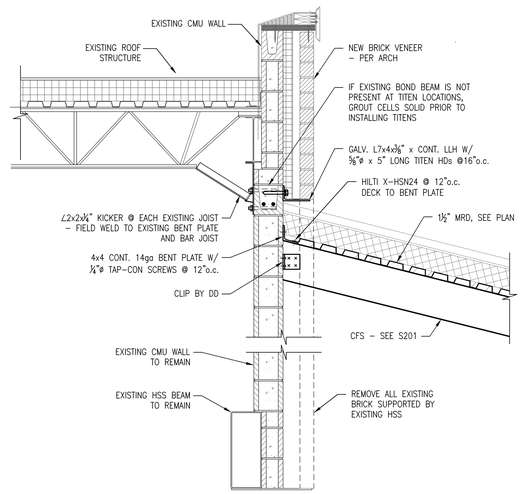


SECTION 3–3
SCALE: 3/4" = 1'–0"



L1 – LINTEL FOR OPENING IN EXISTING NON–LOAD BEARING CMU
SCALE: 1 1/2" = 1'–0"



SECTION 4–4
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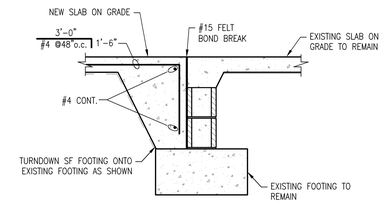

SECTION 5–5
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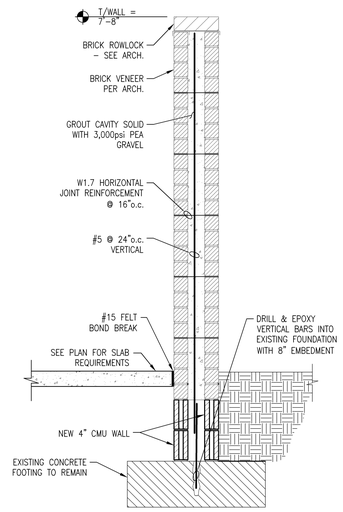
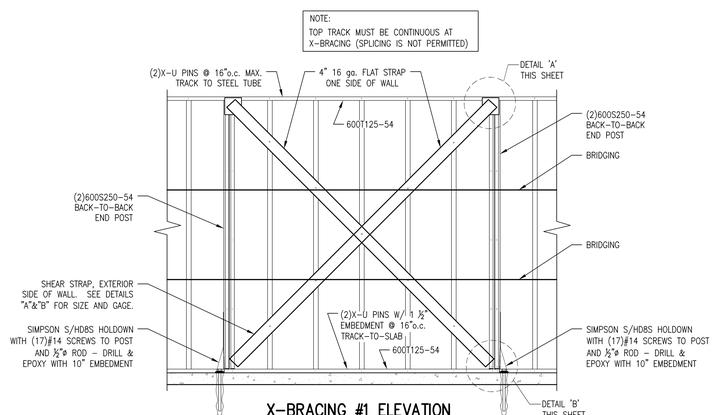
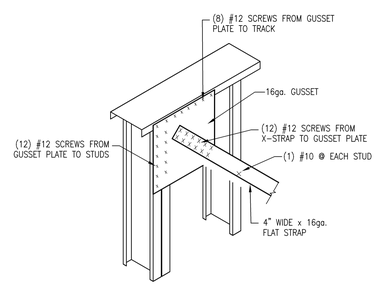


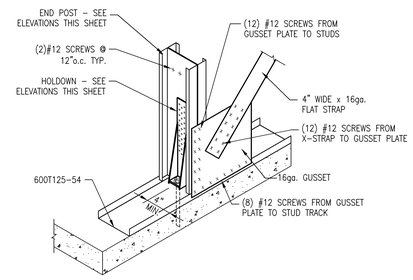
SECTION 6–6
SCALE: 3/4" = 1'–0"



X–BRACING #1 ELEVATION
SCALE: 3/4" = 1'–0"



DETAIL A–A
SCALE: 3/4" = 1'–0"



DETAIL B–B
SCALE: 3/4" = 1'–0"

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ISSUED: 04.16.2020

WOODS ENGINEERING P.A. CORPORATE SEAL No. C-1806 NORTH CAROLINA

NORTH CAROLINA PROFESSIONAL SEAL 041563 ENGINEER ADAM L. SISK

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD, N.W.
SHALLOTTE, N.C. 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

FOUNDATION SECTIONS AND DETAILS

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	01.29.20	EARLY SITE PACKAGE
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019082.00
DATE: 04.16.2020
SCALE: 1 1/2" = 1'-0"
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AM

DEMOLITION KEY NOTES

1. REMOVE DOOR, FRAME AND ASSOCIATED HARDWARE.
2. REMOVE WINDOW SYSTEM, ASSOCIATED FRAME, SASH, SILL AND ACCESORIES.
3. REMOVE PORTION OF SLAB (FOR INFORMATION ONLY - WORK DONE UNDER SEPARATE CONTRACT)
4. REMOVE AND RECONFIGURE EXISTING ROOF OVERFLOW LEADER
5. REMOVE EXISTING METAL SOFFIT PANELS. PROTECT EXISTING SPRAY ON FIREPROOFING ABOVE FROM DAMAGE (UL DETAIL P701)
6. REMOVE EXISTING DOOR AND FRAME AND SAVE FOR REINSTALLATION. EXISTING TUBE STEEL FRAME TO BE DISCARDED. (FOR INFORMATION ONLY - WORK DONE UNDER SEPARATE CONTRACT)
7. REMOVE EXISTING BRICK SCREEN WALL. FOUNDATION TO REMAIN. SEE 3/AD101. (FOR INFORMATION ONLY - WORK DONE UNDER SEPARATE CONTRACT)
8. REMOVE EXISTING WOOD DOORS AND ASSOCIATED HARDWARE. EXISTING FRAME TO REMAIN.
9. REMOVE EXISTING WIRE GLASS. EXISTING FRAME TO REMAIN.
10. LOCATION OF TEMPORARY CONSTRUCTION BARRIER. EMERGENCY EGRESS ONLY
11. REMOVE CEILING IN THIS AREA AS NEEDED FOR DEMOLITION AND RELOCATION OF EXISTING ROOF DRAIN LEADER
12. REMOVE PORTION OF CMU WALL ABOVE CEILING AS NEEDED FOR INSTALLATION OF NEW DUCTWORK. SEE STRUCTURAL
13. REMOVE EXISTING FIRE RATED CEILING TILE AND GRID TO THE EXTENT NECESSRY TO ALLOW FOR HVAC DUCT INSTALLATION. SAVE CEILING TILE AND GRID FOR REUSE. ALL DAMAGED TILE AND GRID SHALL BE REPLACED IN KIND. LEAVE EXISTING HANGER WIRES IN PLACE FOR REUSE
14. EXISTING 2-HOUR RATED CLG/ROOF ASSEMBLY (UL DESIGN P519). REMOVE SPRAY FOAM INSULATION FROM THE PERIMETER OF THE CEILING AND INSTALL NEW FIRE CAULK

DEMO LEGEND

- EXISTING WALL TO REMAIN
- EXISTING WINDOW TO REMIAN
- EXISTING DOOR TO REMAIN
- EXISTING WALL TO BE REMOVED
- EXISTING WINDOW TO BE REMOVED
- EXISTING DOOR TO BE REMOVED
- EXISTING CEILING TO BE REMOVED
- EXISTING SLAB TO BE REMOVED

GENERAL DEMOLITION NOTES

1. EXISTING WORK TO REMAIN SHALL BE PROTECTED FROM DEMOLITION AND CONSTRUCTION OPERATIONS.

2. CONTRACTOR TO PROVIDE TEMPORARY BRACING AND SHORING AS REQUIRED TO ACCOMPLISH DEMOLITION ACTIVITIES AND MAINTAIN STRUCTURAL STABILITY UNTIL NEW WORK IS INSTALLED.

3. COORDINATE EXTENT OF DEMOLITION WITH NEW WORK.

4. PATCH, RESTORE, AND REPAIR SURFACES AT DEMOLISHED ELEMENTS TO MATCH ADJACENT UNDAMAGED SURFACES. REFER TO "EXECUTION" SPECIFICATION.

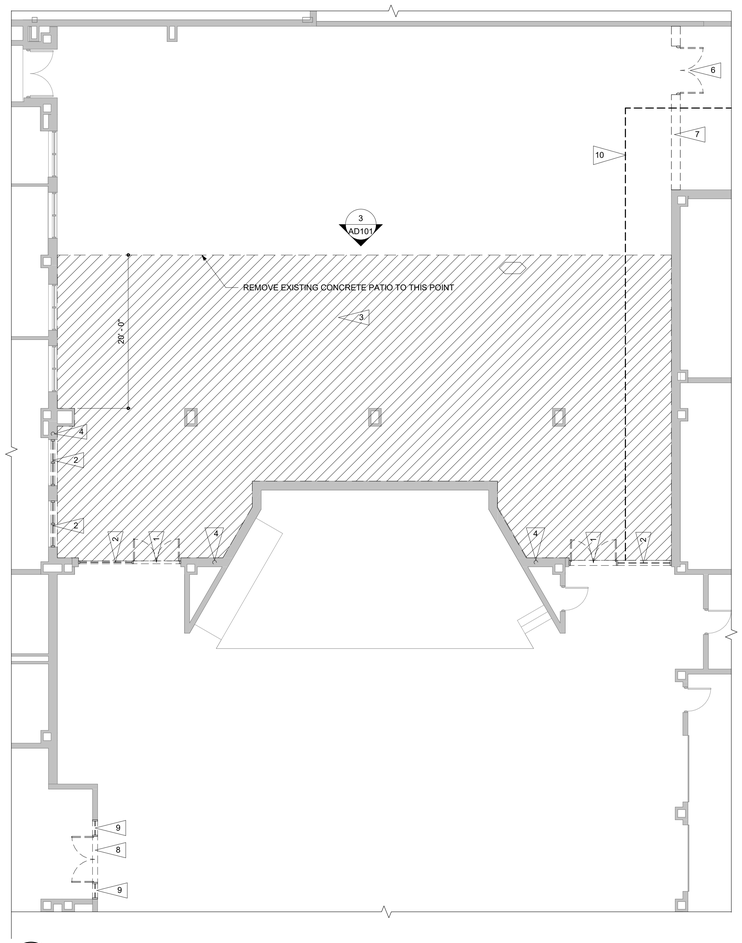
5. PROVIDE PRE-DEMOLITION PHOTOGRAPHIC OR VIDEO DOCUMENTATION. SEE SPECIFICATIONS.

6. PATCH, REPAIR, AND PREP ALL WALL SURFACES TO RECEIVE NEW FINISHES.

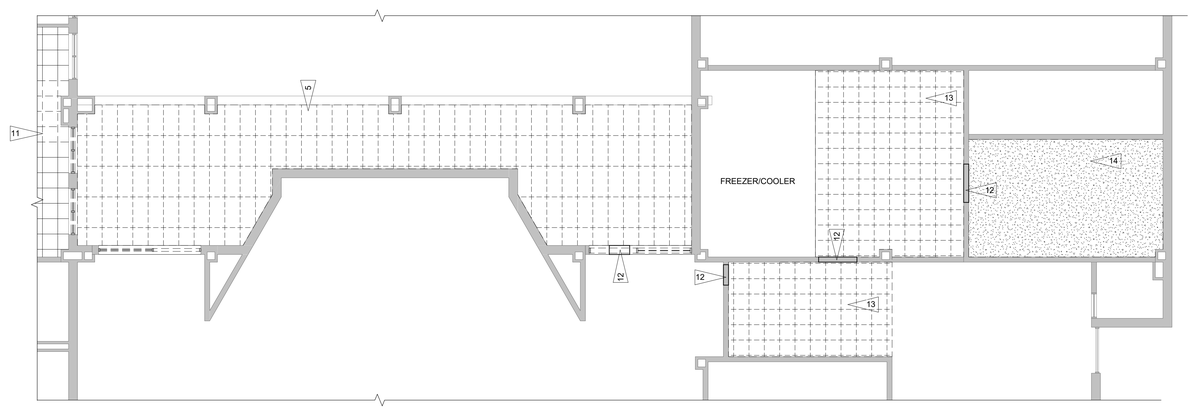
7. NO KNOWN HAZARDOUS MATERIALS EXIST IN THE BUILDING EXCEPT AS NOTED. REFER TO SPECIFICATION FOR HAZARDOUS MATERIALS ENCOUNTERED DURING CONSTRUCTION.

8.REFER TO SPECIFICATIONS FOR ITEMS TO SALVAGE FOR OWNER.

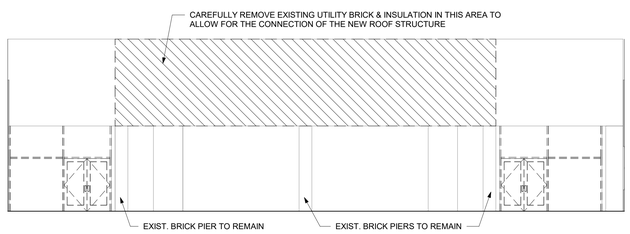
9. REFER TO M/ E/ P/ FP DRAWINGS FOR ADDITIONAL WORK.



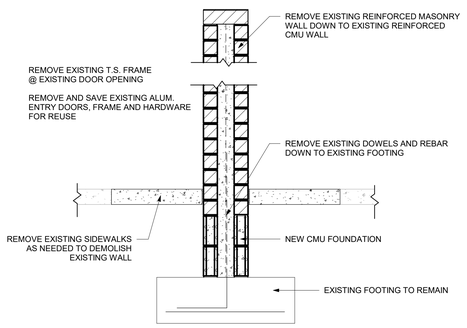
1 CAFETERIA DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



2 CAFETERIA REFLECTED CEILING DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



3 CAFETERIA DEMOLITION ELEVATION
SCALE: 1/8" = 1'-0"



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

8' 4' 0' 8'
SCALE : 1/8" = 1'-0"

PLAN NORTH
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BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, N.C.

PROJECT TITLE

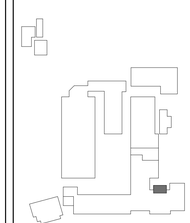
WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

DEMOLITION PLANS AND DETAILS



KEY PLAN

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO:	2019083.02
DATE:	04.16.2020
SCALE:	As indicated
DRAWN BY: KMS	PROJ MGR: RMC

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CEILING LEGEND

- 2x2 ACT CEILING ACT-1
- INTERIOR - GWB CEILINGS /BULKHEADS
- X EXPOSED
- N.I.C.
- SUPPLY/RETURN/EXHAUST DIFFUSER OR REGISTER - SEE MECH.
- LIGHT FIXTURE - SEE ELEC.

CEILING NOTES

1. SEE FINISH SCHEDULE FOR ACT TYPES.
2. CEILING HEIGHTS INDICATED ARE FROM FINISH FLOOR. CEILINGS AT LANDINGS REFER TO NEAREST FLOOR LEVEL.
3. ALL EXPOSED LINTELS SHALL BE PAINTED.
4. ALIGN BULKHEADS TO FACE OF WALL / OPENING, U.O.N.

GENERAL NOTES

1. DIMENSIONS ARE TO EXTERIOR FACE OF CONCRETE, MASONRY, OR METAL STUD UNLESS OTHERWISE NOTED.
2. COORDINATE REQUIREMENTS OF WORK WITH ALL OTHER TRADES.

LEGEND

- AREA N.I.C.

ROOF LEGEND

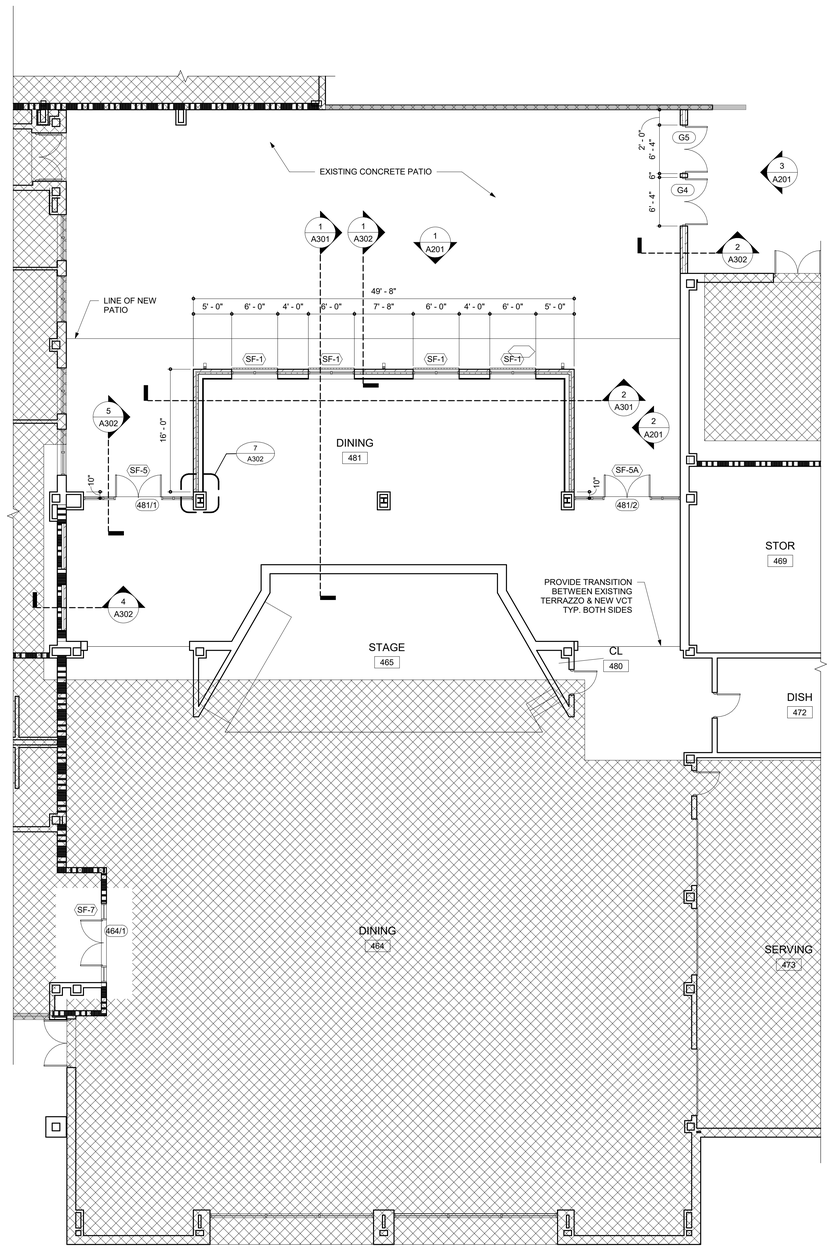
- PVC ROOFING SYSTEM OVER RIGID INSULATION
- STANDING SEAM METAL ROOF
- WALKPADS
- ROOFTOP VENTILATOR
- VTR VENT THROUGH ROOF - SEE PLUMB.
- D.S. DOWNSPOUT
- S.B. SPLASHBLOCK

GENERAL ROOF NOTES

1. DOWNSPOUTS SHALL BE 4"x3" PLAIN RECTANGULAR UNLESS OTHERWISE NOTED.
2. GUTTERS TO BE 6"x6" UNLESS OTHERWISE NOTED.

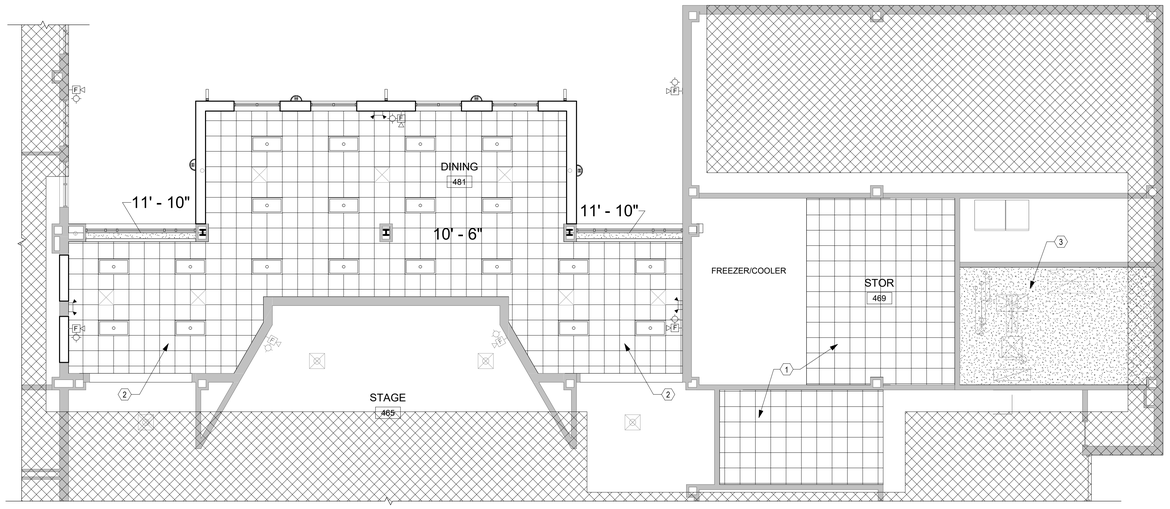
KEYNOTE LEGEND

1. RE-INSTALL SAVED 1-HOUR RATED CEILING TILE AND GRID. REPLACE ALL MATERIALS DAMAGED IN KIND. ALL REINSTALLATION WORK SHALL BE IN ACCORDANCE WITH UL DESIGN P225 FOR 1 HOUR CEILING/ROOF ASSEMBLY
2. REPAIR/PATCH EXISTING 1-HOUR RATED SPRAY ON FIREPROOFING DAMAGED PRIOR TO OR DURING DEMOLITION OF THE EXISTING METAL SOFFIT. ALL WORK SHALL BE IN ACCORDANCE WITH UL DESIGN P701
3. INSTALL NEW FIRE SEALANT AROUND PERIMETER OF EXISTING 2-HOUR RATED CEILING. WORK SHALL BE IN ACCORDANCE WITH UL DESIGN P519



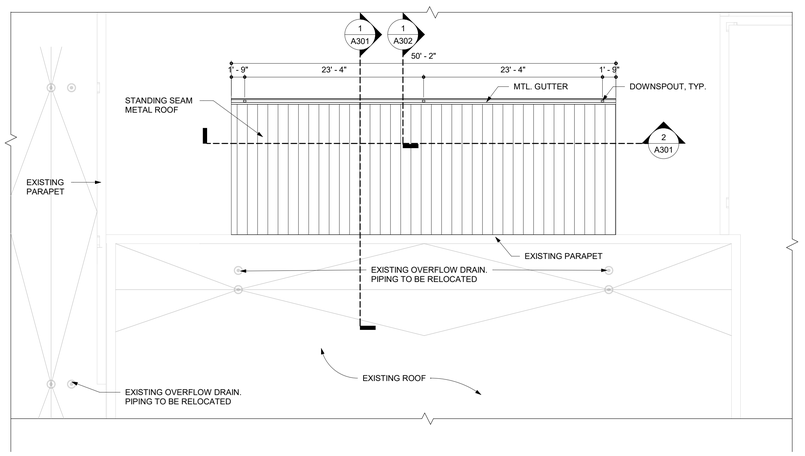
1 CAFETERIA ADDITION FLOOR PLAN

SCALE: 1/8" = 1'-0"



2 CAFETERIA REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0"



3 CAFETERIA ROOF PLAN

SCALE: 1/8" = 1'-0"

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

PLAN NORTH

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BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, N.C.

PROJECT TITLE

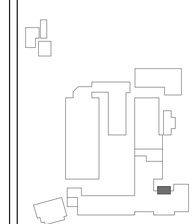
WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA ADDITION PLANS



KEY PLAN

ISSUE BLOCK

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PROJECT NO: 2019083.02
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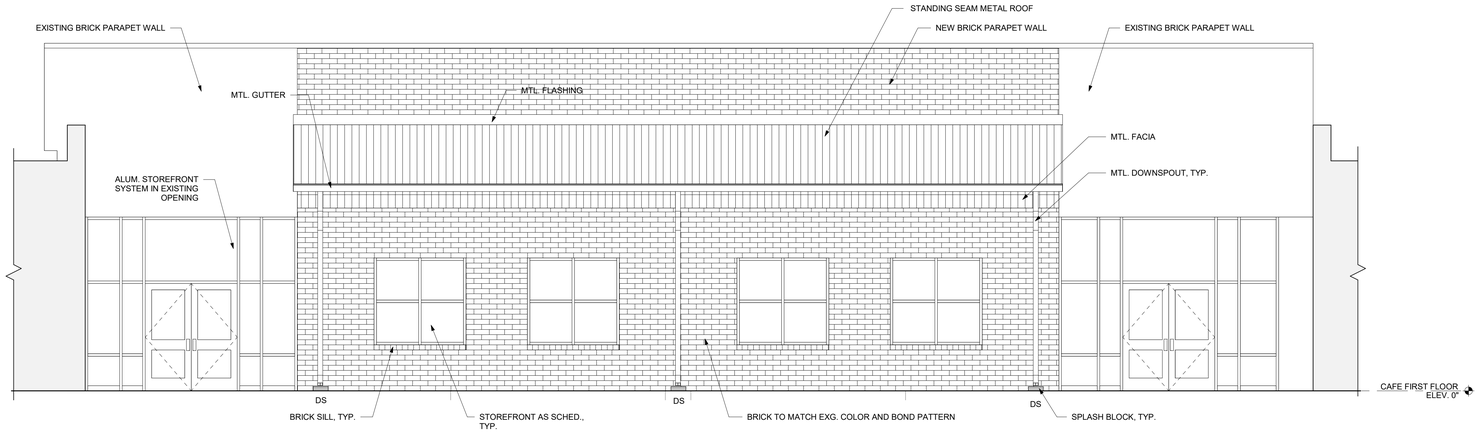
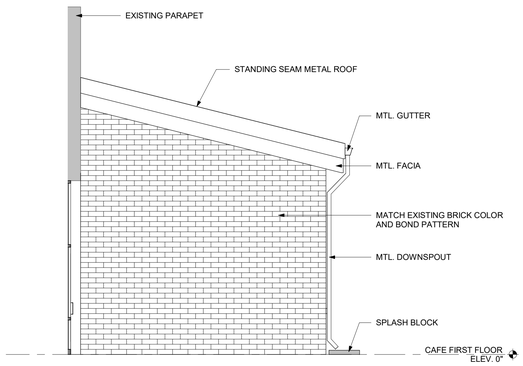


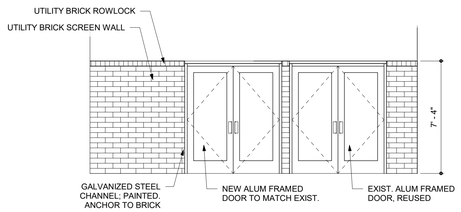
1 CAFETERIA FRONT ELEVATION

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



2 CAFETERIA SIDE ELEVATION

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



3 SCREEN WALL ELEVATION

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

4' 2' 0' 4'

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

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PROJECT TITLE

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550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

EXTERIOR ELEVATIONS

ISSUE BLOCK

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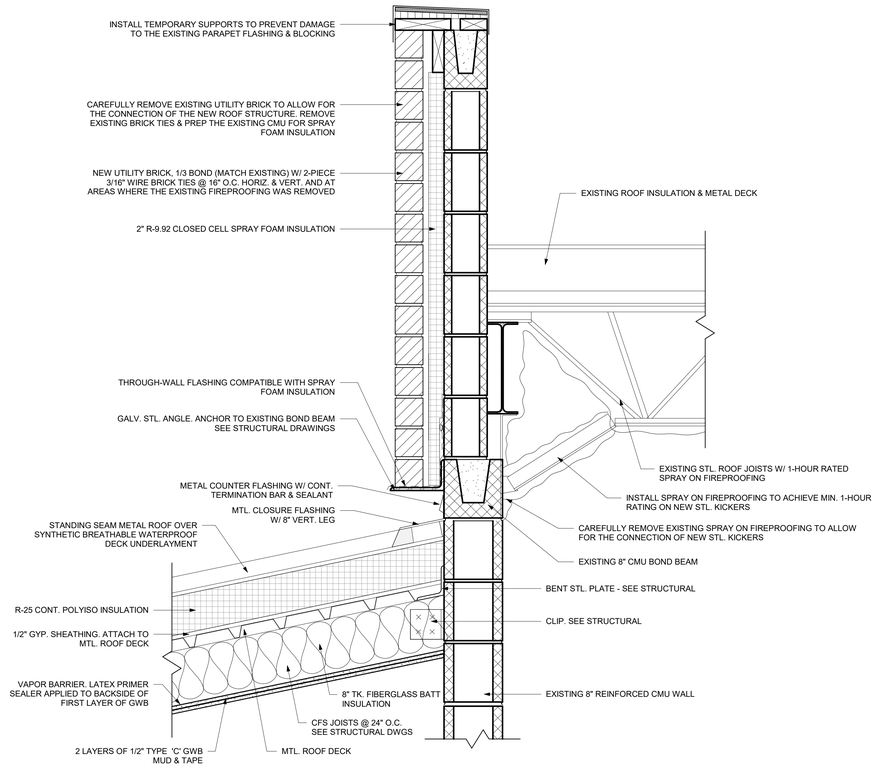
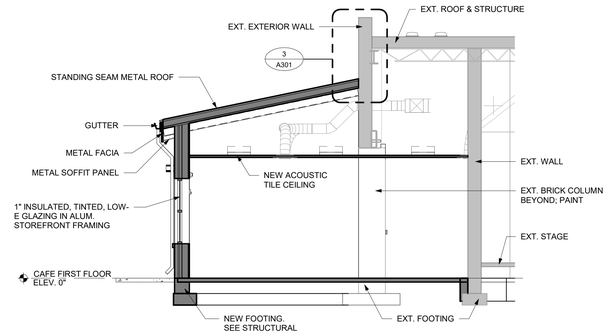


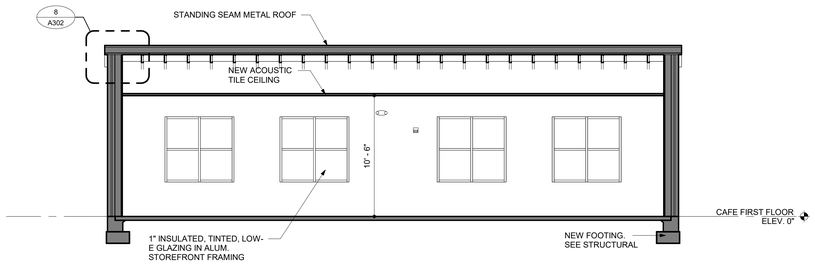
3 CONNECTION DETAIL

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



1 CAFETERIA ADDITION N/S BUILDING SECTION

SCALE: 3/16" = 1'-0"



2 CAFETERIA ADDITION W/E BUILDING SECTION

SCALE: 3/16" = 1'-0"

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BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, N.C.

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA BUILDING SECTIONS

ISSUE BLOCK

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	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

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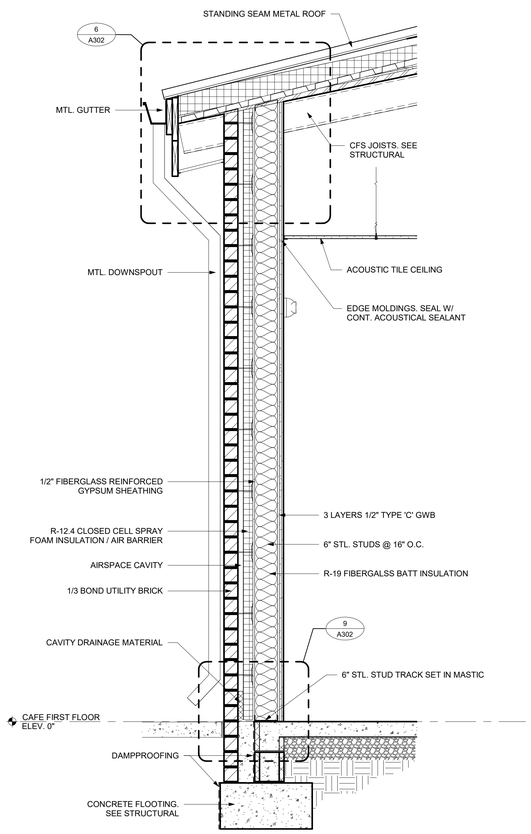
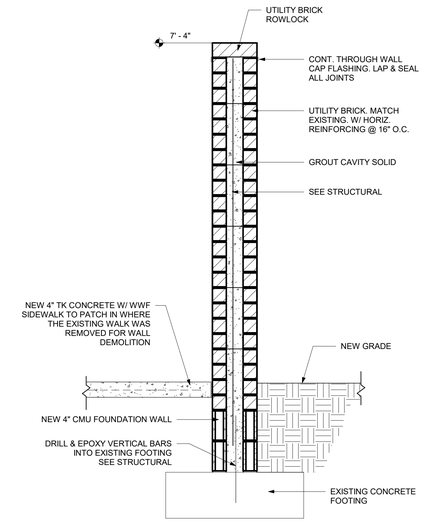


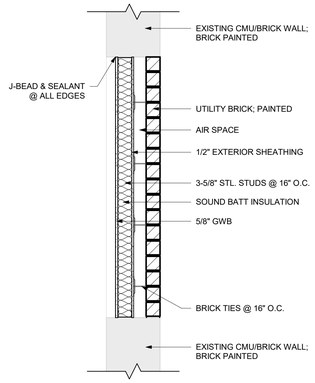
1 CAFETERIA ADDITION WALL SECTION

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



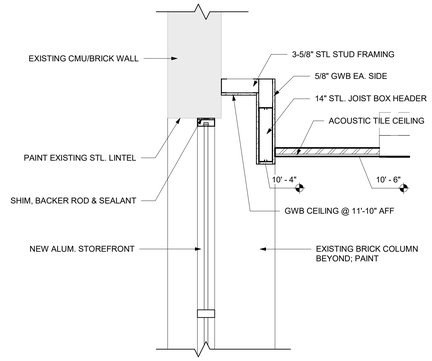
2 SECTION AT SCREEN WALL

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



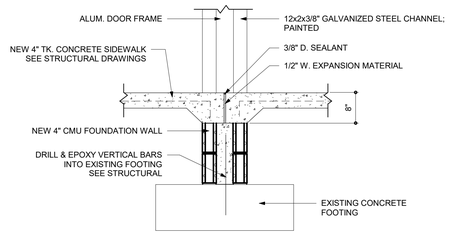
4 WALL INFILL AT CAFETERIA

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



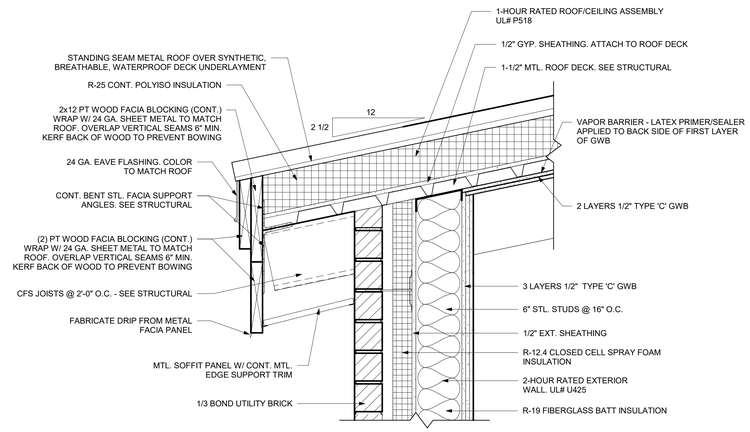
5 SECTION AT CAFETERIA CEILING

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



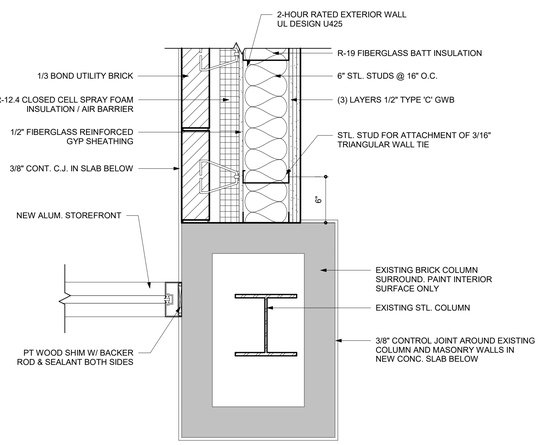
3 SCREEN WALL SECTION @ DOOR

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



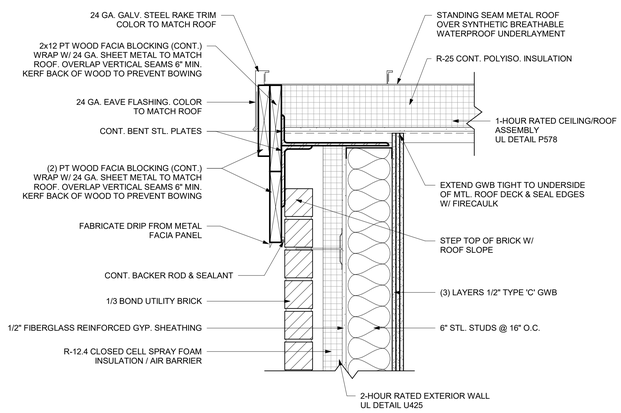
6 FACIA DETAIL

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



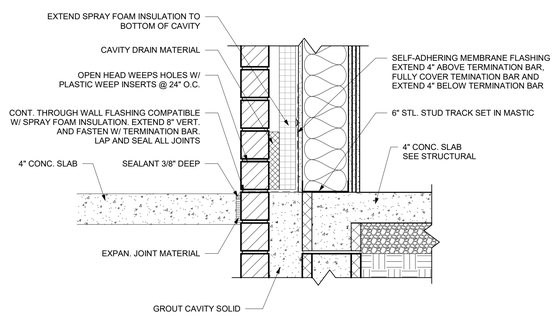
7 PLAN DETAIL @ EXISTING COLUMN

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



8 RAKE DETAIL

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



9 FLASHING DETAIL

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

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SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA WALL SECTIONS AND DETAILS

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FINISH SCHEDULE

#	ROOM NAME	FLOOR MAT	BASE MAT	Level	WALL NORTH MAT	WALL NORTH FIN	WALL EAST MAT	WALL EAST FIN	WALL SOUTH MAT	WALL SOUTH FIN	WALL WEST MAT	WALL WEST FIN	CEILING MAT	COMMENTS
CAFETERIA ADDITION FIRST FLOOR														
481	DINING	VCT	R	FIRST FLOOR	GWB	PT	EXG	PT	EXG	PT	EXG	PT	ACT-1	
EXG FIRST FLOOR														
464	DINING			FIRST FLOOR	EXG	PT								TOUCH UP PAINT AS NEEDED WHERE STOREFRONT WAS REMOVED
466	MECH			FIRST FLOOR									ACT-1	REPLACE ACT AS NEEDED
469	STOR			FIRST FLOOR									ACT-1	REPLACE ACT AS NEEDED
472	DISH			FIRST FLOOR									ACT-1	REPLACE ACT AS NEEDED

FINISH SCHEDULE LEGEND

KEY NAME	DESCRIPTION
FLOOR	
-	NOT APPLICABLE / EXISTING TO REMAIN
VCT	VINYL COMPOSITION TILE
BASE	
-	NOT APPLICABLE / EXISTING TO REMAIN
R	RESILIENT WALL BASE
WALL	
-	NOT APPLICABLE / EXISTING TO REMAIN
BRK	BRICK
CMU	CONCRETE MASONRY UNIT
EXPO	EXPOSED STRUCTURE
GWB	GYPSUM WALL BOARD
PT	PAINT
CEILING	
-	NOT APPLICABLE / EXISTING TO REMAIN
ACT-2	2x2 ACOUSTICAL CEILING TILE
EXPO	EXPOSED STRUCTURE, FIRE PROTECTOIN, PLUMBING, MECHANICAL, ELECTRICAL, TECHNOLOGY
GWB	GYPSUM BOARD CEILING
PT	PAINT
ORIENTATION	
	ON PLANS NORTH WALL IS UP, EAST IS RIGHT, SOUTH IS DOWN, WEST IS LEFT
GENERAL NOTES	
1	WALLS AND CEILINGS MAY CONTAIN MORE THAN ONE MATERIAL OR FINISH AS INDICATED. COORDINATE WITH CONSTRUCTION TYPE AND FINISH SIMILAR TO ADJACENT MATERIALS
2	SEE REFLECTED CEILING PLANS & CEILING NOTES FOR CEILING HEIGHTS, MATERIAL EXTENTS, LOCATIONS AND HEIGHTS OF BULKHEADS, SOFFITS, ETC.
3	PLAN WALL TYPES TAKE PRECEDENCE OVER SCHEDULED WALL FINISH. PROVIDE APPROPRIATE WALL FINISH TO CORRESPOND TO WALL TYPES.
4	MOLD AND MOISTURE RESISTANT GYPSUM BOARD SHALL BE USED AT ALL KITCHEN AREAS, TOILET ROOMS AND CUSTODIAN SERVICE CLOSETS SCHEDULED TO HAVE GYPSUM BOARD FINISHES
5	WALL AND CEILING FINISHES SHALL INCLUDE ALL PROJECTIONS, BEAM ENCLOSURES, RECESSES, BULKHEADS, MATERIAL CHANGES, OR OTHER ENCLOSURES. REFER TO REFLECTED CEILING PLANS
6	PROVIDE SEALANT/CAULK AT INTERSECTIONS OF DISSIMILAR MATERIALS AND AS RECOMMENDED BY MANUFACTURERS' GUIDELINES.
7	ALL NEW PARTITIONS AND WALLS SHALL BE PAINTED. PROVIDE PRICING TO REPAINT EXISTING WALLS

NOTE:
BASE BID FOR DINING 481 FLOORING IS VCT. SEE SPECIFICATIONS FOR ALTERNATES FOR LVP AND TERRAZZO.

DOOR SCHEDULE

MARK	DOOR SIZE WIDTH	DOOR SIZE HT	DOOR THICK	DOOR MATL	DOOR TYPE	DOOR FIN	DOOR GLAZ	FRAME MATL	FRAME TYPE	FRAME FIN	FRAME DETAIL HEAD	FRAME DETAIL JAMB	FRAME DETAIL SILL	FIRE RATING	HDWE SET	COMMENTS
FIRST FLOOR																
G4	6' - 0"	7' - 0"	1 3/4"	ALUM	D	-	IG	ALUM	AL-1	-	4/A402	5/A402	-	-	01	Security gate
G5	6' - 0"	7' - 0"	1 3/4"	ALUM	D	-	IG	ALUM	AL-1	-	4/A402	5/A402	-	-	012	Security gate / existing door and frame
CAFETERIA ADDITION FIRST FLOOR																
464/1	6' - 0"	7' - 0"	1 3/4"	SCWD	B	ST	FG	HM	SF-7	-	-	-	-	90 MIN	EXIST	Note 1, Note 2
481/1	6' - 0"	7' - 0"	1 3/4"	ALUM	C	-	TEMP	ALUM	SF-5	-	6/A402	7/A402	3/A402	-	012	
481/2	6' - 0"	7' - 0"	1 3/4"	ALUM	C	-	TEMP	ALUM	SF-5A	-	6/A402	7/A402	3/A402	-	012	

NOTE 1: CERTIFY AND RELABEL EXISTING FRAME FOR USE IN A 90 MINUTE RATED OPENING
NOTE 2: PROVIDE NEW DOOR TYPE B AS SCHEDULED AND FACTORY PREP TO REUSE THE EXISTING DOOR HARDWARE

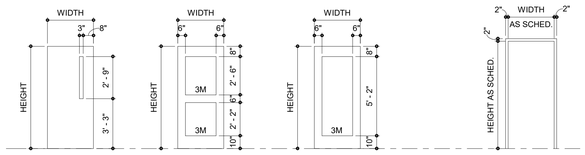
DOOR SCHEDULE LEGEND

-	NONE (IE., NOT APPLICABLE OR FACTORY FINISHED)
ALUM, AL	ALUMINUM
CW	CURTAINWALL
FG	FIRE PROTECTION/FIRE-RESISTANCE RATED GLAZING
HM	HOLLOW METAL
IG	INSULATED GLAZING
LAM	LAMINATED GLAZING
PT	PAINTED
SCWD	SOLID CORE WOOD DOOR
SF	STOREFRONT
SST	STAINLESS STEEL
ST	STAINED
STL	STEEL
TEMP	TEMPERED GLAZING

GLAZING LEGEND

1. GLAZING SHALL BE TEMPERED IN DOORS, SIDE LIGHTS, AND AS REQUIRED BY CODE AND AS INDICATED.
2. GLAZING SHALL BE SAFETY LAMINATED AS REQUIRED BY CODE, AND AS INDICATED.
3. PROVIDE FIRE-PROTECTION AND FIRE-RESISTANCE RATED GLAZING AS REQUIRED BY CODE.
4. EXTERIOR GLAZING SHALL BE INSULATED.
5. GLAZING MARKED "3M" TO HAVE 3M SAFETY AND SECURITY WINDOW FILM APPLIED. FILM PROVIDED BY ALLOWANCE.

NOTE: GLAZING SHALL BE TEMPERED IN DOORS, SIDELIGHTS, AND AS REQUIRED BY CODE

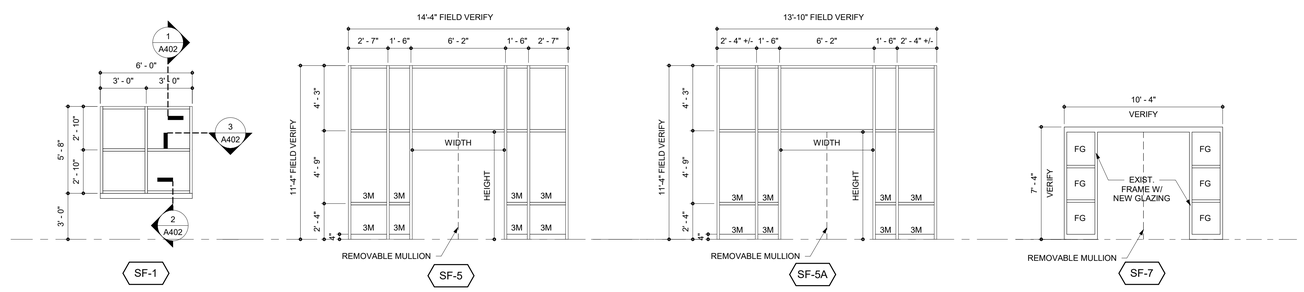


B - SEE DOOR SCHED & SPECIFICATION FOR GLAZING TYPE

C - SEE DOOR SCHED & SPECIFICATION FOR GLAZING TYPE

D - SEE DOOR SCHED & SPECIFICATION FOR GLAZING TYPE

HM-1
AL-1
STL-1



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FREDERICK M. COLLINS REGISTERED ARCHITECT 4537 N.C.
04/16/2020

BECKER MORGAN GROUP, INC. Registered Architectural Corporation 51922 North Carolina WILMINGTON, N.C.

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

SCHEDULES AND DETAILS

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	7.30.19	SD PROGRESS DRAWINGS
	7.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019083.02
DATE: 04.16.2020
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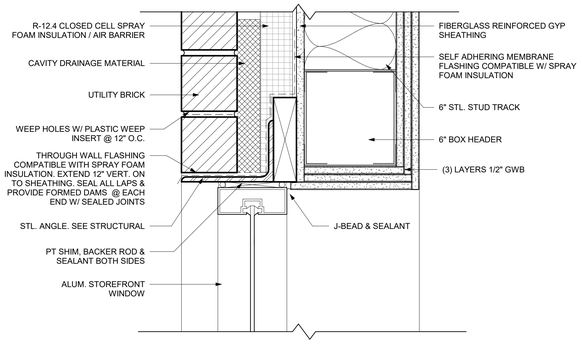
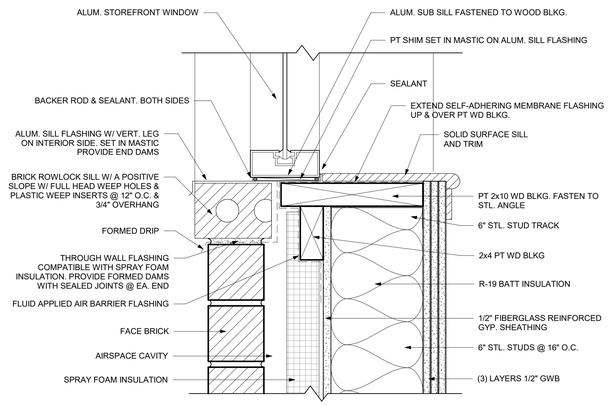
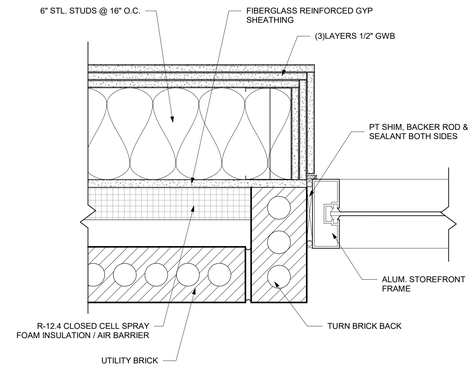


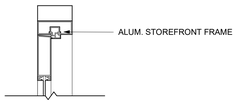
1 WINDOW HEAD DETAIL
SCALE: 3" = 1'-0"



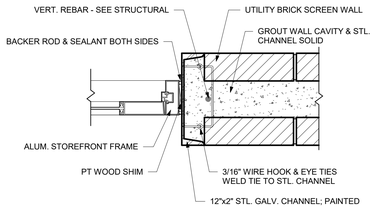
2 WINDOW SILL DETAIL
SCALE: 3" = 1'-0"



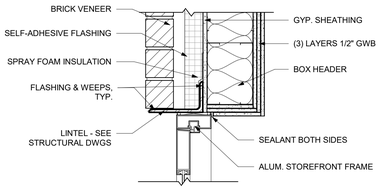
3 WINDOW JAMB DETAIL
SCALE: 3" = 1'-0"



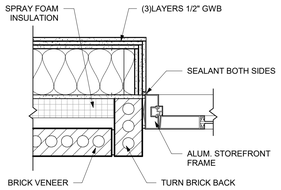
4 DOOR HEAD @ SCREEN WALL
SCALE: 1 1/2" = 1'-0"



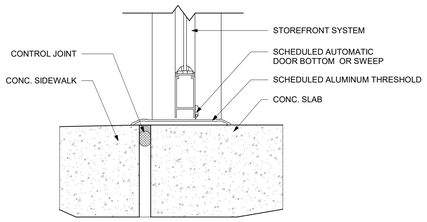
5 DOOR JAMB @ SCREEN WALL
SCALE: 1 1/2" = 1'-0"



6 EXTERIOR ALUM. DOOR HEAD
SCALE: 1 1/2" = 1'-0"



7 EXTERIOR ALUM. DOOR JAMB
SCALE: 1 1/2" = 1'-0"



8 THRESHOLD @ STOREFRONT DOOR
SCALE: 3" = 1'-0"

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PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

DOOR AND WINDOW DETAILS

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
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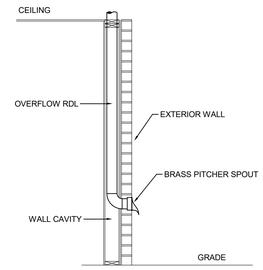
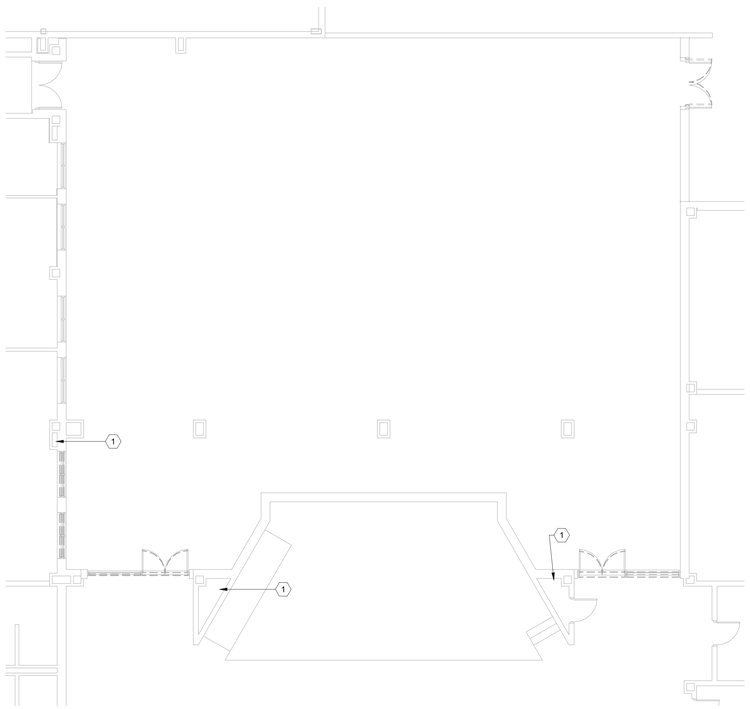
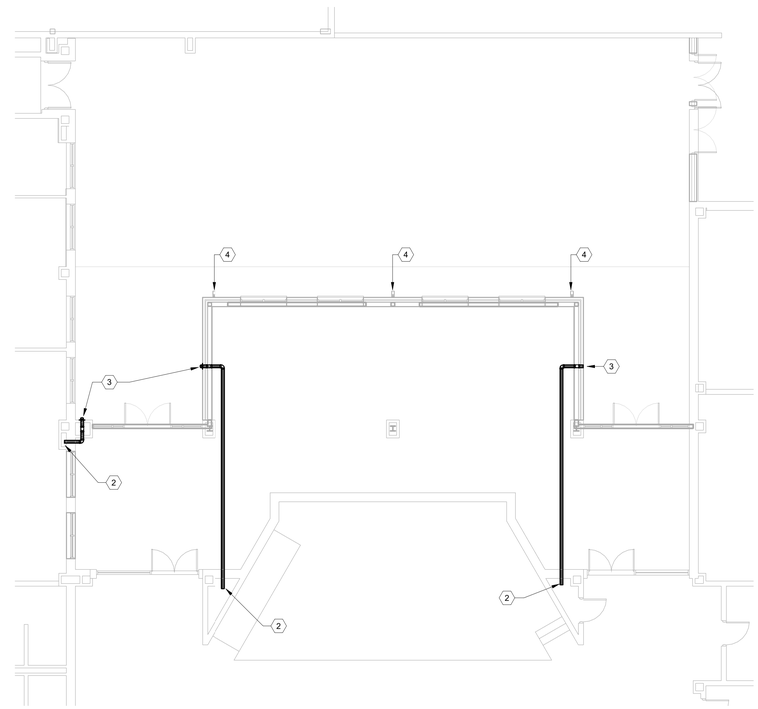
KEYNOTES	
1	PC SHALL REMOVE EXISTING ROOF DRAIN LEADERS THAT SPILL INTO EXISTING COURTYARD AREA. PATCH EXISTING EXTERIOR WALLS TO MATCH EXISTING. SEE NEW WORK PLAN FOR NEW PIPE ROUTING
2	PC SHALL EXTEND EXISTING OVERFLOW ROOF DRAIN AND ROUTE THROUGH NEW EXTERIOR WALL. TERMINATE 1'6" ABOVE GRADE
3	PC SHALL INSTALL BRASS PITCHER SPOUT AT TERMINATION. ZURN Z199 OR EQUAL.
4	DOWNSPOUT. SEE ARCHITECTURAL DRAWINGS



3 DOWNSPOUT NOZZLE DETAIL
NO SCALE



1 DINING AREA ROOF DRAINAGE DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



2 DINING AREA ROOF DRAINAGE PLAN
SCALE: 1/8" = 1'-0"

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PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

DINING AREA ADDITION ROOF DRAINAGE PLANS

ISSUE BLOCK

Mark	Date	Description
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GENERAL MECHANICAL SYMBOLS

- REVISION NUMBER - SHOWN ON PLANS
- POINT WHERE NEW CONNECTS TO EXISTING
- EXTENT OF DEMOLITION
- NUMBER OF DETAIL ON SHEET
- NUMBER OF SHEET WHERE DETAIL APPEARS
- KEYNOTE
- CONTINUATION SYMBOL
- Room 1 — ROOM NAME AND NUMBER
- ITEM TO BE DEMOLISHED
- AREA NOT IN CONTRACT

HVAC SYMBOLS

16"x8"	SQUARE DUCT SIZE TAG (WIDTH x HEIGHT)
16"/8"	OVAL DUCT SIZE TAG (WIDTH / HEIGHT)
16"Ø	ROUND DUCT SIZE TAG (DIAMETER)
(E)	EXISTING DUCT TAG
	DUCT BEING DEMOLISHED
S/A	SUPPLY AIR
S-O/A	SUPPLY AIR (100% OUTSIDE AIR)
O/A	OUTSIDE AIR
R/A	RETURN AIR
T/A	TRANSFER AIR
E/A	EXHAUST AIR
L/A	RELIEF AIR
GE/A	GREASE EXHAUST AIR
SE/A	SMOKE EXHAUST AIR
FLUE	EXHAUST GAS FLUE
C/A	COMBUSTION AIR
DROP	RECTANGULAR SUPPLY/OUTSIDE AIR DUCT RISE
DROP	ROUND SUPPLY/OUTSIDE AIR DUCT RISE
DROP	RECTANGULAR RETURN/TRANSFER AIR DUCT RISE
DROP	ROUND RETURN/TRANSFER AIR DUCT RISE
DROP	RECTANGULAR EXHAUST/RELIEF AIR DUCT RISE
DROP	ROUND EXHAUST/RELIEF AIR DUCT RISE

SUPPLY OUTLET — RETURN/EXHAUST INLET

S2 / 0
- SECTORIZING BAFFLE OR BLANKOFF PANEL
- TYPE (SEE SCHEDULE)
- GRILLES, REGISTERS, AND DIFFUSERS TAG
- CFM

- LINEAR DIFFUSER

S6 / 0
- TYPE (SEE SCHEDULE)
- LINEAR DIFFUSER TAG
- CFM

- MECHANICAL EQUIPMENT
- VAV-XX — MECHANICAL EQUIPMENT TAG
- EXISTING MECHANICAL EQUIPMENT
- (X)VAV-XX — EXISTING MECHANICAL EQUIPMENT TAG (TYPICAL FOR ALL EXISTING TAGS)
- MECHANICAL EQUIPMENT FOR REFERENCE
- VAV-XX — MECHANICAL EQUIPMENT TAG (REFER TO OTHER DISCIPLINE FOR ADDITIONAL INFORMATION)
- CO2 — CARBON DIOXIDE SENSOR
- D — DUCT SMOKE DETECTOR
- H — HUMIDITY SENSOR
- E — E-STOP
- T — TEMPERATURE SENSOR

FIRE DAMPER	F	B	MANUAL BALANCING DAMPER
SMOKE DAMPER	S	D	BACKDRAFT DAMPER
MOTORIZED DAMPER	M	C	COMBINATION FIRE/SMOKE DAMPER

PIPING SYMBOLS

2"	PIPE SIZE TAG (DIAMETER)
	ABOVE GROUND PIPING
1/8" / 12" SLOPE	PIPE SLOPE TAG
	BELOW GROUND PIPING
INVERT: -10' - 1"	PIPE INVERT ELEVATION TAG
(E)	EXISTING PIPE TAG
	PIPING BEING DEMOLISHED
CD	CONDENSATE DRAINAGE
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
G	NATURAL GAS
PG	PROPANE GAS
REF-L	REFRIGERANT-LIQUID
REF-S	REFRIGERANT-SUCTION
REF-HG	REFRIGERANT-HOT GAS

- PIPE DROP
- PIPE RISE
- PIPE TEE
- CAP
- 4" 4" 2" — PLUG
- 4" — REDUCING 45 DEGREE TEE
- 45 DEGREE TEE

DOMESTIC WATER METER	MOTORIZED CONTROL VALVE
FLOW MEASURING AND BALANCING DEVICE	THREE WAY MOTORIZED CONTROL VALVE
BALL VALVE	PRESSURE REDUCING VALVE
CHECK VALVE	SOLENOID VALVE
THREE WAY VALVE	BUTTERFLY VALVE

EQUIPMENT ABBREVIATIONS

AC	AIR CONDITIONING UNIT	FP	FIRE PUMP
ACC	AIR COOLED CONDENSER	GI	GREASE INTERCEPTOR
ACCU	AIR COOLING CONDENSING UNIT	GRV	GRAVITY ROOF VENTILATOR
AFMS	AIR FLOW MEASURING STATION	H	HUMIDIFIER
AHU	AIR HANDLING UNIT	HWP	HEATING WATER PUMP
AS	AIR SEPARATOR	HX	HEAT EXCHANGER
B	BOILER	HPU	HEAT PUMP UNIT
CF	CABINET FAN	HRU	HEAT RECOVERY UNIT
CF	CHEMICAL FEEDER	ILC	INLINE CENTRIFUGAL
CFP	CHEMICAL FEEDER PUMP	PF	PROPELLER FAN
CH	CHILLER	PV	POWER VENTILATOR
CRU	CONDENSATE RETURN UNIT	PWF	POWER WALL FAN
CT	COOLING TOWER	RE	RETURN/EXHAUST FAN
CUH	CABINET UNIT HEATER	RTU	ROOFTOP UNIT
CWP	CONDENSER WATER PUMP	SA	SHOCK ABSORBER
CHWP	CHILLED WATER PUMP	SAT	SOUND ATTENUATOR
DAH	DUCTLESS AIR HANDLER	SEP	SEWAGE EJECTOR PUMP
DHP	DUCTLESS HEAT PUMP	SF	SUPPLY FAN
DCP	DOMESTIC WATER CIRCULATING PUMP	SP	SUMP PUMP
EUH	ELECTRIC UNIT HEATER	UH	UNIT HEATER
EDC	ELECTRIC DUCT COIL	US	UTILITY SET
ET	EXPANSION TANK	UV	UNIT VENTILATOR
EWH	ELECTRIC WATER HEATER	VAV	VARIABLE AIR VOLUME
FCU	FAN COIL UNIT	WH	WATER HEATER

RATED WALL LEGEND

- ONE HOUR RATED EXTERIOR WALL
- ONE HOUR RATED INTERIOR WALL

ABBREVIATIONS

&	AND	ID	INDIRECT
Ø	ROUND	IN	INCH
A	AIR	INL	INLET
AB	ABOVE BASE	INSUL	INSULATION
ABV	ABOVE	INT	INTERIOR
AC	AIR CONDITIONING	INV	INVERT
ACOUS	ACOUSTICAL	INWG	INCHES WATER GAUGE
AD	AREA DRAIN	JST SPC	JOIST SPACE
ADD	ADDENDUM	JT	JOINT
ADDL	ADDITIONAL	LAB	LABORATORY
AFF	ABOVE FINISHED FLOOR	LB	POUND
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY	LB/HR	POUNDS PER HOUR
AG	ABOVE GROUND	LAT	LEAVING AIR TEMPERATURE
ALT	ALTERNATE	LF	LINEAL FOOT
ALUM	ALUMINUM	LOC	LOCATION
AP	ACCESS PANEL	LP	LOW PRESSURE
APPROX	APPROXIMATE	LPG	LIQUEFIED PETROLEUM GAS
ARCH	ARCHITECT/ARCHITECTURAL	LR	LIQUID REFRIGERANT
AV	ACID RESISTANT VENT	LS	LAWN SPRINKLER
AW	ACID RESISTANT WASTE	L	LOUVER
AUTO	AUTOMATIC	LWT	LEAVING WATER TEMPERATURE
BFF	BELOW FINISHED FLOOR	M/A	MIXED AIR
BLDG	BUILDING	MAN	MANUAL
BLW	BELOW	MATL	MATERIAL
BM	BEAM	MAV	MANUAL AIR VENT
BO	BY OTHER	MAX	MAXIMUM
BOT	BOTTOM	MBD	MOTORIZED BYPASS DAMPER
BSMT	BASEMENT	MBH	ONE THOUSAND BTU PER HOUR
BTU	BRITISH THERMAL UNITS	MCF	ONE THOUSAND CUBIC FEET
BTUH	BRITISH THERMAL UNITS PER HOUR	MCW	MAKE-UP COLD WATER
BTWN	BETWEEN	MD	MOTORIZED DAMPER
CAP	CAPACITY	MECH	MECHANICAL
CB	CATCH BASIN	MFR	MANUFACTURER
CCW	COUNTER CLOCKWISE	MH	MANHOLE
CFCV	CONSTANT FLOW CONTROL VALVE	MIN	MINIMUM
CFM	CUBIC FEET PER MINUTE	MISC	MISCELLANEOUS
CHW	CIRCULATING HOT WATER	MTR	MOTOR
CI	CAST IRON	MU/A	MAKE-UP/AIR
CLG	CEILING	N	NECK
CLG	COOLING	NC	NOISE CRITERIA
CO	CLEAN OUT	NC	NORMALLY CLOSED
COL	COLUMN	NIC	NOT IN CONTRACT
COMB	COMBINATION	NO	NUMBER
CONC	CONCRETE	NO	NORMALLY OPEN
COND	CONDENSATE	NOM	NOMINAL
CONF	CONFERENCE	NTS	NOT TO SCALE
CONN	CONNECT	O	OXYGEN
CONST	CONSTRUCTION	O/A	OUTSIDE AIR
CONT	CONTINUE/CONTINUATION	OC	ON CENTER
CONTR	CONTRACT/CONTRACTOR	OF	OVERFLOW
COORD	COORDINATE	OPNG	OPENING
CTR	CENTER	ORD	OVERFLOW ROOF DRAIN
CUFT	CUBIC FEET	PD	PRESSURE DROP
CV	CHECK VALVE	PIV	POST INDICATOR VALVE
CW	COLD WATER	PLBG	PLUMBING
CW	CLOCKWISE	PR	PAIR
D	DEGREE	PREL	PRELIMINARY
DB	DRY BULB	PRESS	PRESSURE
DET	DETAIL	PRIM	PRIMARY
DIA	DIAMETER	PRV	PRESSURE REDUCING VALVE
DIAG	DIAGONAL	PSI	POUNDS PER SQUARE INCH
DISCH	DISCHARGE	PSIG	POUNDS PER SQUARE INCH GAUGE
DIV	DIVISION	PW	POTABLE WATER
DI	DEIONIZED WATER	PWR	POWER
DMPR	DAMPER	R	DUCT RISER
DN	DOWN	R/A	RETURN AIR
DWG	DRAWING	RCP	RADIANT CEILING PANEL
DW	DISTILLED WATER	RD	ROOF DRAIN
EA	EACH	REC	RECESSED
EAT	ENTERING AIR TEMPERATURE	RED	REDUCER
EL	ELBOW	REFR	REFRIGERATION
ELEC	ELECTRICAL	RH	RELATIVE HUMIDITY
ELEV	ELEVATION	REQD	REQUIRED
EP	EXPLOSION PROOF	REV	REVERSE
EQ	EQUAL	RL/A	RELIEF AIR
EQUIP	EQUIPMENT	RM	ROOM
EWC	ELECTRIC WATER COOLER	RPM	REVOLUTIONS PER MINUTE
EWT	ENTERING WATER TEMPERATURE	RW	RAIN WATER
E/A	EXHAUST AIR	SF	SQUARE FOOT
EAH	EXHAUST HOOD	S/A	SUPPLY AIR
EXIST	EXISTING	SAN	SANITARY
EXP	EXPANSION	SCHED	SCHEDULE
EXPJT	EXPANSION JOINT	SECT	SECTION
EXT	EXTERIOR	SF	SQUARE FOOT
F	DEGREES FAHRENHEIT	SD	SMOKE DAMPER
FCO	FLOOR CLEAN OUT	SHT	SHEET
FD	FLOOR DRAIN	SIM	SIMILAR
FD	FIRE DAMPER	SLV	SLEEVE
FDV	FIRE DEPARTMENT VALVE	SM	SURFACE MOUNT
FHC	FIRE HOSE CABINET	SP	STANDPIPE
FL	FLOOR	SP	STATIC PRESSURE
FLEX	FLEXIBLE	SPEC	SPECIFICATION
FLG	FLANGE	SPS	STATIC PRESSURE STATION
FO	FUEL OIL	SQ	SQUARE
FOV	FUEL OIL VENT	SR	SUCTION REFRIGERANT
FOR	FUEL OIL RETURN	SSD	SOIL SUBDRAIN
FOS	FUEL OIL SUPPLY	SS	STAINLESS STEEL
FPM	FEET PER MINUTE	STD	STANDARD
FRP	FIBERGLASS REINFORCED PIPE	STM	STEAM
FS	FULL SIZE	STRUCT	STRUCTURAL
FS	FLOOR SINK	SUCT	SUCTION
FT	FOOT/FEET	SUSP	SUSPENDED
FTG	FOOTING	T	THERMOSTAT
FTR	FIN TUBE RADIATION	TCP	TEMPERATURE CONTROL PANEL
FUT	FUTURE	TD	TEMPERATURE DROP
GA	GAGE/GAUGE	TDR	TRENCH DRAIN
GAL	GALLON	TEFC	TOTALLY ENCLOSED FAN COOLED
GALV	GALVANIZED	TEMP	TEMPERATURE
GC	GENERAL CONTRACTOR	TYP	TYPICAL
GEN	GENERATOR	UFD	UNDER FLOOR DUCT
GENL	GENERAL	UG	UNDERGROUND
GPH	GALLONS PER MINUTE	VAC	VACUUM
GR	GRADE	V	VENT
GW	GREASE WASTE	VAV	VARIABLE AIR VOLUME
HB	HOSE BIB	VEL	VELOCITY
HD	HEAD	VENT	VENTILATION
HORZ	HORIZONTAL	VERT	VERTICAL
HP	HORSE POWER	VOL	VOLUME
HP	HIGH PRESSURE	VTR	VENT THROUGH ROOF
HTG	HEATING	W	WASTE
HTR	HEATER	WB	WET BULB
HW	HOT WATER	WCO	WALL CLEAN OUT
HYD	HYDRANT	WH	WALL HYDRANT

MECHANICAL SUMMARY

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

CLIMATE ZONE	3A - WARM/HUMID
WINTER DRY BULB:	23%%DF
SUMMER DRY BULB	95%%DF
INTERIOR DESIGN CONDITIONS	
WINTER DRY BULB	70%%DF
SUMMER DRY BULB	75%%DF
RELATIVE HUMIDITY	60% RH*
	*DESIGN- NOT CONTROLLED
HEATING LOAD:	376.5 MBH
COOLING LOAD:	585.7 MBH
MECHANICAL SPACING CONDITIONING SYSTEM	SEE SCHEDULES
UNITARY	
DESCRIPTION OF UNIT:	SEE SCHEDULES
HEATING EFFICIENCY:	SEE SCHEDULES
COOLING EFFICIENCY:	SEE SCHEDULES
SIZE CATEGORY OF UNIT:	SEE SCHEDULES
BOILER	
SIZE CATEGORY, IF OVERSIZED STATE REASON:	N/A
CHILLER	
SIZE CATEGORY, IF OVERSIZED STATE REASON:	N/A
LIST EQUIPMENT EFFICIENCIES:	SEE SCHEDULES

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WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

MECHANICAL ABBREVIATIONS, LEGEND, ENERGY & MECH SUMMARIES

ISSUE BLOCK

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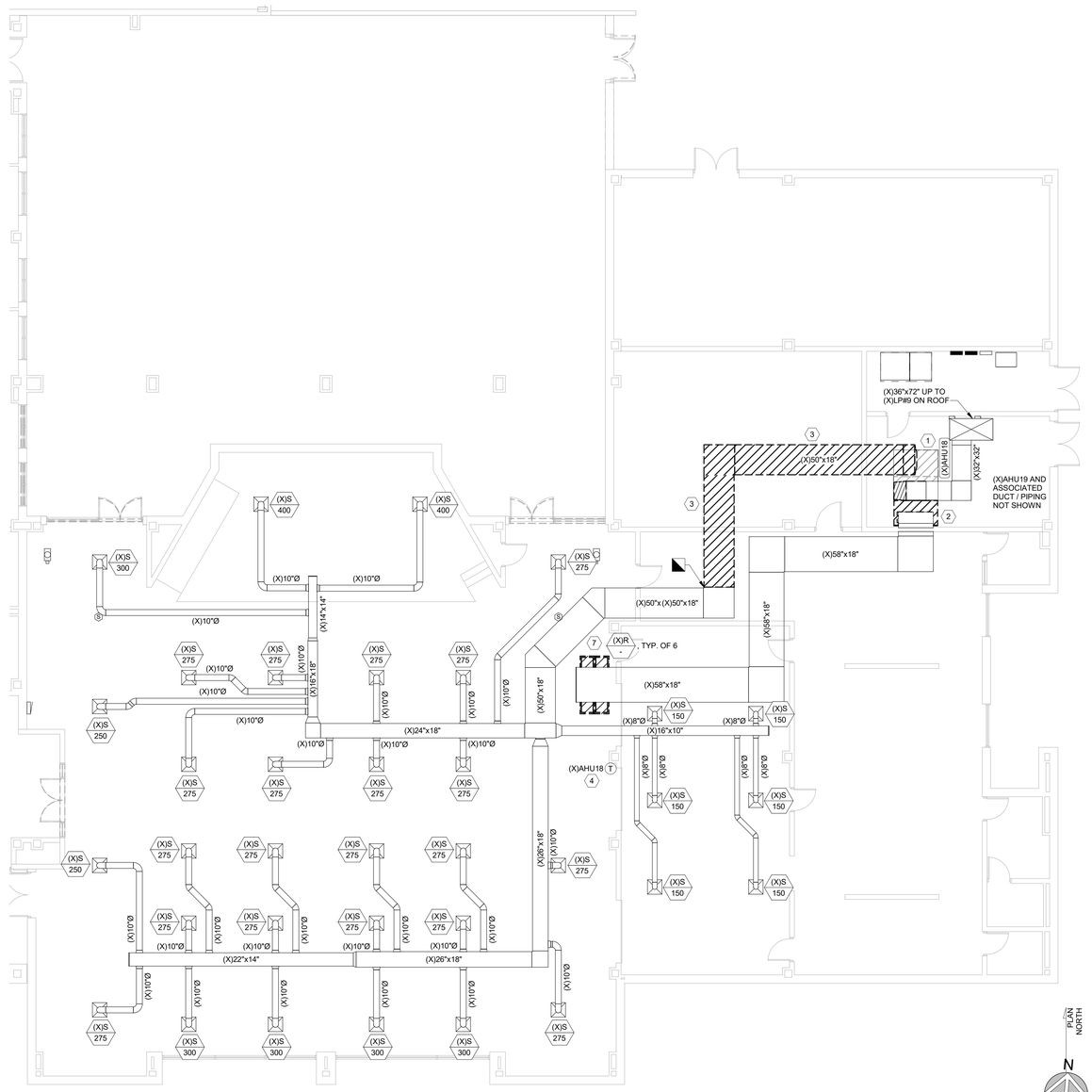
DEMOLITION KEYED NOTES

1	REMOVE / DISPOSE EXISTING AHU INCLUDING BUT NOT LIMITED TO AHU, HANGERS, SUPPORTS, ANCHORS, INSERTS, CONTROLS, ETC. TO EXTENT SHOWN. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING ITEMS TO REMAIN IN PLACE.
2	REMOVE AND DISPOSE OF RETURN DUCTWORK INCLUDING, BUT NOT LIMITED TO, RETURN AIR DUCTWORK, FLEX DUCT, HANGERS, SUPPORTS, ANCHORS, INSERTS, INSULATION AND ACCESSORIES. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING ITEMS TO REMAIN IN PLACE.
3	REMOVE AND DISPOSE OF SUPPLY DUCTWORK INCLUDING, BUT NOT LIMITED TO, SUPPLY AIR DUCTWORK, FLEX DUCT, HANGERS, SUPPORTS, ANCHORS, INSERTS, INSULATION AND ACCESSORIES. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING ITEMS TO REMAIN IN PLACE.
4	PROTECT IN PLACE EXISTING TEMPERATURE SENSOR INCLUDING BUT NOT LIMITED TO TEMPERATURE SENSOR, CONTROL WIRING, ETC.. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING ITEMS TO REMAIN IN PLACE.
5	REMOVE / DISPOSE EXISTING CHILLED WATER SUPPLY AND RETURN PIPING INCLUDING BUT NOT LIMITED TO CHILLED WATER SUPPLY AND RETURN PIPING, HANGERS, SUPPORTS, INSULATION, ETC. TO EXTENT SHOWN. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING ITEMS TO REMAIN IN PLACE.
6	REMOVE / DISPOSE EXISTING HEATING WATER SUPPLY AND RETURN PIPING INCLUDING BUT NOT LIMITED TO HEATING WATER SUPPLY AND RETURN PIPING, HANGERS, SUPPORTS, INSULATION, ETC. TO EXTENT SHOWN. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING ITEMS TO REMAIN IN PLACE.
7	REMOVE AND DISPOSE OF RETURN GRILLE INCLUDING, BUT NOT LIMITED TO, RETURN GRILLE, DUCTWORK, FLEX DUCT, HANGERS, SUPPORTS. REMOVE BACK TO MAIN RETURN DUCT TRUNK AND PREPARE FOR NEW CONNECTION. TAKE NECESSARY PRECAUTIONS TO AVOID DAMAGE TO EXISTING ITEMS TO REMAIN IN PLACE.

2 CAFETERIA DEMOLITION PLAN - HYDRONIC

SCALE: 1/8" = 1'-0"



1 CAFETERIA DEMOLITION PLAN - HVAC

SCALE: 1/8" = 1'-0"

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

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WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

HVAC DEMOLITION PLANS

ISSUE BLOCK

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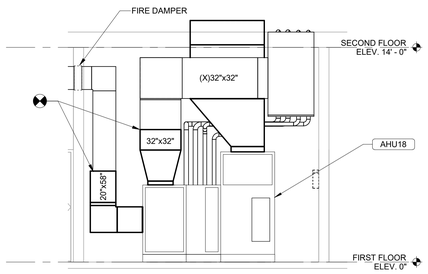
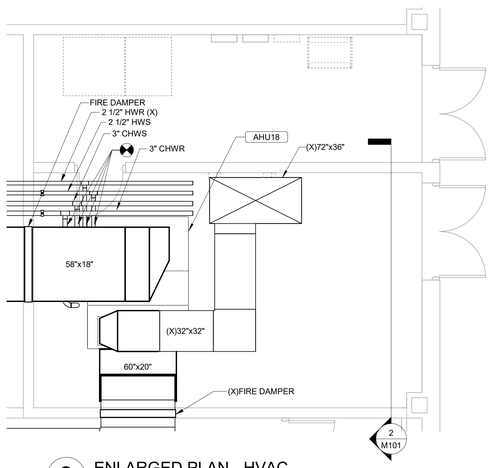
KEYNOTES	
1	CONNECT NEW "R1" RETURN GRILLES TO MAIN RETURN DUCT TRUNK VIA 14"Ø DUCT OR EQUIVALENT RECTANGULAR / SQUARE DUCT. INSULATE AND SEAL CONNECTIONS AIR-TIGHT.



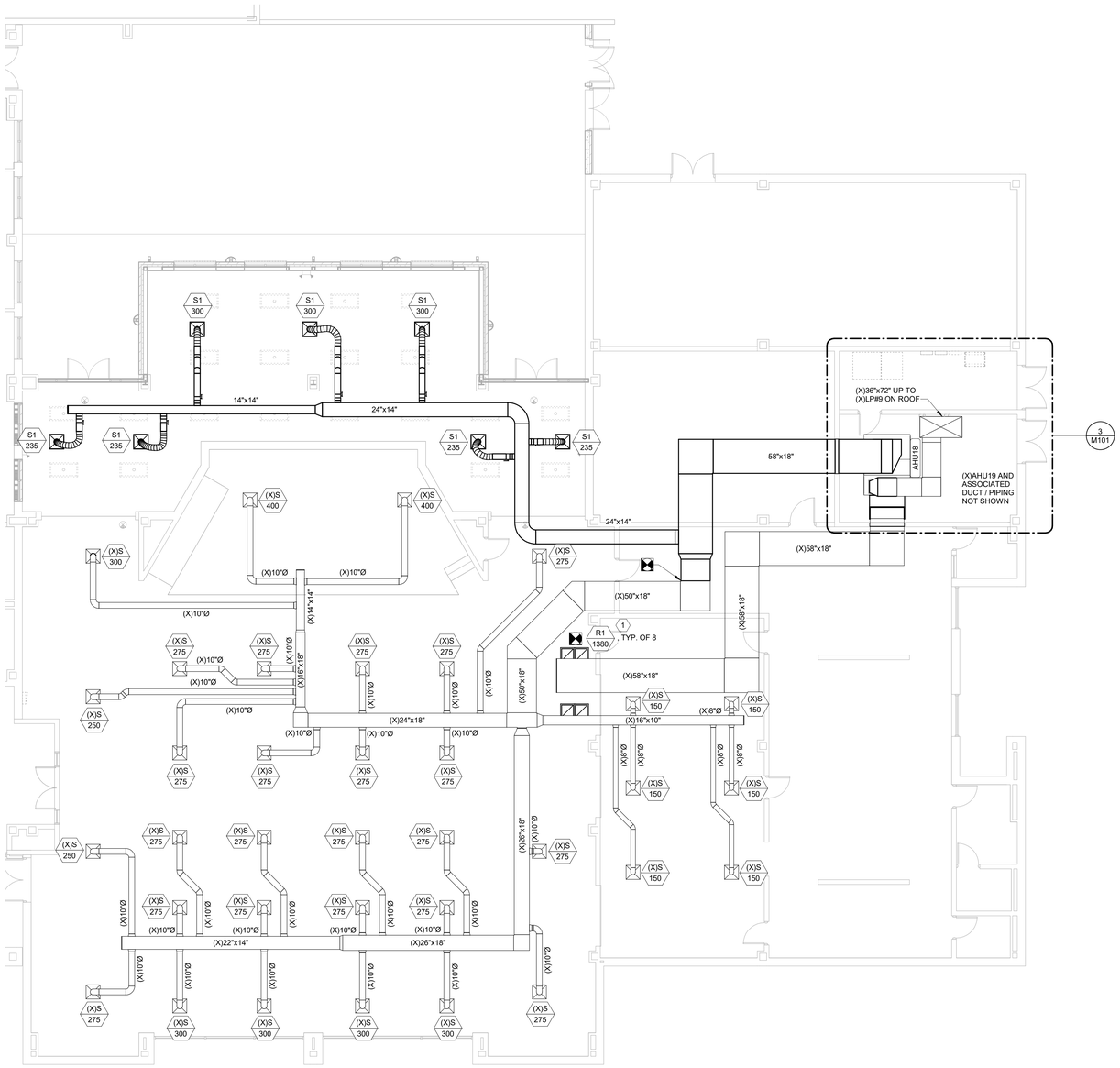
2 SECTION - HVAC

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



3 ENLARGED PLAN - HVAC

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



1 CAFETERIA ADDITION FLOOR PLAN - HVAC

SCALE: 1/8" = 1'-0"

PLAN NORTH

N

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

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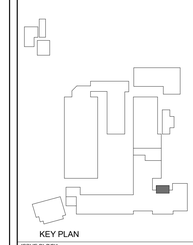
550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA ADDITION
FLOOR PLANS - HVAC



KEY PLAN

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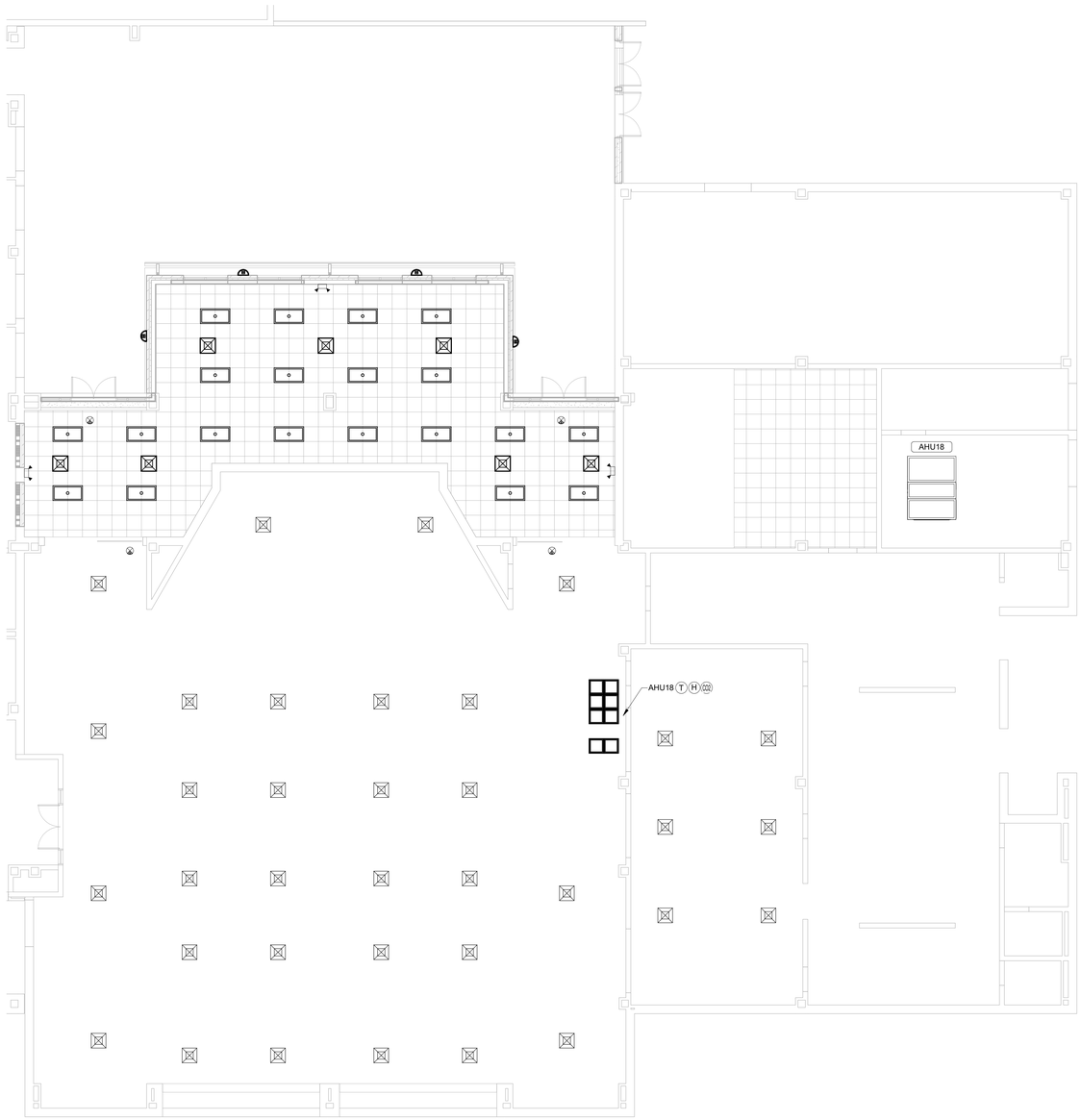

1 CAFETERIA ADDITION FLOOR PLAN - RCP

SCALE: 1/8" = 1'-0"

PLAN NORTH

N

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

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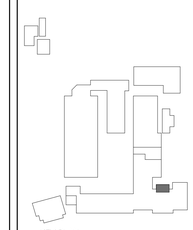
550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA ADDITION FLOOR PLAN - RCP



KEY PLAN

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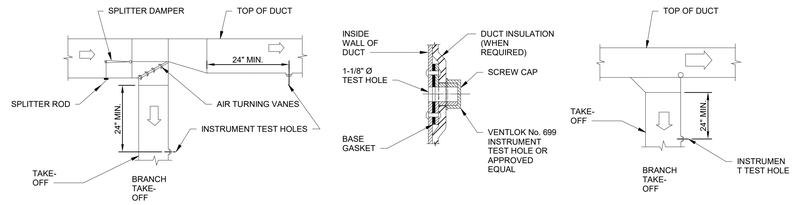
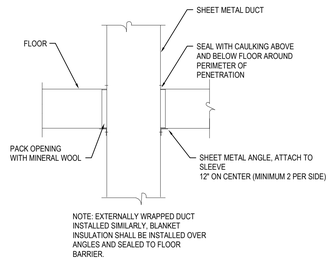
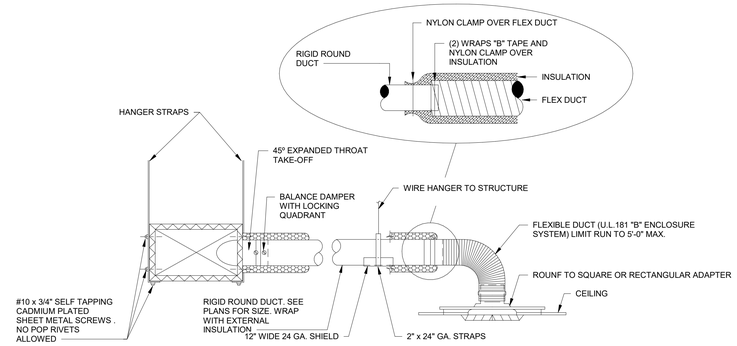


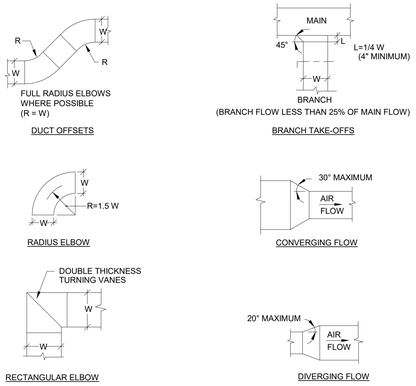
1 TYPICAL LOW PRESSURE DUCT DETAILS
NO SCALE



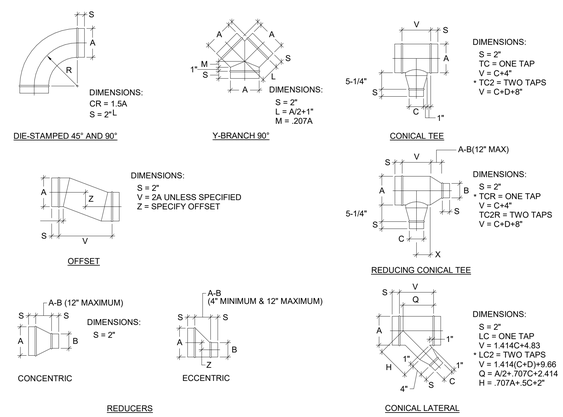
2 TYPICAL DUCT THROUGH NON-RATED WALL
NO SCALE



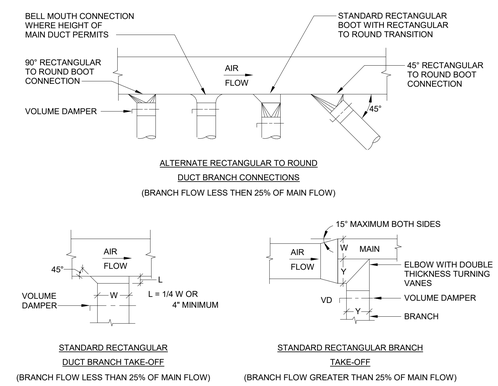
3 TYPICAL DIFFUSER CONNECTION DETAIL
NO SCALE



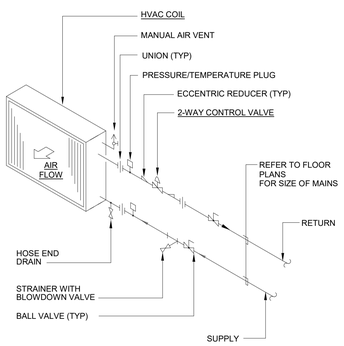
4 RECTANGULAR DUCT FITTING DETAILS
NO SCALE



5 ROUND DUCT FITTING DETAILS
NO SCALE



6 ROUND/RECT. DUCT TAKE-OFF FITTING DETAILS
NO SCALE



7 HVAC COIL (2-WAY VALVE) DETAIL
NO SCALE

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DPI SCHOOL # : 1167

SHEET TITLE

HVAC DETAILS

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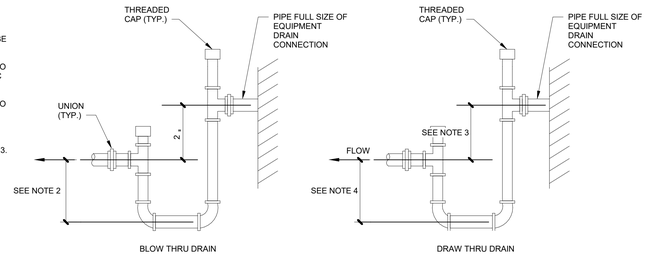
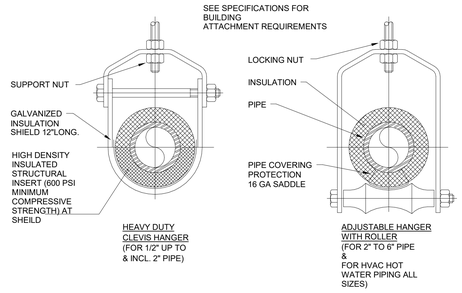
NOTES:

1. LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.
2. HEIGHT SHALL BE EQUAL TO UNIT MAXIMUM TOTAL STATIC PRESSURE PLUS 1/2".
3. HEIGHT SHALL BE EQUAL TO UNIT MAXIMUM NEGATIVE STATIC PRESSURE PLUS 1".
4. HEIGHT SHALL BE 1/2" OF HEIGHT INSTALLED ON NOTE 3.
5. PIPE TO NEAREST DRAIN.
6. TRAP SHALL NOT BLOCK ACCESS TO EQUIPMENT.
7. PROVIDE UNIONS AT INLET AND OUTLET OF TRAP.



1 TYPICAL EQUIPMENT CONDENSATE DRAIN DETAIL1

NO SCALE



LOAD SCHEDULE

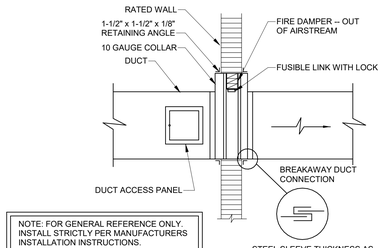
PIPE SIZE	MAXIMUM SPACING	ROD SIZE
1/2" - 2"	8'	1/2"∅
2 1/2"	10'	5/8"∅
3"	10'	5/8"∅
4"	14'	5/8"∅
5"	14'	5/8"∅

NOTES:

1. THIS DETAIL SHALL BE USED AS A GUIDE. ALL HANGERS SHALL MEET THE REQUIREMENTS OF THE SPECIFICATIONS.
2. PIPE 6" AND LARGER SHALL HAVE ROLLER SUPPORTED WITH DUAL RODS.
3. FOR CHW SERVICE OVER 3" REPLACE SADDLE WITH 12" LONG 14 GA SHIELD WITH RIGID INSULATION BETWEEN PIPE AND SHIELD.
4. WHERE TRAPEZE HANGERS ARE USED FOR HEATING HOT WATER PROVIDE ROLLERS.

2 PIPE HANGER SUPPORT DETAIL1

NO SCALE



NOTE: FOR GENERAL REFERENCE ONLY. INSTALL STRICTLY PER MANUFACTURERS INSTALLATION INSTRUCTIONS.

STEEL SLEEVE THICKNESS AS REQUIRED BY SMACNA "FIRE, SMOKE AND RADIATION DAMPER INSTALLATION GUIDE FOR HVAC SYSTEMS."

3 FIRE DAMPER

NO SCALE

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FINAL DRAWING
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PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

HVAC DETAILS

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	07.30.19	SD PROGRESS DRAWINGS
	07.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019082.00
DATE: 01.20.2020
SCALE: 12" = 1'-0"
DRAWN BY: GRM | PROJ MGR: DMH

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AIR HANDLER SCHEDULE

DRAWING CODE	BASIS OF DESIGN MANUFACTURER	ALTERNATE APPROVED MANUFACTURERS	BASIS OF DESIGN MODEL	SYSTEM TYPE	SUPPLY AIR FAN (2@5520CFM, 7.4HP)					COOLING COIL											REHEAT COIL									ELECTRICAL			INSTALLED WEIGHT	NOTES	ACCESSORIES
					TOTAL AIRFLOW	OUTSIDE AIRFLOW	ESP	TSP	MOTOR	AIRFLOW	VELOCITY	TOTAL CAPACITY	SENSIBLE CAPACITY	EAT(db)	LAT(db)	EWT	LWT	FLOW	WPD	PIPE CONNECTION	AIRFLOW	REHEAT COIL VELOCITY	TOTAL	EAT(db)	LAT(db)	EWT	LWT	FLOW	WPD	PIPE CONNECTION	POWER SUPPLY (V/PH/HZ)	MCA	MOCP			
AHU18	TRANE	DIAKIN, YORK	UCCAR21	FOUR PIPE	11040 CFM	3950 CFM	1.00 in-wg	3.55 in-wg	7.40 hp	11040 CFM	542 FPM	616550 Btu/h	370180 Btu/h	81.7 °F	51.4 °F	46 °F	56 °F	122.9 GPM	26.4 ftH2O	1"	11040 CFM	542 FPM	502 Btu/h	51.1 °F	93.0 °F	180 °F	160 °F	50.1 GPM	6.3 ftH2O	1"	460/3/60	16.4 A	20.0 A	2675 lb	1,2,3,4	A THRU I

NOTES:
1. REFER TO SPECIFICATION SECTION 237313.16 INDOOR, SEMI-CUSTOM AIR HANDLING UNITS FOR FURTHER INFORMATION.
2. COIL, DRAIN AND MOTOR SIDE ACCESS TO BE FIELD CONFIRMED PRIOR TO SUBMITTING FOR APPROVAL.
3. MAXIMUM COIL VELOCITY SHALL NOT EXCEED SCHEDULED VALUES.
4. ALL CONTROLS SENSORS, ACTUATORS AND WIRING PROVIDED AND INSTALLED BY DDC CONTRACTOR.

ACCESSORIES:
A. COOLING COILS SECTIONS SHALL BE PROVIDED WITH AN INSULATED, DOUBLE WALL, 201 STAINLESS DRAIN PAN WITH POSITIVE DRAINAGE MEETING INDOOR AIR QUALITY (IAQ) IN ACCORDANCE WITH ASHRAE 62.1.
B. COPPER COIL, ALUMINUM FIN, GALVANIZED STEEL COIL CASING.
C. UNIT PANELS SHALL BE MINIMUM 2" DOUBLE WALL FOAM R-13 CONSTRUCTION.
D. AHU PANELS SHALL MADE WITH GALVANIZED STEEL.
E. PROVIDE 2" MERV 8 PLEATED MEDIA FILTERS, THREE SETS OF EACH TYPE. PROVIDE ONE SET IN UNIT, PROVIDE ONE SET FOR INSTALLATION AFTER SYSTEM IS BALANCED AND BUILDING IS CLEANED, AND ONE SET FOR TURN OVER TO OWNER.
F. PROVIDE OUTDOOR AIR DAMPERS. DAMPERS SHALL BE MANUFACTURED BY RUSKIN (CD60) OR APPROVED EQUAL.
G. HINGES ACCESS DOORS, MOTOR SIDE ONLY.
H. FAN SHALL BE DIRECT DRIVE ECM TYPE. SEE EQUIPMENT SCHEDULE FOR SIZES AND QUANTITIES.
I. PROVIDE UNIT WITH FACTORY PROVIDED 2 INCH ANGLE FILTER MIXING BOX.

SQUENCE OF OPERATIONS

AHU18

RUN CONDITIONS - SCHEDULED:
THE UNIT SHALL RUN ACCORDING TO A USER DEFINABLE TIME SCHEDULE IN THE FOLLOWING MODES:
- OCCUPIED MODE: THE UNIT SHALL MAINTAIN
  - A 75°F (ADJ.) COOLING SETPOINT
  - A 70°F (ADJ.) HEATING SETPOINT.
- UNOCCUPIED MODE (NIGHT SETBACK): THE UNIT SHALL MAINTAIN
  - AN 80°F (ADJ.) COOLING SETPOINT.
  - A 65°F (ADJ.) HEATING SETPOINT.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE TEMP: IF THE ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).
- LOW ZONE TEMP: IF THE ZONE TEMPERATURE IS LESS THAN THE HEATING SETPOINT BY A USER DEFINABLE AMOUNT (ADJ.).

ZONE OPTIMAL START:
THE UNIT SHALL USE AN OPTIMAL START ALGORITHM FOR MORNING START-UP. THIS ALGORITHM SHALL MINIMIZE THE UNOCCUPIED WARM-UP OR COOL-DOWN PERIOD WHILE STILL ACHIEVING COMFORT CONDITIONS BY THE START OF SCHEDULED OCCUPIED PERIOD.

EMERGENCY SHUTDOWN:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING AN EMERGENCY SHUTDOWN SIGNAL.

FREEZE PROTECTION:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZESTAT STATUS.

RETURN AIR SMOKE DETECTION:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.

SUPPLY FAN:
THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
- SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

COOLING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE COOLING COIL VALVE TO MAINTAIN ITS COOLING SETPOINT.

THE COOLING SHALL BE ENABLED WHENEVER:
- THE ECONOMIZER IS DISABLED OR FULLY OPEN.
- AND THE ZONE TEMPERATURE IS ABOVE COOLING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE HEATING IS NOT ACTIVE.

THE COOLING COIL VALVE SHALL OPEN TO 50% (ADJ.) WHENEVER THE FREEZESTAT (IF PRESENT) IS ON.

HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

THE HEATING SHALL BE ENABLED WHENEVER:
- THE ZONE TEMPERATURE IS BELOW HEATING SETPOINT.
- AND THE SUPPLY FAN STATUS IS ON.
- AND THE COOLING IS NOT ACTIVE.

THE HEATING COIL VALVE SHALL OPEN WHENEVER THE FREEZESTAT (IF PRESENT) IS ON.

ECONOMIZER:
THE CONTROLLER SHALL MEASURE THE ZONE TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F LESS THAN THE ZONE COOLING SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION OF 20% (ADJ.) OPEN WHENEVER OCCUPIED.

THE ECONOMIZER SHALL BE ENABLED WHENEVER:
- OUTSIDE AIR TEMPERATURE IS LESS THAN 60°F (ADJ.).
- AND THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
- AND THE SUPPLY FAN STATUS IS ON.

THE ECONOMIZER SHALL CLOSE WHENEVER:
- MIXED AIR TEMPERATURE DROPS FROM 45°F TO 40°F (ADJ.).
- OR ON LOSS OF SUPPLY FAN STATUS.
- OR THE FREEZESTAT IS ON.

THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF. IF OPTIMAL START UP IS AVAILABLE, THE MIXED AIR DAMPER SHALL OPERATE AS DESCRIBED IN THE OCCUPIED MODE EXCEPT THAT THE OUTSIDE AIR DAMPER SHALL MODULATE TO FULLY CLOSED.

MINIMUM OUTSIDE AIR VENTILATION - CARBON DIOXIDE (CO2) CONTROL:
WHEN IN THE OCCUPIED MODE, THE CONTROLLER SHALL MEASURE THE RETURN AIR CO2 LEVELS AND MODULATE THE OUTSIDE AIR DAMPERS OPEN ON RISING CO2 CONCENTRATIONS, OVERRIDING NORMAL DAMPER OPERATION TO MAINTAIN A CO2 SETPOINT OF 750 PPM (ADJ.).

DEHUMIDIFICATION:
THE CONTROLLER SHALL MEASURE THE ZONE HUMIDITY AND OVERRIDE THE COOLING SEQUENCE TO MAINTAIN ZONE HUMIDITY AT OR BELOW 55% RH (ADJ.).

DURING DEHUMIDIFICATION, THE HEATING SHALL MODULATE TO MAINTAIN A SETPOINT 1°F (ADJ.) LESS THAN THE ZONE COOLING SETPOINT.

DEHUMIDIFICATION SHALL BE ENABLED WHENEVER:
- THE SUPPLY FAN STATUS IS ON.
- AND ZONE TEMPERATURE IS GREATER THAN THE COOLING SETPOINT.

FINAL FILTER HOURS:
THE CONTROLLER SHALL MONITOR THE FAN RUNTIME.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- FINAL FILTER CHANGE REQUIRED: FINAL FILTER HAS BEEN IN USE FOR MORE THAN 2200 HRS (ADJ.).

MIXED AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
- LOW MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

ZONE CARBON DIOXIDE (CO2) CONCENTRATION MONITORING:
THE CONTROLLER SHALL MEASURE THE ZONE CO2 CONCENTRATION.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE CARBON DIOXIDE CONCENTRATION: IF THE ZONE CO2 CONCENTRATION IS GREATER THAN 1000 PPM (ADJ.) WHEN IN THE OCCUPIED MODE.

ZONE HUMIDITY:
THE CONTROLLER SHALL MONITOR THE ZONE AIR HUMIDITY AND USE AS REQUIRED FOR ECONOMIZER CONTROL OR HUMIDITY CONTROL.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH ZONE HUMIDITY: IF THE RETURN AIR HUMIDITY IS GREATER THAN 70% (ADJ.).
- LOW ZONE HUMIDITY: IF THE RETURN AIR HUMIDITY IS LESS THAN 35% (ADJ.).

RETURN AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
- LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

SUPPLY AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
- HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
- LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

DIFFUSERS, REGISTERS AND GRILLES SCHEDULE

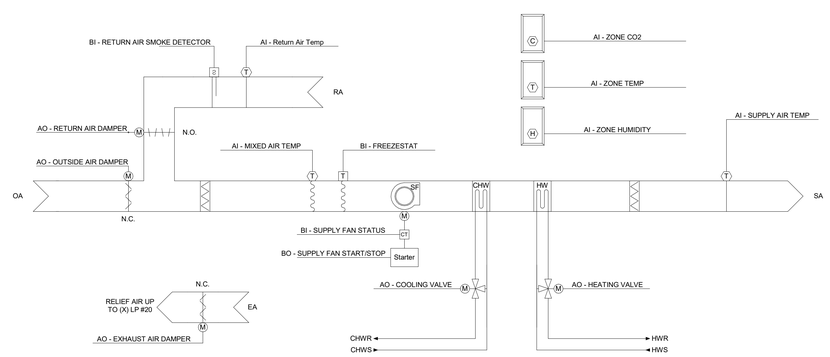
DRAWING CODE	BASIS OF DESIGN MANUFACTURER	BASIS OF DESIGN MODEL	ALTERNATE APPROVED MANUFACTURERS	TYPE	SERVICE	NECK SIZE	MODULE SIZE	MATERIAL	FINISH	MOUNTING	NOTES	ACCESSORIES
R1	TITIUS	350FL	PRICE, METAL AIRE	LOUVERED GRILLE	RETURN	20 X 20	24 X 24	ALUMINUM	WHITE ENAMEL	T-BAR	1,2,3	-
S1	TITIUS	TMS-AA	PRICE, METAL AIRE	3-CONE DIFFUSER	SUPPLY	10"Ø	24 X 24	ALUMINUM	WHITE ENAMEL	T-BAR	1,2,3	A

NOTES:
1. REFER TO DIVISION 23 SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. DUCT BRANCH CONNECTION SIZE TO BE EQUAL TO THE NECK SIZE OF DIFFUSER UNLESS NOTED OTHERWISE ON PLANS.
3. COORDINATE FINAL COLOR AND FINISH WITH ARCHITECT.

ACCESSORIES:
A. OPPOSED BLADE DAMPER.

AHU18 POINTS LIST

	HARDWARE POINTS					SOFTWARE POINTS					
POINT NAME	AI	AO	BI	BO	AV	BV	LOOP	SCHED	TREND	ALA...	SHOW ON GRAPHIC
MIXED AIR TEMP	X								X		X
ZONE CARBON DIOXIDE PPM	X								X		X
ZONE HUMIDITY	X								X		X
RETURN AIR TEMP	X								X		X
SUPPLY AIR TEMP	X								X		X
ZONE TEMP	X								X		X
COOLING VALVE		X							X		X
HEATING VALVE		X							X		X
MIXED AIR DAMPERS		X							X		X
FREEZESTAT			X						X	X	X
RETURN AIR SMOKE DETECTOR			X						X	X	X
SUPPLY FAN STATUS			X						X		X
SUPPLY FAN START/STOP				X					X		X
COOLING SETPOINT					X				X		X
DEHUMIDIFICATION SETPOINT					X				X		X
ECONOMIZER ZONE TEMP SETPOINT					X				X		X
HEATING SETPOINT					X				X		X
ZONE CARBON DIOXIDE PPM SETPOINT					X				X		X
EMERGENCY SHUTDOWN						X				X	X
SCHEDULE								X			
FINAL FILTER CHANGE REQUIRED										X	X
HIGH MIXED AIR TEMP										X	
HIGH ZONE CARBON DIOXIDE CONCENTRATION										X	
HIGH ZONE HUMIDITY										X	
HIGH RETURN AIR TEMP										X	
HIGH SUPPLY AIR TEMP										X	
HIGH ZONE TEMP										X	
LOW MIXED AIR TEMP										X	
LOW ZONE HUMIDITY										X	
LOW RETURN AIR TEMP										X	
LOW SUPPLY AIR TEMP										X	
LOW ZONE TEMP										X	
SUPPLY FAN FAILURE										X	
SUPPLY FAN IN HAND										X	
SUPPLY FAN RUNTIME EXCEEDED										X	



1 AHU18 CONTROL DIAGRAM
NO SCALE

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FINAL DRAWING
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PROJECT TITLE
WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE
MECHANICAL SCHEDULES

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	07.30.19	SD PROGRESS DRAWINGS
	07.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019082.00
DATE: 01.20.2020
SCALE: 12" = 1'-0"
DRAWN BY: GRM PROJ MGR: DMH

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GENERAL NOTES

1. ALL ELECTRICAL WORK SHALL BE IN FULL COMPLIANCE WITH NFPA, THE NORTH CAROLINA STATE BUILDING CODE, ALL LOCAL CODES AND ORDINANCES AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.

2. ALL EQUIPMENT PROVIDED BY THE CONTRACTOR SHALL BE LISTED AND LABELED BY A NATIONALLY-RECOGNIZED TESTING AGENCY, ACCEPTABLE TO THE AUTHORITY HAVING JURISDICTION, FOR THE CONDITIONS OF INSTALLATION. ALL MATERIAL, EQUIPMENT AND DEVICES SHALL BE NEW CURRENT PRODUCTS OF MANUFACTURERS REGULARLY ENGAGED IN THE PRODUCTION OF SUCH PRODUCTS. EQUIPMENT SHALL BE SUITABLE FOR ITS APPLICATION (E.G. WHEN INSTALLED OUTDOORS, IT SHALL BE WEATHERPROOF, ETC.)

3. THE CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS FOR WORK REQUIREMENTS, THE AMOUNT OF SPACE AVAILABLE FOR ELECTRICAL EQUIPMENT, AND LAYOUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER.

4. THE CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR THOROUGHLY FAMILIARIZING HIMSELF WITH ANY CONTRACTUAL REQUIREMENTS AS MAY BE SET FORTH IN THE OTHER DIVISIONS OF THE PROJECT SPECIFICATIONS.

5. UNLESS SPECIFICALLY NOTED OTHERWISE, SYSTEMS PROVIDED OR INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE COMPLETE AND FULLY-FUNCTIONING AFTER INSTALLATION. INCIDENTAL COMPONENTS MAY NOT BE SHOWN, AND ALL WORK WHICH MAY BE REASONABLY IMPLIED AS BEING INCIDENTAL TO THIS WORK, BUT REQUIRED FOR THE PROPER OPERATION OF THE EQUIPMENT OR SYSTEM, SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED IN THE BID. ADDITIONAL CIRCUITS SHALL BE INSTALLED WHEREVER NEEDED TO CONFORM TO THE SPECIFIC REQUIREMENTS OF EQUIPMENT.

6. TEMPORARY POWER CONNECTIONS AS REQUIRED SHALL BE PROVIDED BY THE CONTRACTOR AND INCLUDED IN THE BID. ALL TEMPORARY EQUIPMENT WIRING SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE. THE CONTRACTOR SHALL PROVIDE DETAILS, METHODS, MATERIALS, ETC. FOR REVIEW PRIOR TO MAKING TEMPORARY CONNECTIONS. FURNISH AND INSTALL ALL EQUIPMENT AND MATERIALS INCLUDING CONTROL EQUIPMENT, MOTOR STARTERS, BRANCH AND FEEDER CIRCUIT BREAKERS, PANELBOARDS, TRANSFORMERS, ETC. FOR TEMPORARY POWER. COORDINATE WITH THE ELECTRICAL UTILITY COMPANY AS REQUIRED.

7. THE WORK SHALL INCLUDE COMPLETE TESTING OF ALL EQUIPMENT AND WIRING AT THE COMPLETION OF WORK AND ANY MINOR CORRECTIONS, CHANGES OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT.

8. ALL EQUIPMENT SHOWN DOTTED OR DASHED IS BY OTHERS OR IS EXISTING, AS NOTED.

9. ALL ELECTRICAL EQUIPMENT SHALL, AT ALL TIMES DURING CONSTRUCTION, BE ADEQUATELY PROTECTED AGAINST MECHANICAL INJURY, OR DAMAGE BY WATER AND/OR THE ELEMENTS. ELECTRICAL EQUIPMENT SHALL NOT BE STORED OUT OF DOORS, BUT SHALL BE STORED IN DRY PERMANENT SHELTERS. IF AN APPARATUS HAS BEEN DAMAGED, OR HAS BEEN SUBJECT TO POSSIBLE INJURY BY WATER OR THE ELEMENTS, SUCH DAMAGE SHALL BE REPLACED AT NO ADDITIONAL COST.

10. DO NOT SCALE ELECTRICAL DRAWINGS. REFER TO THE ARCHITECTURAL DRAWINGS FOR DIMENSIONS.

11. CIRCUIT LAYOUTS ARE NOT INTENDED TO SHOW THE NUMBER OF FITTINGS, OR OTHER INSTALLATION DETAILS. UNLESS NOTED OTHERWISE, THE EXACT ROUTING OF FEEDER AND BRANCH CIRCUIT RACEWAYS AND CABLES IS THE RESPONSIBILITY OF THE CONTRACTOR. RISER AND GENERAL CIRCUIT ARRANGEMENTS ARE SHOWN SCHEMATICALLY/DIAGRAMMATICALLY ONLY. THE CONTRACTOR SHALL ROUTE CONDUITS AS REQUIRED BY THE CONDITIONS OF THE INSTALLATION.

12. UNLESS DIMENSIONED, DEVICE LOCATIONS SHOWN ON THE DRAWINGS ARE APPROXIMATE. ADJUST EXACT LOCATIONS AS REQUIRED TO SERVE THE INTENDED PURPOSE AND TO AVOID CONFLICTS AND INTERFERENCES WITH OTHER TRADES. EXACT DEVICE LOCATIONS SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS OR AS DIMENSIONED. IF NOT SHOWN ON THE ARCHITECTURAL DRAWINGS OR DIMENSIONED ON THE ELECTRICAL DRAWINGS, VERIFY EXACT LOCATION WITH THE ARCHITECT/ENGINEER PRIOR TO ROUGH-IN.

13. CONDUIT TERMINATING IN PRESSED STEEL BOXES SHALL HAVE DOUBLE LOCKNUTS AND INSULATED BUSHINGS. CONDUITS TERMINATING IN GASKETED ENCLOSURES SHALL BE TERMINATED WITH GROUNDING TYPE CONDUIT HUBS.

14. DEVICE BOXES SHOWN BACK-TO-BACK SHALL BE OFFSET A MINIMUM OF TWELVE (12) INCHES TO REDUCE SOUND TRANSMISSION BETWEEN ROOMS.

15. BRANCH CIRCUIT HOMERUNS SHOWN ON DRAWINGS INDICATE PHASE CONDUCTORS, NEUTRAL, EQUIPMENT GROUND CONDUCTORS AS REQUIRED. ADDITIONAL CONDUCTORS REQUIRED FOR CONTROL SHALL BE INCLUDED EVEN IF NOT EXPLICITLY SHOWN.

16. SEAL ALL CONDUIT OPENINGS THROUGH EXTERIOR BUILDING WALLS WATERTIGHT.

17. IN WET LOCATIONS AND EXTERIOR, ALL WIRING DEVICES SHALL BE WEATHER-RESISTANT LISTED WITH WEATHERPROOF WHILE IN USE COVER. LIGHTING FIXTURES SHALL BE APPROPRIATELY RATED AND LISTED FOR THE ENVIRONMENT INCLUDING 0 DEGREE BALLASTS FOR FLUORESCENT.

18. RACEWAYS PENETRATING FLOORS, CEILINGS OR WALLS SHALL BE PROPERLY SEALED SMOKETIGHT.

19. RACEWAYS PENETRATING RATED FLOOR, CEILING OR WALL ASSEMBLIES SHALL BE PROPERLY SEALED IN ACCORDANCE WITH THE CORRESPONDING UNDERWRITERS LABORATORIES (OR OTHER APPROVED THIRD PARTY TESTING AGENCY) APPROVED AND LISTED FIRESTOPPING MATERIALS AND MANUFACTURER APPROVED INSTALLATION TECHNIQUES COMPLYING WITH ALL APPLICABLE CODES. SEE ARCHITECTURAL DRAWINGS FOR IDENTIFICATION OF RATED WALLS AND CEILINGS.

20. ALL RACEWAYS SHALL BE CONCEALED WHERE POSSIBLE.

21. INSTALL EXPOSED RACEWAYS PARALLEL TO OR AT RIGHT ANGLES TO NEARBY SURFACES OR STRUCTURAL MEMBERS, AND FOLLOW THE SURFACE CONTOURS AS MUCH AS POSSIBLE. NO DIAGONAL RUNS WILL BE ALLOWED. ALL CONDUITS SHALL BE RUN STRAIGHT AND TRUE. RUN PARALLEL OR BANKED RACEWAYS TOGETHER ON COMMON SUPPORTS WHERE PRACTICAL. MAKE BENDS IN PARALLEL OR BANKED RUNS FROM SAME CENTERLINE TO MAKE BENDS PARALLEL.

22. PROVIDE AND PLACE ALL SLEEVES FOR CONDUITS PENETRATING WALLS, FLOORS, PARTITIONS, ETC. LOCATE ALL NECESSARY SLOTS FOR ELECTRICAL WORK AND FORM BEFORE CONCRETE IS POURED.

23. PATCHING OF WATERPROOFED SURFACES SHALL RENDER THE AREA OF THE PATCHING COMPLETELY WATERPROOF.

24. ALL MOTORS, DRY TYPE TRANSFORMERS AND OTHER VIBRATING EQUIPMENT SHALL BE CONNECTED TO THE CONDUIT SYSTEM BY MEANS OF A SHORT SECTION (18 INCH MINIMUM) OF FLEXIBLE CONDUIT UNLESS OTHERWISE INDICATED. AN EQUIPMENT GROUNDING CONDUCTOR SHALL BE INSTALLED INSIDE THE FLEXIBLE CONDUIT AND TERMINATE AT THE LOAD END WITH AN APPROVED GROUNDING CLAMP OR LUG.

25. SURFACE MOUNTED PANELBOARDS, JUNCTION, OUTLET AND PULL BOXES, RACEWAYS, ETC., INSTALLED ON EXTERIOR SURFACES OR INSIDE ON EXTERIOR WALLS SHALL BE SUPPORTED BY SPACERS TO PROVIDE A 1/4" MINIMUM CLEARANCE BETWEEN THE WALL AND EQUIPMENT.

26. CEILING MOUNTED DEVICES INSTALLED IN ACOUSTICAL TILE CEILING AREAS SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE WITH RODS OF SUFFICIENT SIZE TO PREVENT VERTICAL MOVEMENT OF THE OUTLET BOX. BRIDGES ALONE ARE NOT ADEQUATE UNLESS SPECIFICALLY APPROVED. CEILING MOUNTED EXIT LIGHT FIXTURES SHALL BE INSTALLED LEVEL. DO NOT SUPPORT DEVICES FROM ACCOUSTICAL CEILING TILE.

27. EXCAVATION AND TRENCHING REQUIRED FOR THE INSTALLATION OF ELECTRICAL POWER AND TELECOMMUNICATIONS RACEWAYS SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH THE REQUIREMENTS OF DIVISION 26 OF THE PROJECT SPECIFICATIONS.

28. PRIOR TO TRENCHING IN ANY AREA, THE CONTRACTOR SHALL CONTACT ELECTRICAL, COMMUNICATIONS/DATA/FIBER, CABLE TELEVISION, GAS AND WATER UTILITY PROVIDERS AND HAVE ALL UTILITIES IN THE AREA IDENTIFIED. DAMAGE TO ANY UNDERGROUND UTILITIES OR STRUCTURES SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE PROJECT.

29. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED BY UNDERGROUND LINE MARKING TAPE LOCATED DIRECTLY ABOVE THE RACEWAY AT 6 TO 8 INCHES BELOW FINISHED GRADE. SEE SPECIFICATIONS SECTION 260553.

30. PROVIDE ADHESIVE BACKED RECEPTACLE DEVICE PLATE LABELS IDENTIFYING THE CIRCUIT FEEDING THE DEVICE. LABELS SHALL INDICATE PANEL AND CIRCUIT NUMBER.

31. FINAL TYPED PANELBOARD DIRECTORIES INSTALLED IN THE PANELBOARD DOOR POCKET SHALL INCLUDE FINAL ACTUAL ROOM NAMES AND NUMBERS IN ADDITION TO THE GENERAL DESCRIPTION SHOWN ON THE PANEL SCHEDULES ON THE DRAWINGS.

32. CONDUCTOR SIZING IS BASED ON 75 DEGREE C. COPPER NEC RATINGS, UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL VERIFY, PRIOR TO INSTALLATION OF CONDUCTORS OR CONDUIT FEEDING ANY EQUIPMENT, THE ELECTRICAL EQUIPMENT IS RATED FOR USE WITH 75 DEGREE C. WIRING. IF ANY EQUIPMENT IS RATED FOR USE WITH LESS THAN 75 DEGREE C. CONDUCTORS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY FOR EVALUATION/CORRECTION.

33. DO NOT PULL CONDUCTORS UNTIL THE CONDUIT SYSTEM IS COMPLETE IN EVERY DETAIL. IN THE CASE OF CONCEALED WORK, "COMPLETE" MEANS UNTIL ALL ROUGH PLASTERING OR MASONRY HAS BEEN COMPLETED.

34. WHERE SIZE IS NOT SHOWN ON THE DRAWINGS, BRANCH CIRCUITS SHALL CONSIST OF #12 OR #10 AWG MINIMUM PHASE, NEUTRAL AND EQUIPMENT GROUND CONDUCTORS IN 1/2" MINIMUM RACEWAY.

35. USE #10 AWG CONDUCTORS FOR 20 AMPERE, 120 VOLT BRANCH CIRCUITS WITH A TOTAL INSTALLED LENGTH GREATER THAN 75 FEET AND/OR BRANCH CIRCUIT HOMERUNS LONGER THAN 50 FEET, I.E.; #12 AWG INCREASED TO #10 AWG FOR RECEPTACLE BRANCH CIRCUITS OVER 75 FEET TOTAL LENGTH (INCLUDING THE HOMERUN SEGMENT) AND HOMERUNS OVER 50 FEET.

36. COMMON NEUTRAL MULTIWIRE RECEPTACLE BRANCH CIRCUITS ARE NOT PERMITTED. PROVIDE SEPARATE, INDIVIDUAL NEUTRAL CONDUCTORS FOR MULTIWIRE BRANCH CIRCUITS.

37. KEEP CONDUCTOR SPLICES TO A MINIMUM. INSTALL SPLICES AND TAPES THAT POSSESS EQUIVALENT OR BETTER MECHANICAL STRENGTH AND INSULATION RATINGS THAN CONDUCTORS BEING SPLICED. USE SPLICE AND TAP CONNECTORS COMPATIBLE WITH CONDUCTOR MATERIAL. INSTALL CONDUCTORS AT EACH OUTLET WITH AT LEAST 6 INCHES OF SLACK. CONNECT OUTLETS AND COMPONENTS TO WIRING AND TO GROUND AS INDICATED AND INSTRUCTED BY THE MANUFACTURER.

38. DO NOT SPLICE BRANCH CIRCUIT HOMERUNS WITHOUT THE PERMISSION OF THE ARCHITECT/ENGINEER. HOMERUNS SHALL BE CONTINUOUS FROM THE LAST OUTLET BOX TO THE SERVING PANELBOARD.

39. DO NOT COMBINE BRANCH CIRCUIT HOMERUNS UNLESS SPECIFICALLY INDICATED ON THE DRAWINGS.

40. DO NOT CHANGE CIRCUITING SHOWN WITHOUT PERMISSION OF THE ARCHITECT/ENGINEER.

41. TROUGH TAPS SHALL BE AT SWITCH AMPACITY, UNLESS NOTED OTHERWISE.

42. INSTALL WIRING DEVICES AT HEIGHTS AS SHOWN ON THE DRAWINGS. ALSO COORDINATE MOUNTING HEIGHTS WITH THE ARCHITECTURAL DRAWINGS AND CASEWORK DETAILS. IF CONFLICTING, ARCHITECTURAL DRAWINGS AND DETAILS SHALL GOVERN.

43. PROVIDE GROUND FAULT CIRCUIT-INTERRUPTER PROTECTION FOR PERSONNEL IN ACCORDANCE WITH THE NEC INCLUDING ALL ELECTRIC WATER COOLERS, EXTERIOR RECEPTACLES AND RECEPTACLES IN AREAS SUBJECT TO POSSIBLE WET CONDITIONS. ALL RECEPTACLES INSTALLED WITHIN 6 FEET OF A SINK SHALL BE GFI PROTECTED. ALL RECEPTACLES IN NON-RESIDENTIAL KITCHENS SHALL BE GFI PROTECTED.

44. CONNECT BATTERY PACK TYPE EMERGENCY AND EXIT LIGHTING FIXTURES TO THE UNSWITCHED LIGHTING CIRCUIT SERVING THE SPACE LIGHTED BY THE EMERGENCY AND EXIT FIXTURES. THESE CONNECTIONS ARE INTENTIONALLY NOT SHOWN TO MAINTAIN DRAWING FOR CLARITY.

45. COORDINATE LIGHTING FIXTURE LOCATIONS WITH THE ARCHITECTURAL REFLECTED CEILING PLAN. IF CONFLICTS ARE NOTED, REQUEST CLARIFICATION FROM THE ARCHITECT/ENGINEER BEFORE PROCEDING.

46. ADJACENT SWITCHES SHALL BE GANGED. INSTALL BARRIERS BETWEEN UNLIKE VOLTAGE SECTIONS.

47. SEPARATE NEUTRALS ARE REQUIRED FOR ALL DIMMED LIGHTING CIRCUITS.

48. WHERE THE DRAWINGS INDICATE A LIGHTING FIXTURE IS TO BE PROVIDED WITH SPECIAL FEATURES/SWITCHING (DIMMING, EMERGENCY BATTERY, MULTI-LEVEL, ETC), THE CONTRACTOR SHALL PROVIDE THESE FIXTURES WITH THE APPROPRIATE BALLASTING TO ACCOMMODATE THE SPECIAL FEATURE. THE CONTRACTOR SHALL PROVIDE THE FIXTURES AS INDICATED IN THE LIGHTING FIXTURE SCHEDULE WITH MODIFICATIONS AS REQUIRED BY DRAWING NOTES.

49. COORDINATE LOCATIONS OF PLUMBING, MECHANICAL, ELEVATOR, DATA AND TELEPHONE AND AUDIO/VISUAL EQUIPMENT AND OF OWNER-PROVIDED EQUIPMENT WITH THE RESPECTIVE CONTRACTORS AND VENDORS AND THE OWNER BEFORE ROUGH-IN. ADJUST LIGHTING FIXTURES, RECEPTACLES AND ELECTRICAL EQUIPMENT TO ACCOMMODATE THIS EQUIPMENT. ADVISE THE ARCHITECT/ENGINEER OF CONFLICTS BEFORE ROUGH-IN

50. BEFORE COMMENCING WORK OR ORDERING MATERIALS, THE CONTRACTOR SHALL COORDINATE WITH OTHER TRADES AND VERIFY THE NAMEPLATE RATINGS OF ALL EQUIPMENT (MOTORS, HEATERS, COMPRESSORS, ETC.) AND ADJUST THE RATINGS OF THE ELECTRICAL EQUIPMENT (SWITCHES, FUSES, CIRCUIT BREAKERS, FEEDERS, ETC.) AS APPROPRIATE TO SERVE THIS EQUIPMENT.

51. ENERGIZE EQUIPMENT ONLY AFTER OBTAINING PERMISSION FROM THE CONTRACTOR PROVIDING THE EQUIPMENT

52. UNLESS SPECIFICALLY NOTED OTHERWISE, THE ELECTRICAL CONTRACTOR SHALL MAKE FINAL CONNECTIONS TO ALL UTILIZATION EQUIPMENT SHOWN ON THE DRAWINGS. VERIFY THE TYPE OF FINAL CONNECTION AND PROVIDE APPROPRIATE WIRING METHOD. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL, PLUMBING AND GENERAL CONTRACTORS, PRIOR TO ORDERING OR INSTALLATION OF ANY EQUIPMENT, TO VERIFY MECHANICAL AND PLUMBING EQUIPMENT REQUIREMENTS ARE PROVIDED IN THE ELECTRICAL DESIGN. THE CONTRACTOR WILL NOT BE COMPENSATED FOR COSTS ASSOCIATED WITH CHANGING THE ELECTRICAL SYSTEMS TO MATCH UTILIZATION EQUIPMENT, EVEN IF THE ELECTRICAL WORK IS INSTALLED PER THE ELECTRICAL DRAWINGS.

53. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL FURNISH ALL STARTERS AND CONTROLS FOR THEIR EQUIPMENT. THE ELECTRICAL CONTRACTOR SHALL MOUNT STARTERS FURNISHED BY THE MECHANICAL AND PLUMBING CONTRACTORS, THE ELECTRICAL CONTRACTOR PROVIDE ALL SAFETY SWITCHES, WIRING AND CONNECTIONS TO LINE SIDE AND LOAD SIDE OF STARTERS AND SAFETY SWITCHES COMPLETE TO MECHANICAL EQUIPMENT. FOR RESISTANCE TYPE LOADS WHERE STARTERS OR CONTACTORS ARE NOT REQUIRED, THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL POWER WIRING AND CONNECTIONS COMPLETE TO EQUIPMENT. THE MECHANICAL AND PLUMBING CONTRACTORS SHALL PROVIDE ALL CONTROL WIRING AND CONNECTIONS AND DEVICES FOR THEIR EQUIPMENT.

54. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL EQUIPMENT TERMINATIONS, PLUGS AND CORDSETS WITH VENDOR EQUIPMENT AND VERIFY ALL DEVICE LOCATIONS FOR SPECIALITY EQUIPMENT WITH CASEWORK PRIOR TO ROUGH-IN.

55. THE LAYOUT AND PLACEMENT OF ELECTRICAL DISTRIBUTION EQUIPMENT IN ELECTRICAL AND MECHANICAL EQUIPMENT ROOMS IS BASED ON PUBLISHED EQUIPMENT SIZES AND SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE. DEVIATIONS FROM CONFIGURATIONS SHOWN IS THE RESPONSIBILITY OF THE CONTRACTOR. PROVIDE NATIONAL ELECTRIC CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT, PANELBOARDS, TRANSFORMERS, SAFETY SWITCHES, SWITCHBOARDS, ETC. COORDINATE RESOLUTION OF CONFLICTS WITH OTHER TRADES. ADVISE THE ARCHITECT/ENGINEER OF CONFLICTS BEFORE ROUGH-IN.

56. COORDINATION WITH THE UTILITY COMPANY FOR PLACEMENT OF THE UTILITY'S FACILITIES AND THE CONTRACTOR'S SERVICE ENTRANCE RACEWAYS AND CONNECTIONS TO THE CONTRACTOR'S SERVICE ENTRANCE CONDUCTORS IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

57. TELECOMMUNICATIONS AND DATA CABLES WILL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. LEAVE PULL WIRES OR ROPES OF ADEQUATE TENSILE STRENGTH IN ALL EMPTY CONDUITS.

58. EXACT SPACING OF SMOKE AND HEAT DETECTORS AND A/V DEVICES SHALL BE FOLLOWED AS CLOSELY AS POSSIBLE WITH POSITIONS SHOWN ON THE DRAWINGS. DETECTOR SPACING IS BASED UPON NFPA 72 INCLUDING APPENDIX A. SLIGHT ADJUSTMENTS MAY BE MADE IN SPACING IF REQUIRED BY FIELD CONDITIONS, BUT SPACING SHALL NOT EXCEED ADA, NFPA AND EQUIPMENT MANUFACTURERS SPACING CRITERIA. DO NOT INSTALL SMOKE DETECTORS WITHIN 3 FEET OF SUPPLY AIR DIFFUSERS OR RETURN GRILLES. PROVIDE FLEX CONDUIT CONNECTION TO SMOKE AND HEAT DETECTORS OF ADEQUATE LENGTH TO ALLOW HORIZONTAL ADJUSTMENT OF FOUR FEET FROM POSITION INDICATED ON DRAWINGS.

59. INSTALLATION INFORMATION PACKED WITH LIGHTING FIXTURES, DEVICES AND EQUIPMENT SHALL BE RETAINED FOR INCLUSION IN THE OPERATIONS AND MAINTENANCE MANUALS.

60. SAFETY: COMPLY WITH OSHA AND NEC ARC FLASH PROTECTION REQUIREMENTS.

61. ALL SWITCHES, RECEPTACLE AND LIGHTS SHALL COMPLY WITH ANSI 117.2 FOR ADA REQUIREMENTS.

62. THE ELECTRICAL CONTRACTOR AND ALL SUB CONTRACTORS WORKING FOR THE ELECTRICAL CONTRACTOR ARE RESPONSIBLE FOR COMMISSIONING EACH SYSTEM INDICATED IN THESE DRAWINGS. THE ELECTRICAL CONTRACTOR AND ALL SUB CONTRACTORS WORKING FOR THE ELECTRICAL CONTRACTOR ARE RESPONSIBLE FOR PROVIDING A COMPLETE OPERATIONAL SYSTEM TO OWNER. THE SYSTEMS WILL NOT BE CONSIDERED OPERATIONAL UNTIL THE OWNER HAS APPROVED EACH SYSTEM.

63. INSTALL COLOR CODED CEILING TACKS IN ACOUSTICAL TILE CEILINGS OR COLOR CODED TAPE ON CEILING GRID TO IDENTIFY LOCATION OF ELECTRICAL EQUIPMENT, DISCONNECTS, LIGHTING CONTROLLERS AND POWER PACKS ETC... THAT REQUIRE REGULAR MAINTENANCE OR ARE PART OF A LIFE SAFETY SYSTEM. DOTS SHALL BE PLACED ON CEILING GRID.

DEMOLITION NOTES

1. SELECTIVE ELECTRICAL DEMOLITION SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR AS DESCRIBED HEREIN AND AS SHOWN ON THE CONTRACT DRAWINGS. GROSS DEMOLITION WILL BE PROVIDED BY THE GENERAL CONTRACTOR. IDENTIFY ACTIVE UTILITIES, AND AT THE APPROPRIATE TIME, DISCONNECT AND CAP OFF SUCH UTILITIES AND PROVIDE EXPERIENCED PERSONNEL ON SITE DURING GENERAL CONTRACTOR DEMOLITION OPERATIONS TO PERFORM SUCH OPERATIONS AND RESOLVE ISSUES. REMOVE MATERIALS NOTED FOR SALVAGE AND REUSE. IDENTIFY AND MARK WIRING AND DEVICES TO REMAIN FOR THE GENERAL CONTRACTOR.

2. THE ELECTRICAL CONTRACTOR SHALL REVIEW THE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR DEMOLITION REQUIREMENTS AND CARRY OUT HIS WORK IN A COMPATIBLE AND COMPLEMENTARY MANNER. REMOVE ALL WIRING DEVICES, BOXES, FIXTURES, EXPOSED ABANDONED RACEWAYS, HANGARS, ETC., AND THOSE MADE OBSOLETE BY THESE ALTERATIONS AND AS SHOWN ON THE ELECTRICAL DRAWINGS. ALL ITEMS TO BE REMOVED OR MODIFIED MAY NOT BE SHOWN, HOWEVER, THIS CONTRACTOR SHALL REMOVE ANY ELECTRICAL WORK AS REQUIRED BY THE CONSTRUCTION OR AS DIRECTED BY THE OWNER OR ARCHITECT/ENGINEER. SURVEY THE AFFECTED AREAS BEFORE SUBMITTING A BID AS ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DEPICTED ON THE DRAWINGS AND SOME UNUSUAL CONDITIONS MAY EXIST.

3. REMOVE, RELOCATE, AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION.

4. ALL EXISTING ELECTRICAL EQUIPMENT AND DEVICES SHALL REMAIN UNLESS SPECIFICALLY NOTED TO BE REMOVED.

5. VERIFY FIELD MEASUREMENTS AND CIRCUITING ARRANGEMENTS ARE AS SHOWN ON DRAWINGS.

6. VERIFY THAT ABANDONED WIRING AND EQUIPMENT SERVE ONLY ABANDONED FACILITIES.

7. DISCONNECT AND/OR DE-ENERGIZE ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL.

8. PROVIDE TEMPORARY AND/OR PERMANENT WIRING AND CONNECTIONS AS SHOWN AND/OR AS REQUIRED BY CONDITIONS TO MAINTAIN EXISTING SYSTEMS IN SERVICE DURING CONSTRUCTION. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, AND WHEN SUCH WORK IS SPECIFICALLY APPROVED BY THE OWNER AND PERMITTED BY REGULATORY AUTHORITIES, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

9. EXISTING ELECTRICAL SERVICE: COORDINATE POWER OUTAGES WITH THE OWNER AND UTILITY COMPANY. MAINTAIN EXISTING SYSTEMS IN SERVICE. DISABLE SYSTEMS ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. OBTAIN PERMISSION FROM THE OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA.

10. CONTINUOUS SERVICE IS REQUIRED ON ALL CIRCUITS AND OUTLETS AFFECTED BY THESE CHANGES, EXCEPT WHERE THE OWNER WILL PERMIT AN OUTAGE FOR A SPECIFIC TIME. OBTAIN OWNER'S CONSENT BEFORE REMOVING ANY CIRCUIT FROM CONTINUOUS SERVICE.

11. PROTECT ALL EXISTING TELEPHONE, DATA, LIFE SAFETY SYSTEMS, FIRE ALARM, SECURITY, ACCESS CONTROL AND PUBLIC ADDRESS SYSTEMS AND MAINTAIN THEM IN OPERATION THROUGHOUT THE PROGRESS OF THE WORK. NOTIFY THE OWNER AND ARCHITECT/ENGINEER IN WRITING IF SHUTDOWNS ARE REQUIRED PRIOR TO ANY OUTAGE OF SERVICE. WHERE THE DURATION OF A PROPOSED OUTAGE CANNOT BE TOLERATED BY THE OWNER, PROVIDE TEMPORARY CONNECTIONS AS REQUIRED TO MAINTAIN SERVICE.

12. WHERE ELECTRICAL SYSTEMS PASS THROUGH THE DEMOLITION AREAS TO SERVE OTHER PORTIONS OF THE PREMISES, THEY SHALL BE PROTECTED FROM DAMAGE AND REMAIN OR BE SUITABLY RELOCATED UTILIZING MATCHING SIZE AND TYPE MATERIALS AND THE SYSTEM RESTORED TO NORMAL OPERATION. ADVISE THE ARCHITECT/ENGINEER IMMEDIATELY IF SUCH CONDITIONS ARE UNCOVERED BEFORE PROCEEDING WITH ADDITIONAL WORK.

13. EXISTING FIRE ALARM SYSTEM: COORDINATE WORK WITH THE OWNER'S FIRE ALARM SYSTEM VENDOR AND MAINTAIN THE EXISTING SYSTEM IN SERVICE. DISABLE SYSTEM ONLY TO MAKE SWITCHOVERS AND CONNECTIONS. NOTIFY THE OWNER AND LOCAL FIRE SERVICE AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. LIMIT OUTAGES TO NORMAL BUSINESS HOURS ONLY AND MINIMIZE OUTAGE DURATION. MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA.

14. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE. MODIFY INSTALLATION OR PROVIDE ACCESS PANEL AS APPROPRIATE.

15. ENDS OF ALL CONDUITS TO REMAIN SHALL BE TIGHTLY PLUGGED TO EXCLUDE DUST AND MOISTURE WHILE THE BUILDING IS UNDER RENOVATION.

16. PROTECT EXISTING CIRCUITS TO REMAIN AND EXTEND AS REQUIRED UTILIZING MATCHING CONDUCTORS AND CONDUIT SIZE AND TYPE.

17. SECURE ALL CIRCUITS, RACEWAYS, CABLE AND CONDUCTORS THAT, AS A RESULT FROM THIS CONSTRUCTION, ARE ABANDONED OR UNUSED. REMOVE UNUSED EXPOSED CONDUIT AND WIRING BACK TO POINT OF CONCEALMENT INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILINGS. REMOVE UNUSED WIRING IN CONCEALED CONDUITS BACK TO SOURCE OR NEAREST POINT OF USAGE. BLANK ABANDONED KNOCKOUTS IN REMAINING BOXES. INSTALL BLANK PLATES FOR ALL UNUSED OUTLETS THAT WILL REMAIN AS A RESULT OF THIS CONSTRUCTION. ALL SUCH WORK SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES AND ORDINANCES.

18. TRACE OUT EXISTING WIRING THAT IS TO BE RELOCATED OR REMOVED AND PERFORM THE RELOCATION OR REMOVAL WORK AS REQUIRED FOR A COMPLETE OPERATING AND SAFE SYSTEM.

19. RECONNECT EXISTING CIRCUITS SEPARATED AS A RESULT OF THIS CONSTRUCTION.

20. EXTEND EXISTING SWITCH LEGS TO NEW SWITCH LOCATIONS AS SHOWN AND/OR REQUIRED.

21. DELIVER ALL REMOVED AND SALVAGED LIGHTING FIXTURES, WIRING DEVICES, FIRE ALARM DEVICES, SPEAKERS, ETC., TO THE OWNER, OR AT THE OWNER'S OPTION, DISPOSE OF PROPERLY OFF SITE IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL ENVIRONMENTAL REGULATIONS. FEES ASSOCIATED WITH DISPOSAL SHALL BE INCLUDED IN THE CONTRACTOR'S BASE BID.

22. REMOVE ALL FLUSH MOUNTED DEVICES THAT CONFLICT WITH NEW CONSTRUCTION AND SECURE THEIR ASSOCIATED BRANCH CIRCUITS.

23. COORDINATE WITH THE OTHER TRADES, PRIOR TO BID, AND INCLUDE IN THE BASE BID THE ELECTRICAL DISCONNECTION OF ANY EQUIPMENT BEING DEMOLISHED, EVEN IF NOT EXPLICITLY SHOWN. UNLESS NOTED OTHERWISE, REMOVE ALL DEMOLISHED EQUIPMENT FROM THE PROPERTY AND IDENTIFIED IN THE ELECTRICAL DRAWINGS.

24. THESE DRAWINGS ARE COMPILED BY THE ARCHITECT/ENGINEER FROM THE OWNER'S RECORD DRAWINGS AND LIMITED FIELD VERIFICATION OF EXISTING CONDITIONS FOR THE PURPOSE OF INDICATING THE WORK REQUIRED AND ARE BELIEVED TO BE CORRECT. NOTWITHSTANDING, THE CONTRACTOR SHALL VERIFY ALL CIRCUITS, WIRING, CONDUIT, DIMENSIONS, POINTS OF ACCESS AND ALL FIELD CONDITIONS AFFECTING HIS WORK. BEGINNING OF DEMOLITION MEANS THE CONTRACTOR ACCEPTS EXISTING CONDITIONS.

25. THE CONTRACTOR IS RESPONSIBLE FOR DISPOSAL OF ALL LAMPS CONTAINING MERCURY IN A LINED LANDFILL IN ACCORDANCE WITH NC GEN STATUTE 309.10M.

26. SEE GENERAL NOTES FOR ADDITIONAL REQUIREMENTS.

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
	WALL MOUNTED LIGHT FIXTURE LETTER INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	2x4 LIGHT FIXTURE, RECESSED OR SURFACE MOUNTED LETTER INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	EMERGENCY LIGHTING UNIT, 2-HEAD WITH BATTERY BACK-UP, WALL MOUNTED, "NOT SWITCHED" INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
	EXIT SIGN W/EMERGENCY LIGHTING UNIT, WALL/END MOUNTED, ARROW INDICATES DIRECTION. INDICATES FIXTURE TYPE (SEE FIXTURE SCHEDULE)
480/277 208/120	PANELBOARD, SURFACE OR RECESSED MOUNTED AS SHOWN. SIZE, RATINGS, AND MOUNTING AS INDICATED ON PANEL SCHEDULE. CONTRACTOR IS RESPONSIBLE FOR REQUIRED CLEARANCE IN FRONT OF ELECTRICAL PANEL. SEE NEC TABLE 110.26 WORKING SPACES FOR ADDITIONAL CLEARANCE CONDITIONS.
	TRANSFORMER (TYPE DENOTED)
	DISCONNECT SWITCH, FUSED, HEAVY DUTY, SIZE AS INDICATED ON DRAWINGS ##A = DISCONNECT SIZE / # = NUMBER OF POLES / # = NEMA RATING, /##AF = FUSE SIZE
	DATA INFORMATION OUTLET (TYPE DENOTED)
	WIRELESS ACCESS POINT, DATA CABLE MUST BE TERMINATED IN A JACK IN THE CEILING. 1FT PATCH CABLE MUST BE PROVIDED AND DROPPED BELOW THE CEILING
	RECEPTACLE, DUPLEX, 120VAC, 20A MOUNTED 16"AFF UNLESS OTHERWISE NOTED (SEE ELECTRICAL MOUNTING HEIGHT DETAIL) WP - LISTED WEATHER-RESISTANT TYPE DEVICE WITH WEATHERPROOF, EXTRA DUTY, WHILE IN USE COVER GFI - GROUND FAULT CIRCUIT INTERRUPTER TYPE, 120VAC, 20A, MOUNTED 24" AFF LOCATE GFI TEST SWITCH IN A READILY ACCESSIBLE LOCATION T - TAMPER RESISTANT R - RECEPTACLE SHALL BE RED IN COLOR PER NEC 70, 517.31(E)
1	KEYED NOTE (SEE SCHEDULE)
	POWER AND SWITCH LEG
	UNSWITHCED LEG

ELECTRICAL ABBREVIATIONS LIST

1P	1 POLE (2P, 3P, 4P, ETC.)
A	AMPERE
AC	ABOVE COUNTER OR AIR CONDITIONER
ACLG	ABOVE CEILING
ADO	AUTOMATIC DOOR OPENER
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFI	ARC FAULT CIRCUIT INTERRUPTER
AHU	AIR HANDLING UNIT
AL	ALUMINUM
ALT	ALTERNATE
AMP	AMPERE
AMPL	AMPLIFIER
ANNUN	ANNUNCIATOR
APPROX	APPROXIMATELY
AQ-STAT	AQUASTAT
ARCH	ARCHITECT, ARCHITECTURAL
AS	AMP SWITCH
AT	AMP TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AUTO	AUTOMATIC
AUX	AUXILIARY
AV	AUDIO VISUAL
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BD	BOARD
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAB	CABINET
CAT	CATALOG
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
COMB	COMBINATION
CMPR	COMPRESSOR
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUATION OR CONTINUOUS
CONTR	CONTRACTOR
CONV	CONVECTOR
CP	CIRCULATING PUMP
CRT	CATHODE-RAY TUBE
CT	CURRENT TRANSFORMER
CTR	CENTER
CU	COPPER
DCP	DOMESTIC WATER CIRCULATING PUMP
DEPT	DEPARTMENT
DET	DETAIL
DIA	DIAMETER
DISC	DISCONNECT
DIST	DISTRIBUTION
DN	DOWN
DPR	DAMPER
DS	SAFETY DISCONNECT SWITCH
DT	DOUBLE THROW
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRIC, ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
EMS	ENERGY MANAGEMENT SYSTEM
EMT	ELECTRICAL METALLIC TUBING
EP	ELECTRIC PNEUMATIC
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
EXH	EXHAUST
EXP	EXPLOSION PROOF
FA	FIRE ALARM
FABP	FIRE ALARM BOOSTER POWER SUPPLY PANEL
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
FIXT	FIXTURE
FLR	FLOOR
FLUOR	FLUORESCENT
FU	FUSE
FUDS	FUSED SAFETY DISCONNECT SWITCH
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GEN	GENERATOR
GFI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTOR
GND	GROUND
GRS	GALVANIZED RIGID STEEL (CONDUIT)
GYP BD	GYPSUM BOARD
HOA	HANDS-OFF-AUTOMATIC SWITCH
HORIZ	HORIZONTAL
HP	HORSEPOWER
HPF	HIGH POWER FACTOR
HT	HEIGHT
HTG	HEATING
HTR	HEATER
HV	HIGH VOLTAGE
HVAC	HEATING, VENTILATING AND AIR CONDITIONING
HWP	HYDRONIC WATER PUMP
IC	INTERRUPTING CAPACITY
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
INCAND	INCANDESCENT
IR	INFRARED
I/W	INTERLOCK WITH
J-BOX	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KVAR	KILOVOLT-AMPERE REACTIVE
KW	KILOWATT
KWH	KILOWATT HOUR
LOC	LOCATE OR LOCATION
LT	LIGHT
LTG	LIGHTING
LTNG	LIGHTNING
LV	LOW VOLTAGE
MAX	MAXIMUM
MAG.S	MAGNETIC STARTER
M/C	MOMENTARY CONTACT
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDC	MAIN DISTRIBUTION CENTER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MFS	MAIN FUSED DISCONNECT SWITCH
MH	MANHOLE
MIC	MICROPHONE
MIN	MINIMUM
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MMS	MANUAL MOTOR STARTER
MOA	MULTIOUTLET ASSEMBLY
MSP	MOTOR STARTER PANELBOARD
MSBD	MAIN SWITCHBOARD
MT	MOUNT
MT.C	EMPTY CONDUIT
MTS	MANUAL TRANSFER SWITCH
MTR	MOTOR, MOTORIZED
N.C.	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION
NFDS	NON-FUSED SAFETY DISCONNECT SWITCH
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
N.O.	NORMALLY OPEN
NPF	NORMAL POWER FACTOR
NTS	NOT TO SCALE
OH	OVERHEAD
OL	OVERLOADS
PA	PUBLIC ADDRESS
PB	PULL BOX OR PUSHBUTTON
PE	PNEUMATIC ELECTRIC
PED	PEDESTAL
PF	POWER FACTOR
PH	PHASE
PIV	POST INDICATING VALVE
PNL	PANEL
PP	POWER POLE
PR	PAIR
PRI	PRIMARY
PROJ	PROJECTION
PRV	POWER ROOF VENTILATOR
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE (CONDUIT)
PWR	POWER
QUAN	QUANTITY
RCPT	RECEPTACLE
REQD	REQUIRED
RM	ROOM
RSC	RIGID STEEL CONDUIT
RTU	ROOF TOP UNIT
SC	SURFACE CONDUIT
SEC	SECONDARY
SHT	SHEET
SIM	SIMILAR
S/N	SOLID NEUTRAL
SPEC	SPECIFICATION
SPKR	SPEAKER
SP	SPARE
SR	SURFACE RACEWAY
SS	STAINLESS STEEL
SSW	SELECTOR SWITCH
S/S	STOP/START PUSHBUTTONS
STA	STATION
STD	STANDARD
SURF	SURFACE MOUNTED
SW	SWITCH
SWBD	SWITCHBOARD
SYM	SYMMETRICAL
SYS	SYSTEM
TEL	TELEPHONE
TEL/DATA	TELEPHONE/DATA
TERM	TERMINAL
TL	TWIST LOCK
TR	TAMPER RESISTANT
T-STAT	THERMOSTAT
TTC	TELEPHONE TERMINAL CABINET
TV	TELEVISION
TVTC	TELEVISION TERMINAL CABINET
TYP	TYPICAL
UC	UNDER COUNTER
UE	UNDERGROUND ELECTRICAL
UG	UNDERGROUND
UH	UNIT HEATER
UT	UNDERGROUND TELEPHONE
UTIL	UTILITY
UV	UNIT VENTILATOR OR ULTRAVIOLET
V	VOLT
VA	VOLT-AMPERES
VDT	VIDEO DISPLAY TERMINAL
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
W	WATT
W/	WITH
WG	WIRE GUARD
WH	WATER HEATER
W/O	WITHOUT
WP	WEATHERPROOF
XFMR	TRANSFORMER
XFR	TRANSFER
∠	ANGLE
@	AT
△	DELTA
'	FEET
"	INCHES
#	NUMBER
Ø	PHASE
℄	CENTER LINE
PL	PLATE

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302.369.3700
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PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

ELECTRICAL SYMBOLS AND ABBREVIATIONS

ISSUE BLOCK

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	04.16.20	ISSUED FOR BIDDING
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	07.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019082.00
DATE: 01.20.2020
SCALE: As indicated
DRAWN BY: HGH | PROJ MGR: WAC

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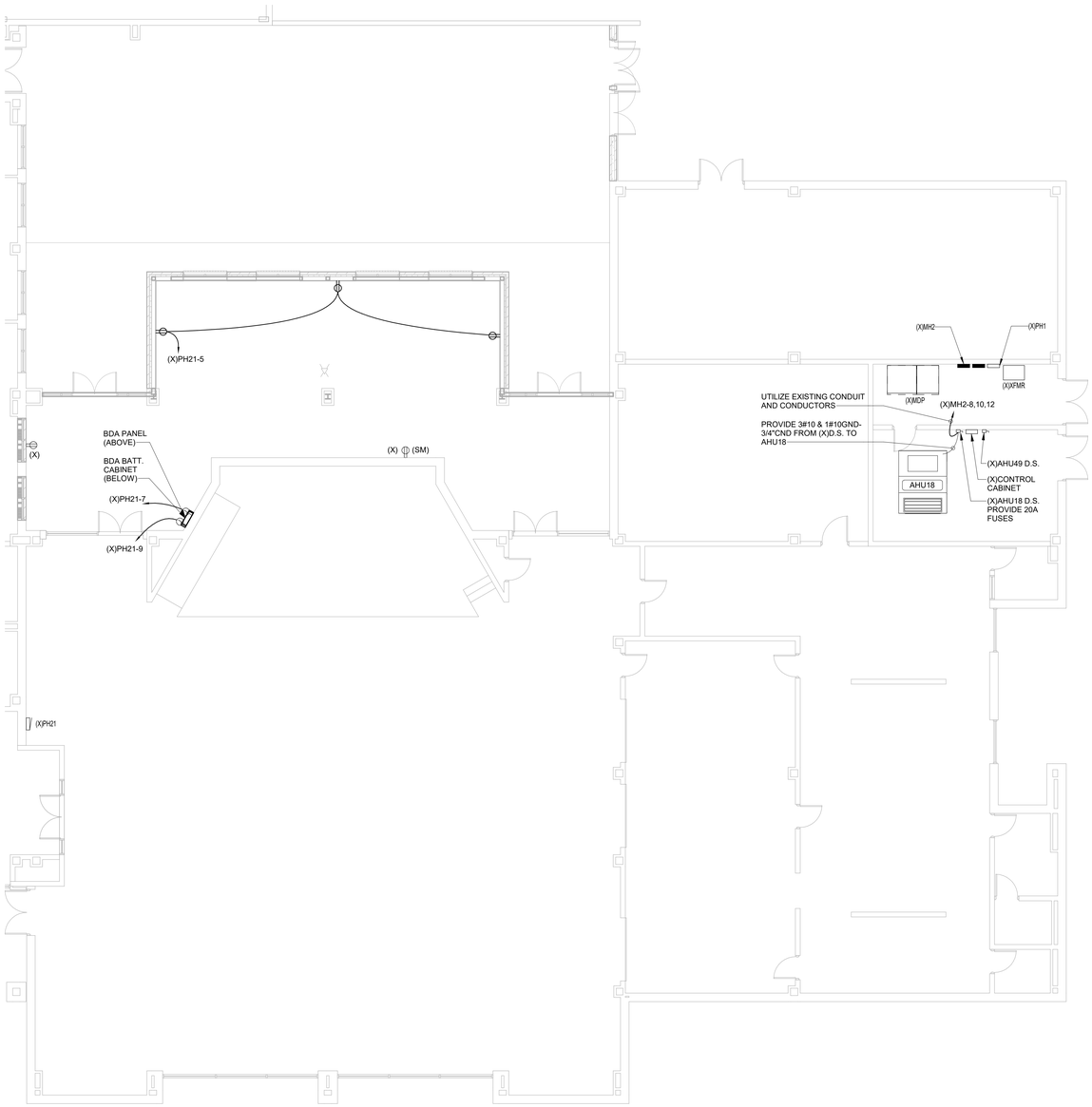

1 CAFETERIA ADDITION FLOOR PLAN - HVAC POWER

SCALE: 1/8" = 1'-0"

PLAN NORTH

N

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

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PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA ADDITION FLOOR PLAN - POWER AND HVAC POWER

ISSUE BLOCK

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PROJECT NO: 2019082.00
DATE: 01.20.2020
SCALE: 1/8" = 1'-0"
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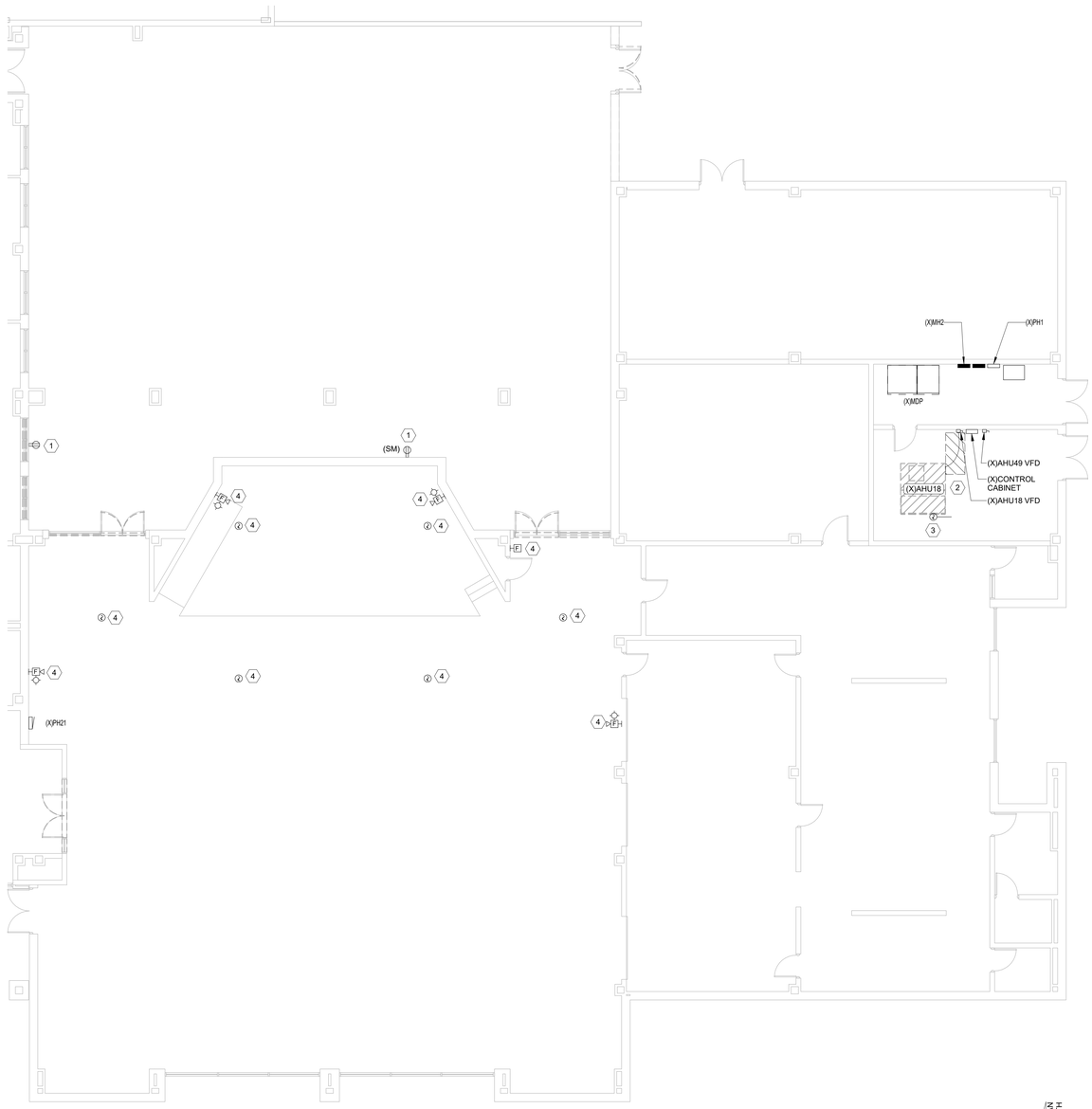
KEYNOTES

1	EXISTING RECEPTACLE: PROTECT IN PLACE DURING DEMOLTION AND CONSTRUCTION, DEVICE MUST BE OPERATIONAL AFTER DEMOLTION IS COMPLETE.
2	AHU018 D.S.: DISCONNECT CONDUIT AND CONDUCTORS COMPLETE FROM MECHANICAL UNIT TO D.S., D.S. MUST REMAIN PROTECTED IN PLACE FOR RECONNECTION.
3	SMOKE DUCT DETECTOR: DETECTOR MUST BE PROTECTED DURING DEMOLTION AND CONSTRUCTION, VERIFY DEVICE IS WORKING PROPERLY PRIOR TO START OF DEMOLITION WORK.
4	EXISTING FA DEVICE: DEVICE MUST BE PROTECTED DURING DEMOLTION AND CONSTRUCTION, VERIFY DEVICE IS WORKING PROPERLY PRIOR TO START OF DEMOLITION WORK.



8' 4' 0' 8'
SCALE : 1/8" = 1'-0"

1 CAFETERIA DEMOLITION PLAN
SCALE: 1/8" = 1'-0"

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550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

ELECTRICAL DEMOLITION PLANS

ISSUE BLOCK

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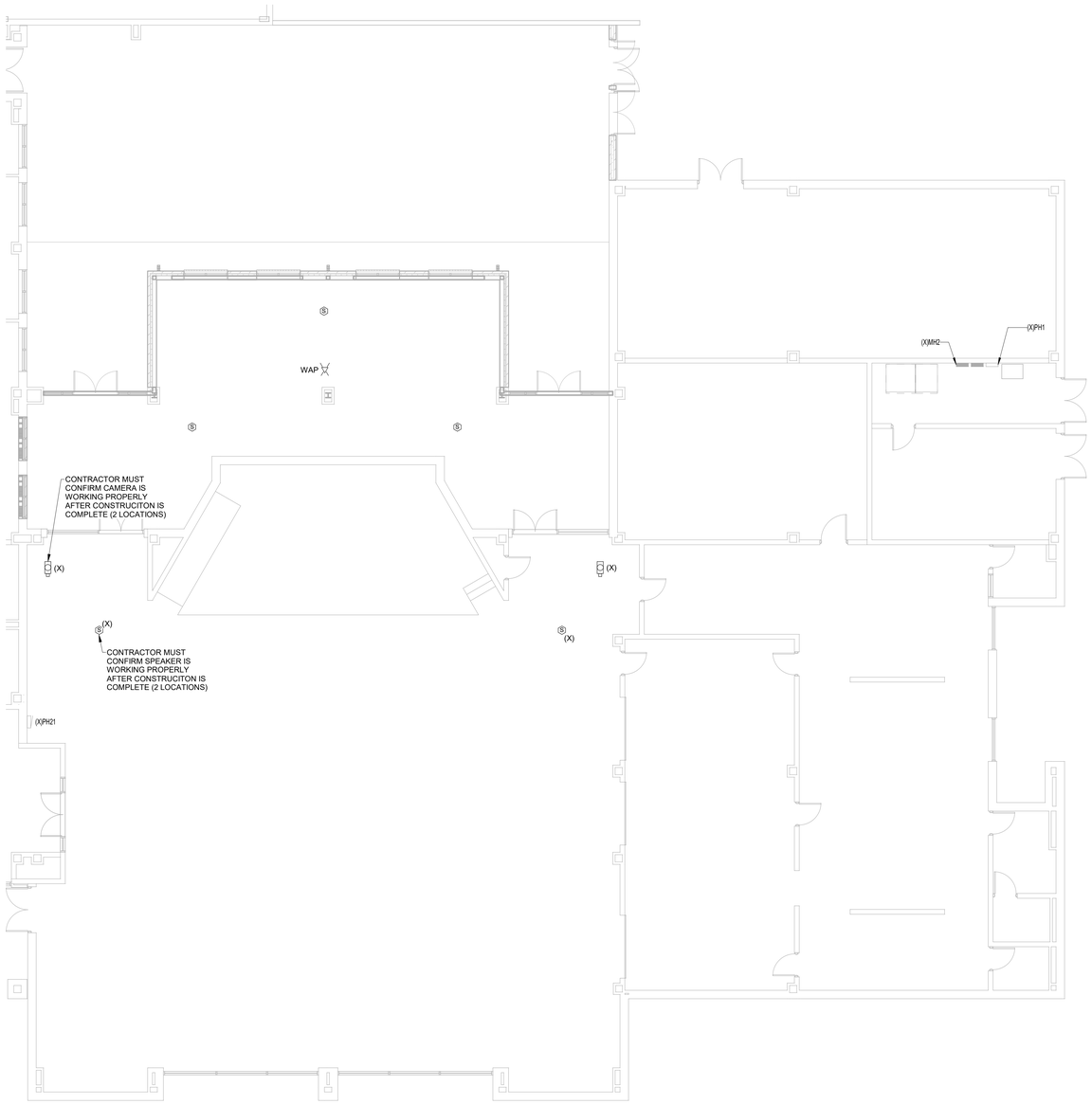

1 CAFE ADDITIONA FLOOR PLAN - SYSTEMS

SCALE: 1/8" = 1'-0"

PLAN NORTH

N

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

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550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFETERIA ADDITION FLOOR PLAN - SYSTEMS

ISSUE BLOCK

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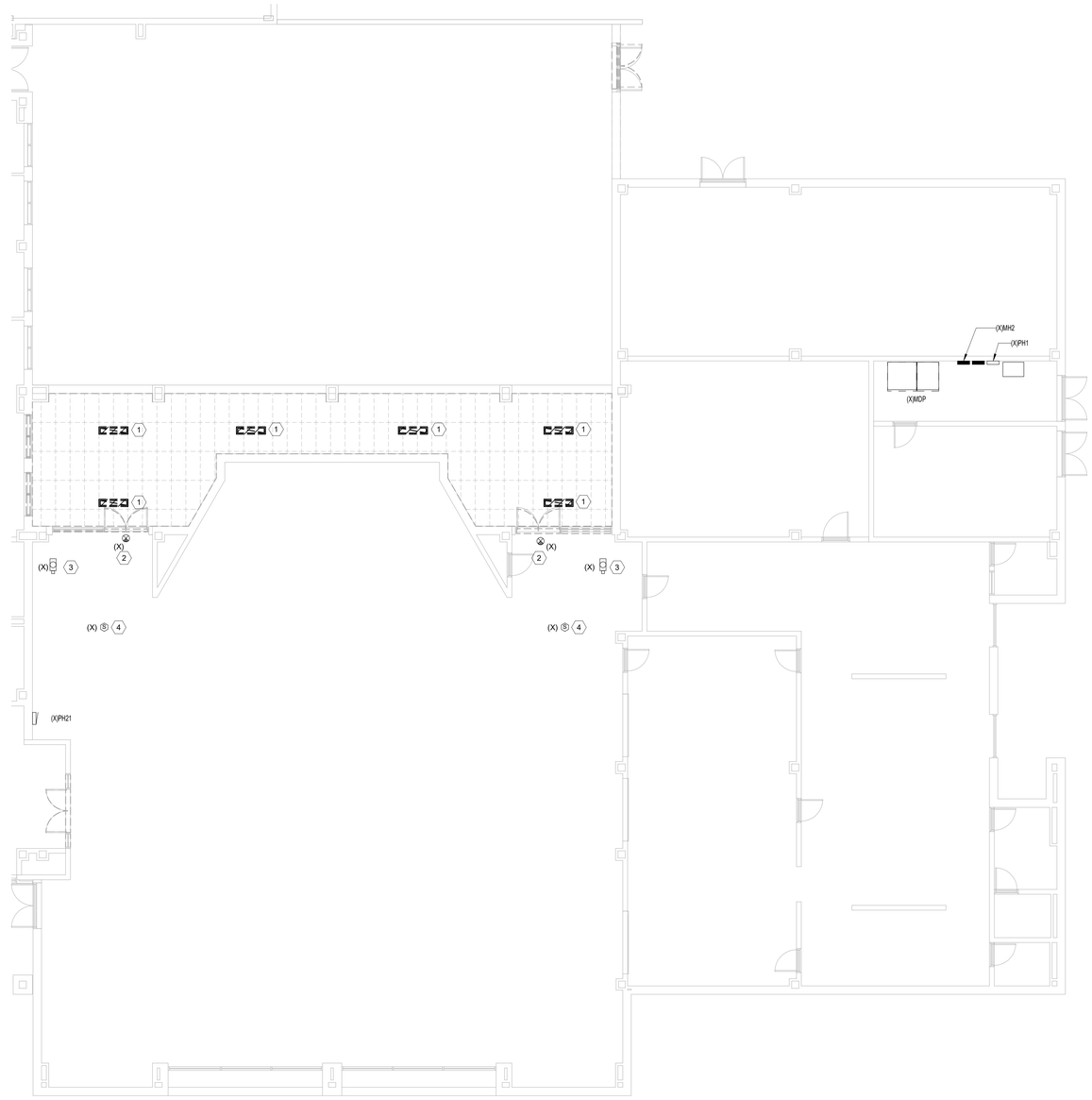
KEYNOTES

1	RECESSED LIGHT FIXTURES: DISCONNECT CONDUIT AND CONDUCTORS AND REMOVE FIXTURE. REMOVE CONDUIT AND CONDUCTORS COMPLETE TO NEAREST FIXTURE OUTSIDE AREA OF DEMOLITION. ALL FIXTURES NOT BEING DEMOLISHED AND ARE FED FROM THIS CIRCUIT ARE TO REMAIN OPERATIONAL AFTER DEMOLITION IS COMPLETE.
2	EMERGENCY / EXIT LIGHT: REMOVE DEMOLISH LIGHT FIXTURE. PROTECT CONDUIT AND CONDUCTORS IN PLACE FOR REUSE. REMAINING LIGHTS ON THIS CIRCUIT ARE TO REMAIN, THOSE LIGHTS MUST BE PROTECTED AND BE OPERATIONAL AFTER DEMOLITION IS COMPLETE.
3	CAMERA:PROTECT DURING DEMOLITION AND CONSTRUCTION, CAMERA MUST BE OPERATIONAL AFTER CONSTRUCTION IS COMPLETE.
4	SPEAKER: PROTECT DURING DEMOLITION AND CONSTRUCTION,SPEAKER MUST BE OPERATIONAL AFTER CONSTRUCTION IS COMPLETE.



1 DEMOLITION CAFE FLOOR PLAN - LIGHTING

SCALE: 1/8" = 1'-0"

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550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

ELECTRICAL DEMOLITION PLAN - LIGHTING

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PROJECT NO: 2019082.00
DATE: 01.20.2020
SCALE: 1/8" = 1'-0"
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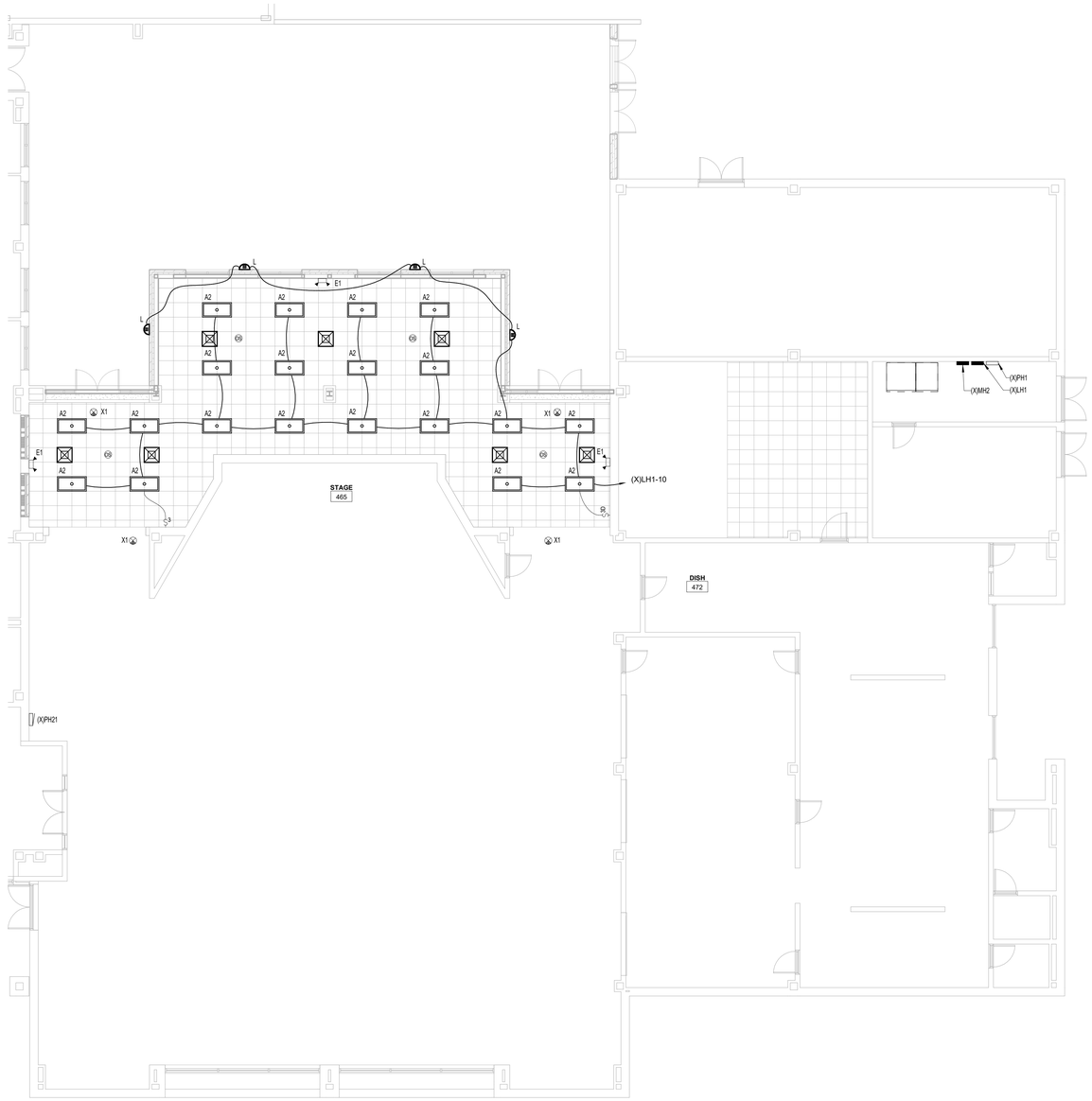

1 CAFE ADDITION FLOOR PLAN - LIGHTING

SCALE: 1/8" = 1'-0"

PLAN NORTH

N

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

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WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
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CAFETERIA ADDITION FLOOR PLAN - LIGHTING

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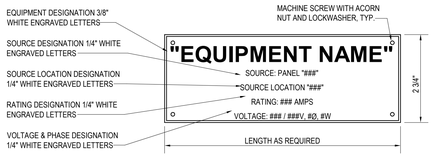


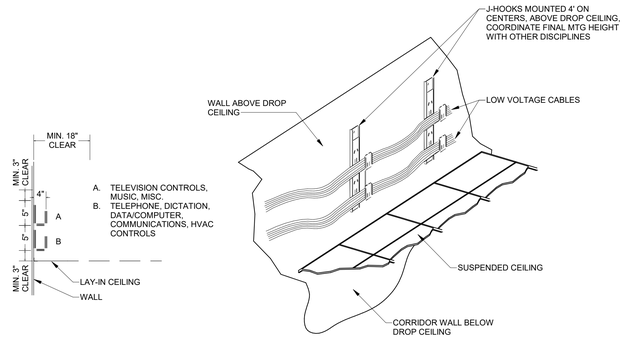
NOTE: SEE SPECS. SECTION 260553 FOR NAMEPLATE MATERIAL AND ENGRAVING COLORS.

1 NAME PLATE - EQUIPMENT
NO SCALE

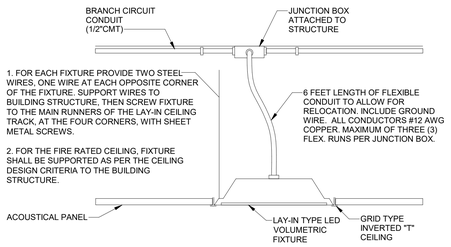
NOTES:
1. LABEL SHOWN CAN BE SOURCED FROM SAFETYSIGN.COM, OTHER SUPPLIERS ARE COMPLIANTSIGNS.COM & SETON.COM

2. THIS WARNING LABEL MINIMALLY COMPLIES WITH NEC, HOWEVER IF ELECTRICAL EQUIPMENT IS LIKELY TO REQUIRE EXAMINATION OR MAINTENANCE WHILE ENERGIZED A DETAILED SHORT CIRCUIT AND ARC FLASH HAZARD ANALYSIS IS RECOMMENDED.

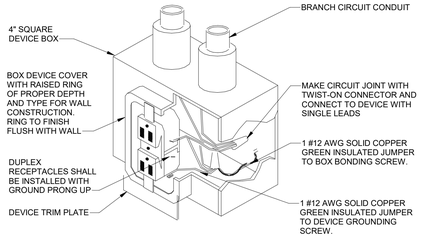
2 NAME PLATE - WARNING
NO SCALE



3 J-HOOK DETAIL
NO SCALE



4 LIGHTING FIXTURE MOUNTING DETAIL
NO SCALE



5 RECEPTACLE GROUNDING DETAIL
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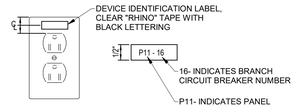

6 LABELING DETAIL
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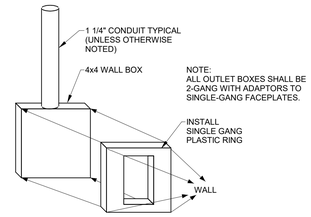
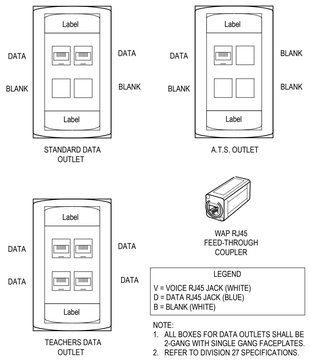


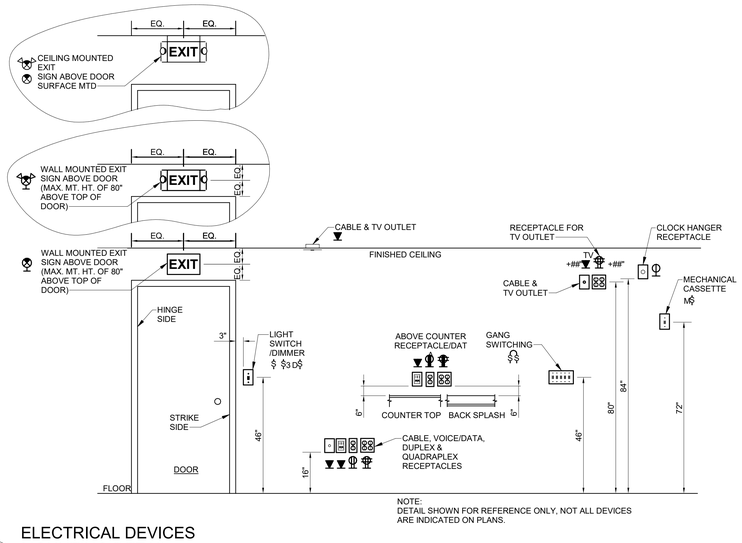
7 OUTLET PATHWAY DETAIL
NO SCALE



LEGEND
V = VOICE RJ45 JACK (WHITE)
D = DATA RJ45 JACK (BLUE)
B = BLANK (WHITE)

NOTE:
1. ALL BOXES FOR DATA OUTLETS SHALL BE 2-GANG WITH SINGLE GANG FACEPLATES.
2. REFER TO DIVISION 27 SPECIFICATIONS.

8 DATA FACE PLATE DETAIL
NO SCALE



NOTE:
DETAIL SHOWN FOR REFERENCE ONLY, NOT ALL DEVICES ARE INDICATED ON PLANS.

9 ELECTRICAL DEVICES MOUNTING DETAIL
NO SCALE

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DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

ELECTRICAL DETAILS

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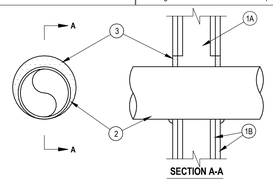
System No W-L-1054

October 14, 2015

ANSI / UL1479 (ASTM E814)	CAN / ULC S115
F Ratings - 1 and 2 Hr (See Items 1 & 3)	F Ratings - 1 and 2 Hr (See Items 1 & 3)
T Ratings - 0 Hr	FT Ratings - 0 Hr
L Ratings at Ambient - Less Than 1 CFM / sq ft	FH Ratings - 1and 2 HR (See Items 1 and 3)
L Ratings at 400 F - Less Than 1 CFM / sq ft	FTH Ratings - 0 Hr
	FTH Ratings - 0 Hr L Rating at Ambient - Less Than 1 CFM / sq ft
	L Ratings at 400 F - Less Than 1 CFM / sq ft



SECTION A-A

1. WALL ASSEMBLY – THE 1 OR 2 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER SPECIFIED IN THE INDIVIDUAL U300A OR U400 SERIES WALL AND PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

   A. STUDS – WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 BY 4 IN. LUMBER SPACED 16 IN. OC. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24 IN. OC. WHEN STEEL STUDS ARE USED AND THE DIAM OF OPENING EXCEEDS THE WIDTH OF STUD CAVITY, THE OPENING SHALL BE FRAMED ON ALL SIDES USING LENGTHS OF STEEL STUD INSTALLED BETWEEN THE VERTICAL STUDS AND SCREW-ATTACHED TO THE STEEL STUDS AT EACH END. THE FRAMED OPENING IN THE WALL SHALL BE 4 TO 6 IN. WIDER AND 4 TO 6 IN. HIGHER THAN THE DIAM OF THE PENETRATING ITEM SUCH THAT, WHEN THE PENETRATING ITEM IS INSTALLED IN THE OPENING, A 2 TO 3 IN. CLEARANCE IS PRESENT BETWEEN THE PENETRATING ITEM AND THE FRAMING ON ALL FOUR SIDES.

   B. GYPSUM BOARD* – 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM BOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 32-1/4 IN. FOR STEEL STUD WALLS. MAX DIAM OF OPENING IS 14-1/2 IN. FOR WOOD STUD WALLS.

   THE F RATING OF THE FIRESTOP SYSTEM IS EQUAL TO THE FIRE RATING OF THE WALL ASSEMBLY.

2. THROUGH-PENETRANTS – ONE METALLIC PIPE, CONDUIT OR TUBING TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE SHALL BE MIN 0 IN. TO MAX 2-1/4 IN. PIPE MAY BE INSTALLED WITH CONTINUOUS POINT CONTACT. PIPE, CONDUIT OR TUBING MAY BE INSTALLED AT AN ANGLE NOT GREATER THAN 45 DEGREES FROM PERPENDICULAR. PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES, CONDUITS OR TUBING MAY BE USED:

   A. STEEL PIPE – NOM 30 IN DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

   B. IRON PIPE – NOM 30 IN. DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.

   C. CONDUIT – NOM 4 IN DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR 6 IN. DIAM STEEL CONDUIT.

   D. COPPER TUBING – NOM 6 IN. DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

   E. COPPER PIPE – NOM 6 IN. DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

3. FILL, VOID OR CAVITY MATERIAL* – SEALANT – MIN 5/8 IN. (16 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. AT THE POINT OR CONTINUOUS CONTACT LOCATIONS BETWEEN PIPE AND WALL, A MIN 1/2 IN. (13 MM) DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE PIPE WALL INTERFACE ON BOTH SURFACES OF WALL .
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC – FS-ONE SEALANT

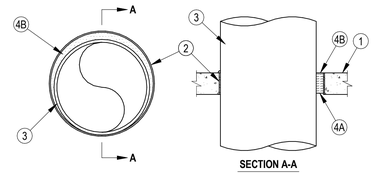
*INDICATES SUCH PRODUCTS SHALL BEAR THE UL OR CUL CERTIFICATION MARK FOR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA).
RESPECTIVELY.

2 UL WL1054
NO SCALE

System No. C-AJ-1226

January 07, 2015

ANSI / UL1479 (ASTM E814)	CAN / ULC S115
F Ratings - 3 Hr	F Ratings - 3 Hr
T Ratings - 0 Hr	FT Ratings - 0 Hr
L Ratings at Ambient - Less Than 1 CFM / sq ft	FH Ratings - 3 HR
L Ratings at 400 F - 4 CFM / sq ft	FTH Ratings - 0 Hr
	L Rating At Ambient - Less Than 1 CFM / sq ft
	L Ratings at 400 F - 4 CFM / sq ft



SECTION A-A

1. FLOOR OR WALL ASSEMBLY MIN 4-1/2 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF OR 1600-2400KG/M3) CONCRETE. WALL MAY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS*. MAX DIAM OF OPENING IS 32 IN. (813 MM)
2. METALLIC SLEEVE (OPTIONAL) NOM 32 IN. (813 MM) DIAM (OR SMALLER) SCHEDULE 40 (OR HEAVIER) STEEL SLEEVE CAST OR GROUTED INTO FLOOR OR WALL ASSEMBLY, FLUSH WITH FLOOR OR WALL SURFACES OR EXTENDING A MAX OF 3 IN (76 MM) ABOVE FLOOR OR BEYOND BOTH SURFACES OF WALL.

2A. SHEET METAL SLEEVE - (OPTIONAL) MAX 6 IN. (152 MM) DIAM, MIN 26 GA. GALV STEEL PROVIDED WITH A 26 GA GALV STEEL SQUARE FLANGE SPOT WELDED TO THE SLEEVE AT APPROX MID-HEIGHT, OR FLUSH WITH BOTTOM OF SLEEVE IN FLOORS, AND SIZED TO BE A MIN OF 2 IN. (51 MM) LARGER THAN THE SLEEVE DIAM. THE SLEEVE IS TO BE CAST IN PLACE AND MAY EXTEND A MAX OF 4 IN (102 MM) BELOW THE BOTTOM OF THE DECK AND A MAX OF 1 IN. (25 MM) ABOVE THE TOP SURFACE OF THE CONCRETE FLOOR.

2B. SHEET METAL SLEEVE - (OPTIONAL) MAX 12 IN. (305 MM) DIAM, MIN 24 GA. GALV STEEL PROVIDED WITH A 24 GA GALV STEEL SQUARE FLANGE SPOT WELDED TO THE SLEEVE AT APPROX MID-HEIGHT, OR FLUSH WITH BOTTOM OF SLEEVE IN FLOORS, AND SIZED TO BE A MIN OF 2 IN. (51 MM) LARGER THAN THE SLEEVE DIAM. THE SLEEVE IS TO BE CAST IN PLACE AND MAY EXTEND A MAX OF 4 IN (102 MM) BELOW THE BOTTOM OF THE DECK AND A MAX OF 1 IN. (25 MM) ABOVE THE TOP SURFACE OF THE CONCRETE FLOOR.

3. THROUGH-PENETRANT ONE METALLIC PIPE OR CONDUIT TO BE INSTALLED EITHER CONCENTRICALLY OR ECCENTRICALLY WITHIN THE FIRESTOP SYSTEM. THE ANNULAR SPACE BETWEEN PIPE OR CONDUIT AND PERIPHERY OF OPENING SHALL BE MIN 0 IN. (POINT CONTACT) TO MAX 1-7/8 IN (48 MM). PENETRANT MAY BE INSTALLED WITH CONTINUOUS POINT CONTACT. PENETRANT TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF METALLIC PIPES OR CONDUITS MAY BE USED:

   A. STEEL PIPE NOM 30 IN. (762 MM) DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.

   B. IRON PIPE NOM 30 IN. (762 MM) DIAM (OR SMALLER) CAST OR DUCTILE IRON PIPE.

   C. COPPER PIPE NOM 6 IN. (152 MM) DIAM (OR SMALLER) REGULAR (OR HEAVIER) COPPER PIPE.

   D. COPPER TUBING NOM 6 IN. (152 MM) DIAM (OR SMALLER) TYPE L (OR HEAVIER) COPPER TUBING.

   E. CONDUIT NOM 6 IN. (152 MM) DIAM (OR SMALLER) STEEL CONDUIT.

   F. CONDUIT NOM 4 IN. (102 MM) DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING (EMT).

4. FIRESTOP SYSTEM THE FIRESTOP SYSTEM SHALL CONSIST OF THE FOLLOWING:
   A. PACKING MATERIAL MIN 4 IN. (102 MM) THICKNESS OF MIN 4 PCF (64 KG.M3) MINERAL WOOL BATT INSULATION FIRMLY PACKED INTO OPENING AS A PERMANENT FORM. PACKING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WALL OR SLEEVE AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.
   B. FILL, VOID OR CAVITY MATERIAL* – SEALANT MIN 1/4 IN. (6 MM) THICKNESS OF FILL MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. AT THE POINT OR CONTINUOUS CONTACT LOCATIONS BETWEEN PIPE AND CONCRETE, A MIN 1/4 IN. (6 MM) DIAM BEAD OF FILL MATERIAL SHALL BE APPLIED AT THE CONCRETE OR SLEEVE/PIPE PENETRANT INTERFACE ON THE TOP SURFACE OF FLOOR AND ON BOTH SURFACES OF WALL.

   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC - FS-ONE SEALANT OR FS-ONE MAX INTUMESCENT SEALANT

* INDICATED SUCH PRODUCTS SHALL BEAR THE UL OR CUL CLASSIFICATION MARK FIR JURISDICTIONS EMPLOYING THE UL OR CUL CERTIFICATION (SUCH AS CANADA,
RESPECTIVELY.

1 UL CAJ1226
NO SCALE

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ISSUED
FOR BIDDING

NOT FOR CONSTRUCTION
ISSUED: 04.16.2020

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FINAL DRAWING
DO NOT USE FOR CONSTRUCTION

PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

ELECTRICAL UL DETAILS

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	07.30.19	SD PROGRESS DRAWINGS
	07.11.19	NCDPI SD SUBMISSION

PROJECT NO:	2019082.00
DATE:	01.20.2020
SCALE:	12" = 1'-0"
DRAWN BY: HGH	PROJ MGR: WAC

E502

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LIGHTING FIXTURE SCHEDULE

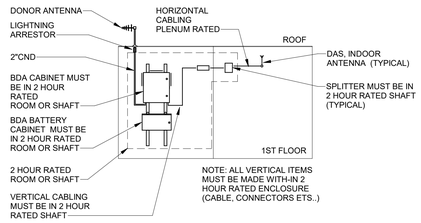
MARK	DESCRIPTION	MANUFACTURER/SERIES	NOM. SIZE	TEMP(°K)	LAMPS	VOLTS	DELIVERED LUMENS	WATTS	LENS	COLOR	MOUNTING HEIGHT	BALLAST/ DRIVER	REMARKS
A2	2X4 LAY-IN LED TROFFER	LITHONIA: GTL SERIES COLUMBIA: LJT24 SERIES DAY-BRITE	2'x4'	3500	LED	MVOLT	5400	51	A19 ACRYLIC	WHITE	RECESSED LAY-IN	LED DRIVER DIMMING	1
E1	2-HEAD EMERGENCY LIGHT	EELP: EM2LF SERIES ISOLITE: SERIES EMERGI-LITE PREMIER SERIES	12"Wx5.5"Hx6"D		LED	MVOLT		12		WHITE	WALL MOUNTED 7'-6"AFF		
X1	EXIT SIGN, SINGLE FACE	LITHONIA EXR LED EL M6 ISOLITE ELT-EM-R-1W-BA-SC-UC EMERGI-LITE LSNX42NRWUA	12"Wx8"Hx2"D		LED	MVOLT		2	RED	WHITE	SURFACE CEILING / 7'-6"AFF WHEN WALL MOUNTED		8

REMARKS:
1. 0-10V DIMMING 1%
2. DAMP LOCATION
3. WET LOCATION
4. 50% DIMMING
5. LED REQUIRED SURGE PROTECTION
6. VERIFY FINAL MOUNTING HEIGHT WITH ARCHITECT
7. FINAL COLOR SELECTION BY ARCHITECT
8. 90 MIN BATTERY BACK-UP.
9. INTEGRAL PHOTOCELL

GENERAL NOTES:
A. THE CONTRACTOR SHALL VERIFY THE LEAD TIME OF ALL PRODUCTS SPECIFIED IN THIS SCHEDULE AT THE TIME OF PACKAGE QUOTE.
B. DURING THE BID PROCESS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DELIVERY/SCHEDULING ISSUES.
C. NO SUBSTITUTIONS WILL BE ALLOWED DUE TO THE LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
D. ALL EXPEDITED EXPENSES SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS.
E. FIXTURES TO BE INSTALLED IN CEILINGS, INDICATE ON THE ARCHITECTURAL PLANS AS HAVING INSULATION IN CONTACT WITH THE CEILING SURFACE, SHALL BE IC RATED BY MANUFACTURER.
F. LIGHTING FIXTURES SHALL MEET THE AESTHETICS, DESCRIPTION AND SPECIFICATIONS, SUBSTITUTIONS SHALL INCLUDE PT. BY PT. CALCULATIONS.
G. LIGHTING FIXTURES, AS SPECIFIED, HAVE BEEN SO SELECTED TO ACHIEVE REQUIRED/DESIRED FOOTCANDLE LEVELS IN THEIR RESPECTIVE AREA. HENCE SPECIFIC FIXTURE CHARACTERISTICS WHICH MAY CREATE PARTICULAR ILLUMINATION RESULTS ARE ESSENTIAL. ANY DEVIATIONS FROM SPECIFIED FIXTURES SHALL DEEM THE SUBMITTING AGENT AND CONTRACTORS RESPONSIBLE IN PROVIDINGSUCH DEVIATION FOR THE ARCHITECT/ENGINEER AND OWNER TO MAKE AN INFORMED DECISION.
H. SUBSTITUTIONS APPROVED BY THE ENGINEER PREVIOUS TO BID ARE ACCEPTABLE AS LONG AS THEY ARE EQUAL TO THE FIXTURE SPECIFIED, UNLESS OTHERWISE NOTED. THIS INCLUDES LENS, COLORS, REFLECTORS, PHOTOMETRICS, HOUSING MATERIAL, FINISHES, ETC. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER WITH CUT SHEETS FOR APPROVAL. LISTED SEPARATELY SO THE ARCHITECT, ENGINEER AND OWNER CAN MAKE AN INFORMED DECISION. SUBSTITUTE FIXTURES SHALL BE PRICED WITH THE SPECIFIED FIXTURE AND ALL 4' LED LAMPS SHALL BE 3500 K, OTHER LAMPS SHALL BE AS SCHEDULED.
J. ANY FIXTURE WITH THE TEXT "NL" ADJACENT TO IT SHALL INDICATE THAT THAT FIXTURE IS A NIGHT LIGHT (24HR LIGHT). THE FIXTURE SHALL BE CONNECTED TO THE UNSWITCHED HOT LEG OF THE INDICATED CIRCUIT.
K. ACRYLIC PRISMATIC LENSES SHALL BE 0.156" NOMINAL MINIMUM THICKNESS.
L. ALL EXIT AND EMERGENCY FIXTURES SHALL COMPLY WITH NCSBC STANDARDS AND HAVE AUTOMATIC TESTING DEVICES.
M. LED EMERGENCY BATTERY SHALL PROVIDE 1400 MINIMUM LUMENS OUTPUT FROM 1 LAMP FOR 90 MINUTES MINIMUM.
N. LED MODULES SHALL BE REPLACEABLE.
O. PROVIDE MANUFACTURER INSTALLED NEC 2014 ARTICLE 410.130 (G) COMPLIANT DISCONNECTING MEANS FOR ALL APPLICABLE FIXTURES.
P. SEE SPECIFICATIONS SECTIONS 265100 AND 265200 FOR ADDITIONAL REQUIREMENTS.
Q. ELECTRICAL CONTRACTOR SHALL RECEIVE APPROVAL FOR ALL LIGHTING FIXTURES FROM ARCHITECT/OWNER PRIOR TO PURCHASE AND ROUGH-IN.

BDA INSTALLATION NOTES

1. ALL WIRING SHALL BE IN ACCORDANCE WITH LOCAL AND NATIONAL CODES, INCLUDING NFPA 72 (2013 EDITION) AND NEC.
2. A BDA SYSTEM IS AN EMERGENCY RESPONDER RADIO ENHANCED SYSTEM IN COMPLIANCE WITH THE NC FIRE CODE, SECTION 510.
3. WHERE REQUIRED, WIRING SHALL BE RUN IN MINIMUM 3/4" CONDUIT. SURFACE METAL RACEWAY IS ACCEPTABLE.
4. PLENUM RATED COAXIAL CABLE WITHOUT CONDUIT, MAY BE ACCEPTABLE FOR HORIZONTAL RUNS IN AREAS OTHER THAN WHERE WATERPROOF DEVICES ARE REQUIRED. HOWEVER, CONDUIT SHALL BE USED TO PENETRATIONS IN RATED WALLS SHALL BE MADE IN CONDUIT PER APPROPRIATE U.L. SYSTEM.
5. MANUFACTURER'S 1/2" COAXIAL CABLE SHALL BE USED FOR THE BDA SYSTEM, DUE TO ITS LOW OHM LOSS PROPERTIES.
6. THE DIRECTIONAL DONOR ANTENNA ON THE ROOF SHALL BE TIED INTO THE BUILDING GROUNDING SYSTEM.
7. ALL CABLES USED FOR BDA SHALL BE GROUNDED TO THE BUILDING GROUNDING SYSTEM.
8. THE CABLE BETWEEN THE DONOR ANTENNA AND THE AMPLIFIER MAY BE RUN TO THE ROOF, BUT IT MUST BE IN CONDUIT.
9. THE LIGHTING ARRESTOR SHALL BE INSTALLED AS SHOWN ON THE TYPICAL ANTENNA INSTALLATION DETAIL. THE ARRESTOR PART IS THE "COAXIAL SURGE PROTECTOR," BDA-LA-P8AX-6G.
10. THE CABLE FROM THE DONOR ANTENNA TO THE AMPLIFIER SHALL BE SEPARATED FROM THE RISER CABLE FROM THE BDA TO THE INDOOR ANTENNA, THIS REQUIREMENT APPLIES TO THE RISER.
- IF BOTH CABLES ARE NOT IN CONDUIT, THE MINIMUM SEPARATION SHALL BE SIX (6) FEET.
- IF AT LEAST ONE CABLE IS IN CONDUIT, THE MINIMUM SEPARATION SHALL BE THREE (3) FEET.
- THESE CABLES ARE ALLOWED TO CROSS A MAXIMUM OF ONE TIME.
11. THE BDA AMPLIFIER ENCLOSURE SHALL BE INSTALLED ON METAL STRUT CHANNEL (TO ALLOW AIRFLOW). SEE INSTALLATION DIAGRAM.
12. THE BDA AMPLIFIER AND BATTERY ENCLOSURES SHALL BE GROUNDED TO THE BUILDING GROUNDING SYSTEM UTILIZING A SORT, DIRECT PATH WITH THE MINIMUM NUMBER OF BENDS (GROUNDING CABLES SHALL NOT REVERSE DIRECTION WHEN CONNECTING TO TERMINATION POINTS.)
13. A.C. WIRES SHALL BE RUN IN SEPARATE CONDUIT FROM D.C. WIRING, SUCH THAT A SYSTEM ALARM DOES NOT DE-ENERGIZE THE CONTROL PANEL. MINIMUM SIZE WIRE TO BE AWG 12 THHN. PROTECTION AGAINST VOLTAGE TRANSIENTS AND SURGES SHALL BE INSTALLED AT THE ELECTRICAL PANELBOARD AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
- PRIMARY AC POWER TO THE BDA AMPLIFIER SHALL BE DEDICATED CIRCUIT.
- REDUNDANT AC POWER TO THE BDA AMPLIFIER SHALL BE ANY 120VAC CIRCUIT. (PROVIDING A SECOND (REDUNDANT) POWER CIRCUIT IS PER THE MANUFACTURERS RECOMMENDED PRACTICE.)
- CIRCUIT DISCONNECTING MEANS SHALL BE PERMANENTLY IDENTIFIED BY THE SYSTEM TYPE: i.e. "EMERGENCY COMMUNICATION SYSTEM" (ECS)
14. CONDUIT FOR THE DONOR (ROOF) ANTENNA AND FOR THE RISER COAXIAL CABLE SHALL BE PARALLEL TO THE DBA ENCLOSURE. THOSE CONDUIT SHALL TERMINATE WITH A BUSHING WITHIN TWO (2) FEET OF THE BOTTOM OF THE ENCLOSURE. BDA PE TECHNICIANS SHALL MAKE THE CONNECTION PROVIDED, PRE-WIRED 1/4" FLEX CABLE FROM THE BDA.
15. INSTALLATION REQUIREMENTS TO COMPLY WITH NFPA 72, SECTION 24.3.6.8:
- THE RISER COAXIAL CABLE SHALL BE INSTALLED IN A 2 HOUR RATED ENCLOSURE OR SHAFT. (2 HOUR RATED COAXIAL CABLE IS NOT AVAILABLE AT THE CORRECT LOW OHM LOSS RATING.)
- THE SPLITTER CONNECTIONS BETWEEN THE RISER CABLE AND THE HORIZONTAL FEEDER CABLE SHALL ALSO BE MADE WITH A 2 HOUR RATED ENCLOSURE. THE FEEDER CABLE PASSAGE THROUGH THAT 2 HOUR ENCLOSURE SHALL BE FIRE STOPPED WITH THE APPROPRIATE U.L. SYSTEM.
- ALL FEEDER CABLES SHALL BE PLENUM RATED AT A MINIMUM. (FEEDER CABLES ARE THE HORIZONTAL RUNS TO THE DAS.)
16. WHEN SPLITTER CONNECTIONS ARE IN CONDUIT, PROVIDE A MINIMUM 12 INCH x 12 INCH JUNCTION COX TO MAKE THE CONNECTION.
17. THE BDA ANNUNCIATOR SHALL BE INSTALLED NEAR THE FIRE ALARM CONTROL PANELPER THE INSTALLATION NOTES ON THIS SHEET.
18. ALL FIELD WIRING SHALL BE CHECKED FOR SHORTS, OPENS, AND GROUNDS BEFORE MACKING CONNECTIONS.
19. SEE MANUFACTURERS SHEETS FOR MOUNTING DETAILS.
20. ALL JUNCTION BOX COVERS SHALL BE RED IN COLOR. THOSE IN FINISHED ARES ARE PERMITTED TO MATCH THE FINISH COLOR.
21. ALL PENETRATIONS THROUGH RATED WALLS SHALL BE SEALED USING APPROPRIATE U.L. SYSTEM.



1 BDA RISER DIAGRAM
NO SCALE

BDA PROJECT NOTES IN TESTING AND INSTALLATION SEQUENCING

1. A PRELIMINARY SITE SURVEY IS NEEDED TO DETERMINE THE EXISTING dBm SIGNAL STRENGTH.
2. A MORE DETAILED SURVEY WILL MAP THE BUILDING ONCE THE BUILDING IS SUBSTANTIALLY COMPLETED.
3. THE NEXT SIGNAL STRENGTH SURVEY WILL COMPLY WITH THE 2018 NCFC, 510.5.3 AND NFPA 72, 24.5.2.1 (2013 EDITION)
   - EACH FLOOR SHALL BE DIVIDED INTO 20 (APPROXIMATELY) EQUAL TEST AREAS, THE WORST CASE SIGNAL STRENGTH READING SHALL BE RECORDED. PROVIDE 90 PERCENT FLOOR AREA RADIO COVERAGE.
- CRITICAL AREAS, IF PRESENT, SHALL BE SURVEYED SEPARATE FROM THE EQUAL TEST AREAS;
--- EXIT STAIRS
--- EXIT PASSAGEWAYS
--- ELEVATOR LOBBIES
--- AT STANDPIPE CABINETS
--- SPRINKLER SECTIONAL VALVE LOCATIONS
--- AHJ MAY REQUIRE ADDITIONAL LOCATIONS.

-- CRITICAL AREAS SHALL BE PROVIDED WITH 99 PERCENT RADIO COVERAGE.

4. THE MINIMUM SIGNAL STRENGTH OF -95 dBm IS REQUIRED.

Branch Panel: (X)MH2

Location:
Supply From:
Mounting:
Enclosure: NEMA 1

Volts: 480Y/277
Phases: 3
Wires: 4

A.I.C. Rating: 10,000 AMPS SYMMETRICAL
Mains Type: MAIN CB
Mains Rating: 100.0 A
MCB Rating: 100.0 A

Notes:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1				0 VA	0 VA								2
3	(X)HOOD FAN - 18	15.0 A	3			0 VA	0 VA			3	15.0 A	(X)UH #3	4
5								0 VA	0 VA				6
7				0 VA	3635...								8
9	(X)HOOD FAN - 19	15.0 A	3			0 VA	3635...			3	25.0 A	AHU18 (NOTE 1, 2)	10
11								0 VA	3635...				12
13				0 VA	0 VA								14
15	(X)UH #1	15.0 A	3			0 VA	0 VA			3	15.0 A	(X)AHU #19	16
17								0 VA	0 VA				18
19				0 VA	0 VA					--	--	SPACE	20
21	(X0UH #2	15.0 A	3			0 VA	0 VA			--	--	SPACE	22
23								0 VA	0 VA	--	--	SPACE	24
25	SPACE	--	--	0 VA	0 VA					--	--	SPACE	26
27	SPACE	--	--			0 VA	0 VA			--	--	SPACE	28
29	SPACE	--	--					0 VA	0 VA	--	--	SPACE	30
		Total Load:		3635 VA		3635 VA		3635 VA					
		Total Amps:		13.1 A		13.1 A		13.1 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
HVAC	10905 VA	100.00%	10905 VA		
				Total Conn. Load:	10905 VA
				Total Est. Demand:	10905 VA
				Total Conn.:	13.1 A
				Total Est. Demand:	13.1 A

Notes:
1. HVAC EQUIPMENT MUST USE TYPE HACR BREAKER.
2. UTILIZE EXISTING BREAKER.

Branch Panel: (X)LH1

Location:
Supply From:
Mounting:
Enclosure: NEMA 1

Volts: 480Y/277
Phases: 3
Wires: 4

A.I.C. Rating: 10,000 AMPS SYMMETRICAL
Mains Type: MAIN CB
Mains Rating: 100.0 A
MCB Rating: 100.0 A

Notes:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	(X)LIGHTING CAFETERIA 464	20.0 A	1	0 VA	0 VA					1	20.0 A	(X)LIGHTING CAFETERIA 484	2
3	(X)LIGHTING CAFETERIA 464	20.0 A	1			0 VA	0 VA			1	20.0 A	(X)LIGHTING KITCHEN 474	4
5	(X)LIGHTING CAFETERIA 464	20.0 A	1					0 VA	0 VA	1	20.0 A	(X)LIGHTING MECHANICAL 488 & EMERG LTS	6
7	(X)LIGHTING CORR 447 & EMERG LTS	20.0 A	1	0 VA	0 VA					1	20.0 A	SPARE	8
9	(X)LIGHTING GUIDANCE 458	20.0 A	1			0 VA	1116...			1	20.0 A	LTS: CAFETERIA (NOTE 1)	10
11	(X)LIGHTING RECEPT 434	20.0 A	1					0 VA	0 VA	1	20.0 A	(X)LIGHTING EXTERIOR H	12
13	SPACE	--	--	0 VA	0 VA					--	--	SPACE	14
15	SPACE	--	--			0 VA	0 VA			--	--	SPACE	16
17	SPACE	--	--					0 VA	0 VA	--	--	SPACE	18
19	SPACE	--	--	0 VA	0 VA					1	20.0 A	SPARE	20
21	SPARE	20.0 A	1			0 VA	0 VA			1	20.0 A	SPARE	22
23	SPARE	20.0 A	1					0 VA	0 VA	1	20.0 A	SPARE	24
25	SPARE	20.0 A	1	0 VA	0 VA					1	20.0 A	SPARE	26
27	SPARE	20.0 A	1			0 VA	0 VA			1	20.0 A	SPARE	28
29	SPARE	20.0 A	1					0 VA	0 VA	1	20.0 A	SPARE	30
		Total Load:		0 VA		1116 VA		0 VA					
		Total Amps:		0.0 A		4.0 A		0.0 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	176 VA	100.00%	176 VA		
LTS	940 VA	125.00%	1175 VA	**Total Conn. Load:**	1116 VA
				Total Est. Demand:	1351 VA
				Total Conn.:	1.3 A
				Total Est. Demand:	1.6 A

Notes:
1. PROVIDE BREAKER INDICATED, BREAKER AIC RATING MUST MATCH PANEL AIC RATING.

PANELBOARD: (X)PH21

LOCATION:
MOUNTING: RECESSED NEMA1
MAIN DEVICE: 100.0 A MAIN CB
BUS AMPS: 200 AMPS

VOLTAGE: 120/240 V. 1 ø 3 W.
A.I.C. RATING: 10,000 AMPS SYMMETRICAL
SPECIAL:

LOAD DESCRIPTION	BKR	POLES	CKT	A		B		CKT	POLES	BKR	LOAD DESCRIPTION
(X)RCPT: MICROWAVE	20.0 A	1	1	700...	100...			2	1	20.0 A	(X0RCPT: MICROWAVE
(X)RCPT: MICROWAVE	20.0 A	1	3			900...	100...	4	1	20.0 A	(X)RCPT: MICROWAVE
RCPTS: CAFE (NOTE 1)	20.0 A	1	5	540...	100...			6	1	20.0 A	(X)RCPT: MICROWAVE
EMERGENCY COMM SYST	20.0 A	1	7			180...	100...	8	1	20.0 A	(X)RCPT: MICROWAVE
EMERGENCY COMM SYST	20.0 A	1	9	180...	0 VA			10	--	--	SPACE
SPACE	--	--	11			0 VA	0 VA	12	--	--	SPACE
SPACE	--	--	13	0 VA	0 VA			14	--	--	SPACE
SPACE	--	--	15			0 VA	0 VA	16	--	--	SPACE
SPACE	--	--	17	0 VA	0 VA			18	--	--	SPACE
SPACE	--	--	19			0 VA	0 VA	20	--	--	SPACE
SPACE	--	--	21	0 VA	0 VA			22	--	--	SPACE
SPACE	--	--	23			0 VA	0 VA	24	--	--	SPACE
	TOTAL LOAD:			3 kVA		3 kVA					
	TOTAL AMPS:			28 A		25.5 A					

LOAD CLASSIFICATION	CONNECTED	DEMAND	ESTIMATED	PANEL TOTALS	
Other	360 VA	100.00%	360 VA		
RCPT	540 VA	100.00%	540 VA	**CONNECTED LOAD:**	6466 VA
				ESTIMATED DEMAND:	6466 VA
				CONNECTED CURRENT:	26.9 A
				EST. DEMAND CURRENT:	26.9 A

NOTES:
1. PROVIDE BREAKER INDICATED, BREAKER AIC MUST MATCH PANEL AIC RATING.

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PROJECT TITLE
WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE
ELECTRICAL PANEL SCHEDULES AND LIGHTING FIXTURE SCHEDULE

ISSUE BLOCK

Mark	Date	Description
	04.16.20	ISSUED FOR BIDDING
	03.20.20	100% REVIEW SUBMISSION
	10.14.19	NCDPI DD SUBMISSION
	07.30.19	SD PROGRESS DRAWINGS
	07.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019082.00
DATE: 01.20.2020
SCALE: 12" = 1'-0"
DRAWN BY: HGH PROJ MGR: WAC

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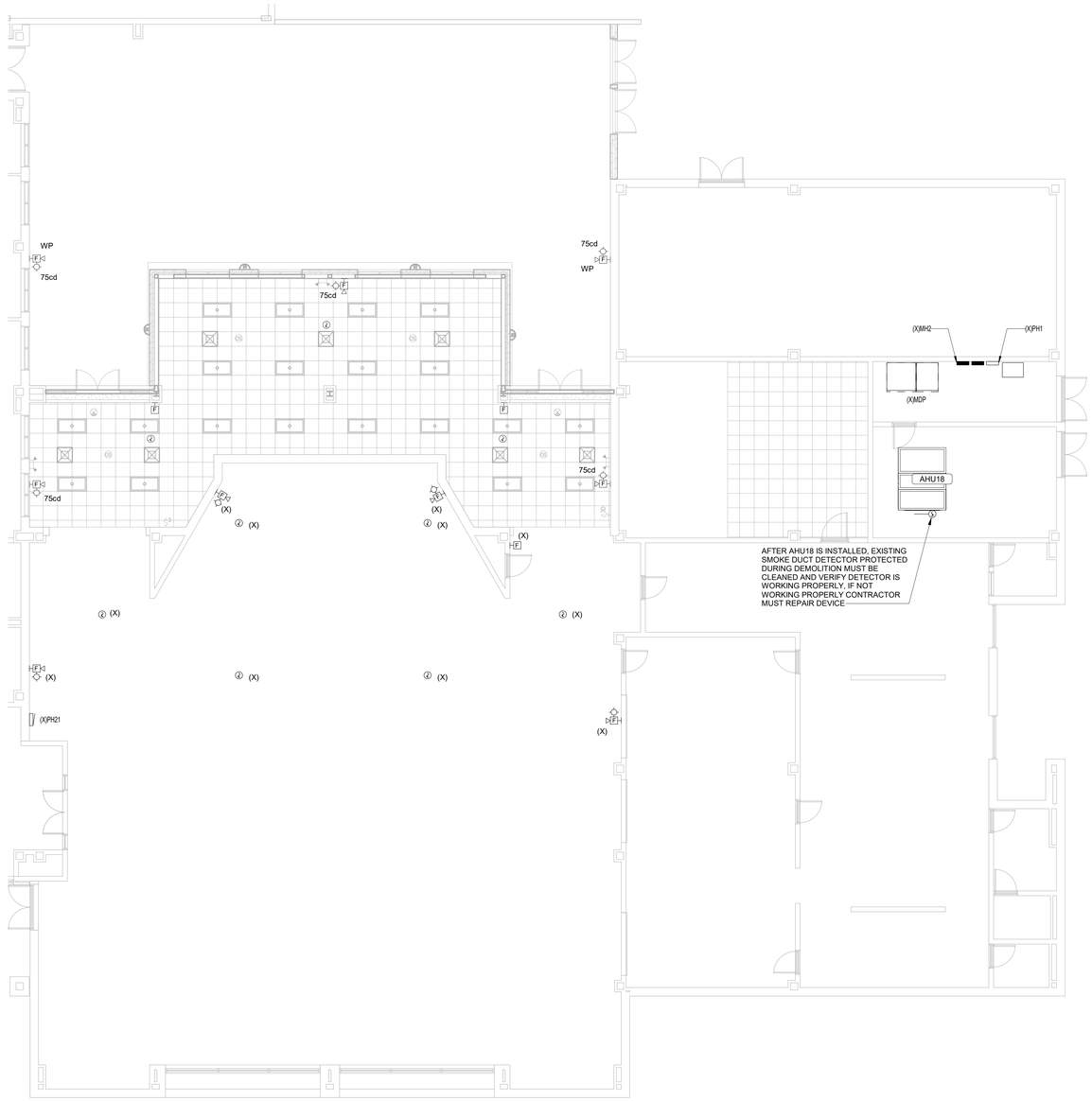

1 CAFE RENOVATION PLAN- FIRE ALARM

SCALE: 1/8" = 1'-0"

PLAN NORTH

N

8' 4' 0' 8'

SCALE : 1/8" = 1'-0"

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PROJECT TITLE

WEST BRUNSWICK HIGH SCHOOL CAFETERIA ADDITION

550 WHITEVILLE ROAD N.W.
SHALLOTTE, NC 28470

DSP # : 100
DPI SCHOOL # : 1167

SHEET TITLE

CAFE ADDITION FLOOR PLAN- FIRE ALARM

ISSUE BLOCK

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	07.30.19	SD PROGRESS DRAWINGS
	07.11.19	NCDPI SD SUBMISSION

PROJECT NO: 2019082.00
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SCALE: 1/8" = 1'-0"
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MANUAL FIRE ALARM SYSTEM NOTES

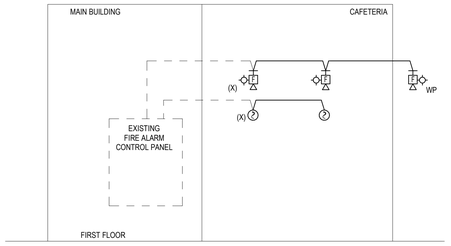
1. AS A MINIMUM THE FIRE ALARM SYSTEM SHALL INCLUDE DETECTORS, PULL STATIONS, HORNSTROBES AND STROBES WITH FIRE RATED CABLE. THE FIRE ALARM SYSTEM SHALL MEET NFPA REQUIREMENTS, THE NATIONAL ELECTRICAL CODE, THE STATE CODES, AND THE LOCAL BUILDING CODES.
2. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL CABLE, MATERIALS AND EQUIPMENT AS SHOWN ON THE DRAWINGSOR HEREIN SPECIFIED. ALL SYSTEM COMPONENTS SPECIFIED HEREIN, AS WELL AS THEIR INSTALLATION, SHALL COMPLY WITH APPLICABLE STANDARDS OF THE NATIONAL ELECTRICAL CODE, NATIONAL FIRE PROTECTION ASSOCIATION, AND LOCAL CODES HAVING AUTHORITY. ALL EQUIPMENT SHALL BE UL LISTED FOR FIRE ALARM SYSTEM USE.
3. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND SHALL BE INSTALLED AND CONNECTED UNDER THE DIRECTION AND SUPERVISION OF A MANUFACTURER'S REPRESENTATIVE. UPON COMPLETION OF INSTALLATION, THE MANUFACTURER'S REPRESENTATIVE SHALL PERFORM ALL OPERATIONAL TESTS AND ADJUSTMENTS AND CERTIFY IN WRITING THAT THE SYSTEM IS PROPERLY INSTALLED AND FUNCTIONS AS SPECIFIED.
4. ALL WIRING SHALL BE SYSTEM OR UL LISTED FIRE RATED CABLE AND COLOR CODED TO ALLOW EASE OF IDENTIFICATION OF THE DIFFERENT CIRCUITRY REQUIRED FOR THE SYSTEM. NO CIRCUIT SHALL CHANGE COLOR AT ANY POINT END TO END.
5. THE MANUFACTURER'S AUTHORIZED REPRESENTATIVE SHALL PROVIDE SUPERVISION OF FINAL SYSTEM PANEL CONNECTIONS, PERFORM A COMPLETE FUNCTIONAL TEST OF THE SYSTEM, AND A WRITTEN REPORT TO THE CONTRACTOR ATTESTING THE PROPER OPERATION OF THE COMPLETED SYSTEM.
6. ALL DEVICES SHALL BE COMPATIBLE WITH THE EXISTING FIRE ALARM SYSTEM.
7. ALL WIRING SHALL BE INSTALLED IN COMPLIANCE WITH N.E.C., NFPA 72, ALL STATE AND LOCAL REQUIREMENTS AND IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
8. SLEEVE AND SEAL ALL PENETRATIONS THROUGH FIRE WALLS.
9. WIRING SHALL BE A MINIMUM OF NO. 14 AWG UNLESS OTHERWISE NOTED.
10. THE SMOKE DUCT DETECTOR SHALL BE FURNISHED AND TERMINATED BY THE FIRE ALARM CONTRACTOR, INSTALLED BY THE MECHANICAL CONTRACTOR.
11. SHOP DRAWINGS MUST BE SUBMITTED BY THE FIRE ALARM CONTRACTOR COMPLYING WITH THE FIRE ALARM PLAN REVIEW REQUIREMENTS POLICY - THESE DRAWINGS DO NOT CONSTITUTE APPROVAL AND MAY CHANGE AFTER A FULL REVIEW BY THE FIRE DEPT. HAVING JURISDICTION. A SEPARATE PERMIT MUST BE OBTAINED PRIOR TO INSTALLATION.
12. IN CORRIDORS WHERE MORE THAN TWO VISIBLE NOTIFICATION APPLIANCES ARE IN ANY FIELD OF VIEW, THEY SHALL FLASH IN SYNCHRONIZATION.
13. FIRE ALARM CONTRACTOR IS RESPONSIBLE FOR MODULES TO SHUTDOWN HVAC EQUIPMENT DURING ALARM CONDITION.
14. ALL FIRE ALARM WORK AND DEVICES SHALL BE INSTALLED AND TERMINATED BY A NICET LEVEL 2 FIRE ALARM TECHNICIAN.
15. IN THE EVENT OF AN ALARM THERE SHALL BE A "GLOBAL" SHUT DOWN OF ALL AIR HANDLING EQUIPMENT.

FIRE ALARM SYSTEM CONTROL MATRIX

SYSTEM INPUTS	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE NOTIFICATION APPLIANCES	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ALARM SIGNAL TO MONITORING SERVICE	SUPERVISORY SIGNAL TO MONITORING SERVICE	TROUBLE SIGNAL TO MONITORING SERVICE	DISPLAY/PRINT CHANGE OF STATUS	TRANSMIT ALARM SIGNAL TO CENTRAL STATION	RELEASE MAGNETICALLY HELD DOORS	RECALL ELEVATORS TO PRIMARY RECALL FLOOR	RECALL ELEVATORS TO ALTERNATE RECALL FLOOR	ACTIVATE FIRE HAT SIGNAL	SIGNAL HVAC CONTROL SYSTEM	SHUNT TRIP ELEVATOR FEEDER CIRCUIT BREAKER
	SYSTEM OUTPUTS														
SMOKE DETECTORS	X	X			X			X	X	X				X	
MANUAL PULL STATIONS	X	X			X			X	X	X				X	

NOTES:

1. ONLY AFTER LOSS OF POWER FOR > 8 HOURS.
2. ELEVATOR INPUTS AND OUTPUTS ARE TYPICAL FOR EACH ELEVATOR.
3. REFER TO FIRE PROTECTION DRAWINGS FOR SPRINKLER DEVICE LOCATIONS.
4. REFER TO MECHANICAL DRAWINGS FOR DUCT MOUNTED SMOKE DETECTOR LOCATIONS.
5. TYPICAL QUANTITIES OF DEVICES ARE NOT SHOWN. SEE FIRE PROTECTION DRAWINGS FOR QUANTITIES AND LOCATIONS.

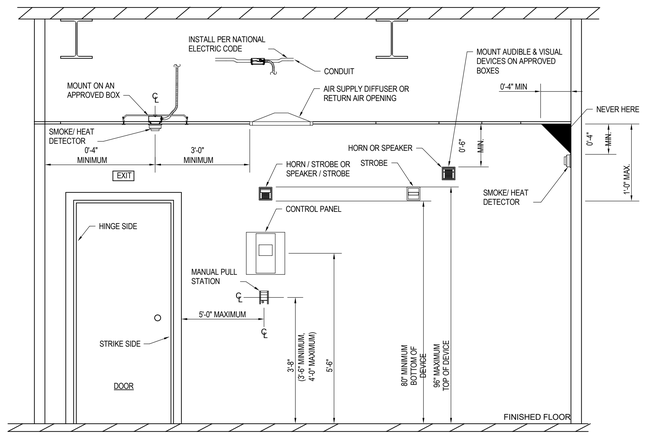


NOTE:
1. RISER DIAGRAM IS DEPICTIVE (FUNCTIONAL) ONLY. ALL DEVICES ARE NOT SHOWN

1 FIRE ALARM RISER1
NO SCALE

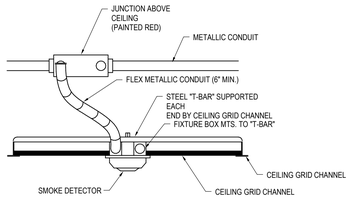
FIRE ALARM SYMBOL LEGEND

SYMBOL	DESCRIPTION
(X)FACP	EXISTING FIRE ALARM CONTROL PANEL
	EXISTING FIRE ALARM REMOTE ANNUNCIATOR
F	FIRE ALARM HORN/STROBE DEVICE, 80" AFF, "15cd" INDICATES CANDELA RATING
2	SMOKE DETECTOR, CEILING MOUNTED
S	EXISTING DUCT SMOKE DETECTOR
F	FIRE ALARM MANUAL STATION, 48" AFF
I	F.A. INDIVIDUAL ADDRESSABLE ISOLATION MODULE
(X)	INDICATES EXISTING EQUIPMENT
1	KEYED NOTE (SEE SCHEDULE)



NOTE:
DETAIL SHOWN FOR REFERENCE ONLY, NOT ALL DEVICES ARE INDICATED ON PLANS.

2 FIRE ALARM DEVICES MOUNTING HEIGHTS1
NO SCALE



3 TYPICAL CEILING MOUNTED DETECTOR MOUNTING DETAIL1
NO SCALE

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DPI SCHOOL # : 1167

SHEET TITLE

FIRE ALARM RISER DIAGRAM, LEGEND AND NOTES

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