A New Multi-Purpose Commercial Building for

ASSOCIATED CONTRACT SERVICES

Jarco Drive, Fuquay Varina, North Carolina

Joint Venture: John P. Watkins, Architect . 56 Hillmark Drive . Columbia, South Carolina 29210 . Phone 803-779-7570
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ARCHITECT	CIVIL ENGINEER	STRUCTURAL ENGINEER	PLUMBING ENGINEERING	MECHANICAL ENGINEERING	ELECTRICAL ENGINEER
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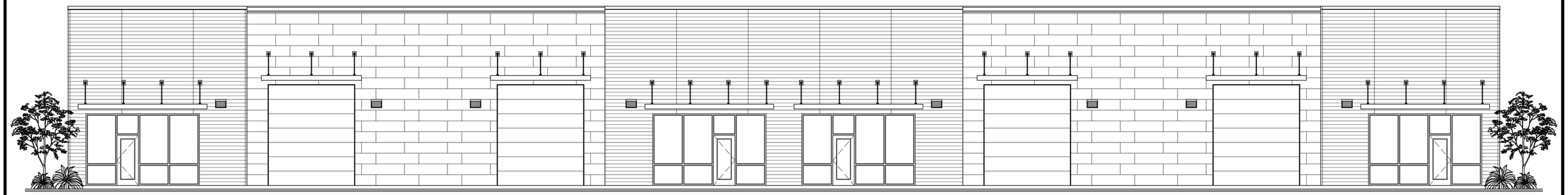

DRAWING INDEX

ARCHITECTURAL

CIVIL PLANS

STRUCTURAL

PLUMBING

MECHANICAL

ELECTRICAL

JOHN P. WATKINS ARCHITECT 3629 NORTH CAROLINA COLUMBIA, S.C.

April 11, 2025

2018 North Carolina Building Code

The following is a review of and synopsis of selected portions of the 2018 North Carolina State Building Code which apply to this project. Although all portions that apply have not been reprinted, the Code, in its entirety, shall be considered printed here in full.

The General Contractor, subcontractors, and suppliers shall be responsible for meeting all requirements of the 2018 North Carolina State Building Code, 2018 North Carolina State Fire Code, 2018 North Carolina State Mechanical Code, 2018 North Carolina State Plumbing Code and 2018 North Carolina State Fuel Gas Code, 2018 North Carolina State Energy Conservation Code (or ASHRAE 90.1 Standard / 2013), 2020 National Electric Code, 2009 ICC A117.1, 2010 Americans with Disabilities Act Standards for Accessible Design, NFPA 10 and all other NFPA codes that apply to this project. Should a discrepancy between the codes and the drawings exist, the General Contractor shall immediately inform the Architect and request a solution. Should the General Contractor, subcontractor, or supplier proceed with the work without notifying the Architect, the General Contractor shall assume responsibility for the work and shall be required to correct the work.

Scope of Work: New
Occupancy Group: Mixed: B, F-1, F-2, S-1, S-2
Construction Type: II-B
Fire Protection Systems: None Required
Height: 26 feet
Stories: 1
Area: 12,000 square feet
Separation Distance: Greater than 10 feet all exterior walls
Rated Assemblies: None required
Total Occupant Load: 120

Chapter 3

1. 304.1 Business Group B. Business Group B occupancy includes, among others, the use of a building or structure, or a portion thereof, for office, professional or service type transactions, including storage of records and accounts. Business occupancies shall include, but not be limited to, the following: Professional Services.

2. 306.2 Moderate hazard factory industrial, Group F-1. Factory industrial uses that are not classified as Factory Industrial F-2 Low Hazard shall be classified as F-1 Moderate Hazard.

3. 306.3 Low hazard factory industrial, Group F-2. Factory industrial uses that involve the fabrication or manufacturing of noncombustible materials which during finishing, packing, or processing do not involve a significant fire hazard shall be classified as F-2 occupancies.

4. 311.2 Moderate-hazard storage, Group S-1. Buildings occupied for storage uses that are not classified as Group S-2.

5. 311.3 Low hazard storage, Group S-2. Includes, among others, buildings used for the storage of noncombustible materials such as products on wood pallets or in paper cartons with or without single thickness divisions or in paper wrappings. Such products are permitted to have a negligible amount of plastic trim.

Chapter 5

1. 504.1 General. The height, in feet, and the number of stories of a building shall be determined based on the type of construction, occupancy classification and whether there is an automatic sprinkler system installed throughout the building.

2. 504.3 Height in feet. The maximum height, in feet, of a building shall not exceed the limits specified in Table 504.3.

3. Table 504.3: Group B, F, S, Type II-B Construction, not equipped with an automatic sprinkler system: 55 feet.

4. 504.3 Number of Stories. The maximum number of stories of a building shall not exceed the limits specified in Table 504.4.

5. Table 504.3 Allowable building height in feet above grade plane:
Group B, Type II-B Construction, not equipped with an automatic sprinkler system: 3 stories maximum.
Group F-1, Type II-B Construction, not equipped with an automatic sprinkler system: 2 stories maximum.
Group F-2, Type II-B Construction, not equipped with an automatic sprinkler system: 3 stories maximum.
Group S-1, Type II-B Construction, not equipped with an automatic sprinkler system: 2 stories maximum.
Group S-2 Type II-B Construction, not equipped with an automatic sprinkler system: 3 stories maximum.

6. 506.1 General. The floor area of a building shall be determined based on the type of construction, occupancy classification, whether there is an automatic sprinkler system installed throughout the building and the amount of building frontage on public way or open space.

7. 506.2 Allowable area determination. The allowable area of a building shall be determined in accordance with the applicable provisions of Sections 506.2.1 through 506.2.4 and Section 506.3.

8. Table 506.2 Allowable Area Factor:
Group B, Non-sprinklered, Type II-B Construction: 23,000 square feet per story
Group F-1, Non-sprinklered, Type II-B Construction: 15,500 square feet per story
Group F-2, Non-sprinklered, Type II-B Construction: 23,000 square feet per story
Group S-1, Non-sprinklered, Type II-B Construction: 17,500 square feet per story
Group S-2, Non-sprinklered, Type II-B Construction: 26,000 square feet per story

9. The building height is 26 feet, it is 1 story and the area is 12,000 square feet, therefore, it complies with the height, stories and area requirements for all possible occupancy classifications.

10. 508.3 Nonseparated occupancies. Buildings or portions of buildings that comply with the provisions of this section shall be considered nonseparated occupancies.

11. 508.3.1 Occupancy classification. Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space. In addition, the most restrictive provisions of Chapter 9 that apply to the nonseparated occupancies shall apply to the total nonseparated occupancy area.

12. 508.3.2 Allowable building area and height. The allowable building area and height of the building or portion thereof shall be based on the most restrictive allowances for the occupancy groups under consideration for the type of construction of the building in accordance with Section 503.1.

13. 508.3.3 Separation. No separation is required between nonseparated occupancies.

14. Note: Groups B, F and S all have the same allowable building height (55 feet). The allowable stories for Groups B, F-2 and S-2 is 3 while Groups F-1 and S-1 is 2. The allowable area for Group B and F-2 is 23,000 sf, for F-1 it is 15,500 sf, for S-1 it is 17,500 sf and for S-2 it is 26,000 sf. Therefore, occupancies listed may be considered nonseparated occupancies and no separation is required.

Chapter 6

1. 602.2 Types I and II construction are those types of construction in which the building elements listed in Table 601 are of noncombustible materials, except as permitted in Section 603 and elsewhere in this code.

2. Table 601 Using Type II-B construction, all structural elements require a 0 hour fire rating (no fire rating).

3. Table 602 Fire resistance rating requirements for exterior walls based on fire separation distance:
For Group B, F-2 and S-2, Type II-B construction, the following fire ratings must be provided:
Less than 5 feet - 1 hours
5 feet to less than 10 feet - 1 hour
10 feet to over 30 feet - 0 hours
For Group F-1 and S-1, Type II-B construction, the following fire ratings must be provided:
Less than 5 feet - 2 hours
5 feet to less than 10 feet - 1 hour
10 feet to over 30 feet - 0 hours

4. Note: All exterior walls have a fire separation of greater than 10 feet, therefore, the exterior walls are not required to be fire rated.

Chapter 8

1. Table 803.11 Interior wall and ceiling finish requirements by occupancy.
Group B, Nonsprinklered‡ Interior exit stairways, interior exit ramps and exit passageways (not applicable): Class A‡ Corridors and enclosure for exit access stairways and exit access ramps (not applicable): Class B‡ Rooms and enclosed spaces, Class C.
Group F, Nonsprinklered‡ Interior exit stairways, interior exit ramps and exit passageways (not applicable): Class B‡ Corridors and enclosure for exit access stairways and exit access ramps (not applicable): Class C‡ Rooms and enclosed spaces, Class C.
Group S, Nonsprinklered‡ Interior exit stairways, interior exit ramps and exit passageways (not applicable): Class B‡ Corridors and enclosure for exit access stairways and exit access ramps (not applicable): Class B‡ Rooms and enclosed spaces, Class C.

Chapter 9

1. 906.1 General. Portable fire extinguishers shall be provided in the following locations: 1. In Group A, B, E, F, H, I, M, R-1, R-2, R-4 and S occupancies. 5. Where required by the International Fire Code sections indicated in Table 906.1.

2. 906.2 General requirements. Portable fire extinguishers shall be selected and installed in accordance with this section and NFPA 10.

Chapter 10

1. Table 1004.1.2 Maximum floor area allowances per occupant. Industrial areas: 100 gross.

2. Occupant load per Table 1004.1.2: 12,000 sf / 100 sf / pp (Industrial areas ? worst case scenario) = 120 occupants. Or, 3,000 sf / 100 sf / pp (each tenant space) = 30 occupants per lease area (x 4 = 120 occupants)

3. Table 1005.3.2 Other egress components. The capacity, in inches, of means of egress components other than stairways shall be calculated by multiplying the occupant load served by such component by a means of egress capacity factor of 0.2 inch per occupant. Therefore, 30 occupants (each tenant space) x 0.2 inches per person equals a total egress width required is 6 inches. The total egress width provided throughout each tenant space is 72 inches at two (2) separate exits.

4. 1006.3.1 Egress based on occupant load. Each story and occupied roof shall have the minimum number of exits, or access to exits, as specified in Table 1006.3.1.

5. Table 1006.3.1 Minimum number of exits or access to exits per story: 1 ? 500 occupants: 2 exits.

6. 1008.2 Illumination required. The means of egress serving a room or space shall be illuminated at all times that the room or space is occupied.

7. 1010.1.5 Floor elevation. There shall be a floor or landing on each side of a door. Such floor or landing shall be at the same elevation on each side of the door. Landings shall be level except at exterior landings, which are permitted to have a slope not to exceed 0.25 unit vertical in 12 units horizontal (2 percent slope).

8. 1010.1.6 Landings at doors. Landings shall have a width not less than the width of the stairway or the door, whichever is greater. Landings shall have a length measured in the direction of travel of not less than 44 inches.

9. 1010.1.7 Thresholds. Thresholds at doorways shall not exceed 0.5 inches for doors.

10. 1010.1.9 Door operations. Except as specifically permitted by this section egress doors shall be readily openable from the egress side without the use of a key or special knowledge or effort.

11. 1010.1.9.1 Hardware. Door handles, pulls, latches, locks and other operating devices on doors required to be accessible by Chapter 11 shall not require tight grasping, tight pinching or twisting of the wrist to operate.

12. 1010.1.9.3 Unlatching. The unlatching of any door leaf shall not require more than one operation.

13. Table 1017.2 Exit access travel distance. Groups B, F-1 and S-1 without a sprinkler system: 200 feet. Groups F-2 and S-2 without a sprinkler system: 300 feet.

14. 1028.5 Access to a public way. The exit discharge shall provide a direct and unobstructed access to a public way.

Chapter 11

1. 1103.1 Where required. Sites, buildings, structures, facilities, elements and spaces, temporary or permanent, shall be accessible to persons with physical disabilities.

2. 1109.2 Toilet and bathing facilities. Each toilet room and bathing room shall be accessible. Where a floor level is not required to be connected to an accessible route, the only toilet rooms or bathing rooms provided within the facility shall not be located on an inaccessible floor. At least one of each type of fixture, element, control, or dispenser in each accessible toilet room or bathing room shall be accessible.

Chapter 12

1. 1210.1 Required fixtures. The number and type of plumbing fixtures provided in any occupancy shall comply with Chapter 29.

2. 1210.2.1 Floors and wall bases. In other than dwelling units, toilet, bathing, and shower room floor finish materials shall have a smooth, hard, nonabsorbent surface. The intersections of such floors with walls shall have a smooth, hard, nonabsorbent, vertical base that extends upward onto the walls not less than 4 inches.

3. 1210.2.2 Walls and partitions. Walls and partitions within 2 feet of service sinks, urinals and water closets shall have a smooth, hard, nonabsorbent surface, to a height of 4 feet above the floor, and except for structural elements, the materials used in such walls shall be a type that is not adversely affected by moisture.

Miscellaneous

1. 1804.3 Site grading. The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than one unit vertical in 20 units horizontal (5-percent slope) for a minimum distance of 10 feet (3048 mm) measured perpendicular to the face of the wall or an approved alternate method of diverting water away from the foundation shall be used. The procedure used to establish the final ground level adjacent to the foundation shall account for additional settlement of the backfill.

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR, FUQUAY VARINA, NC

Drawing Title
BUILDING CODE REVIEW SUMMARY

Consultant

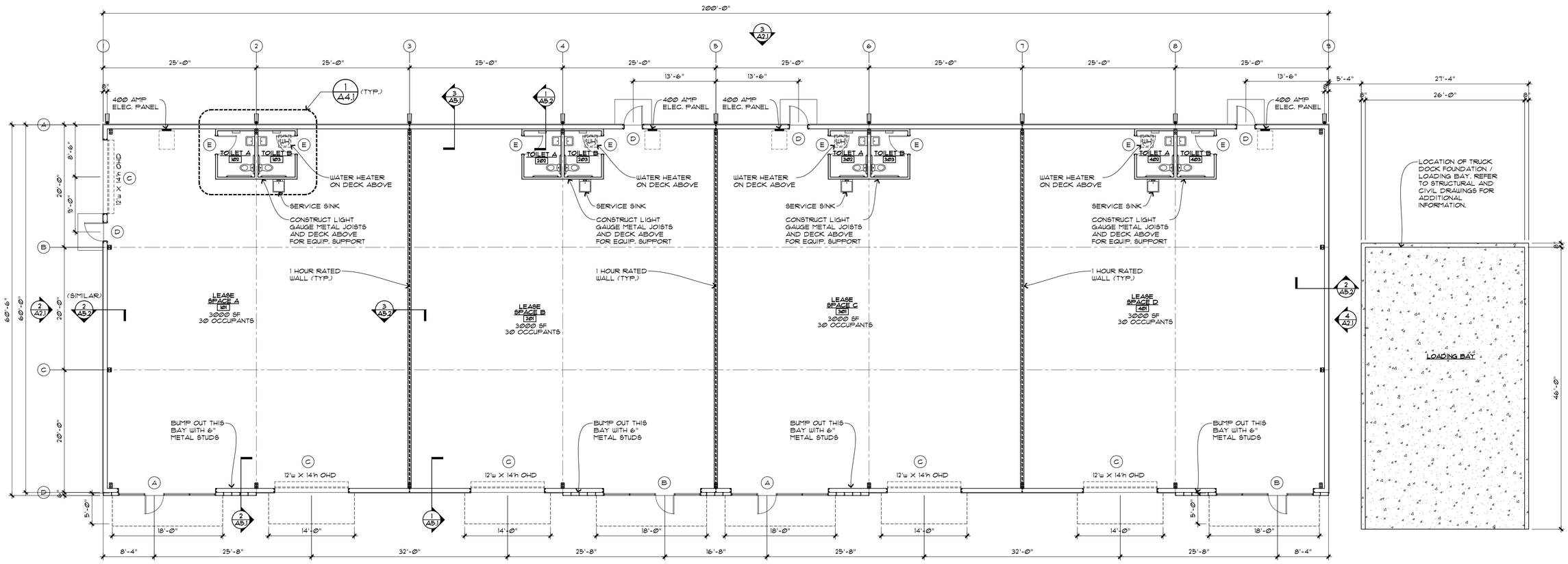
Seal

JOHN P. WATKINS ARCHITECT 3629 NORTH CAROLINA COLUMBIA, S.C.

Date
APRIL 11, 2025

Drawn By
JCO

Drawing No.
LS0



1 / A1.1 ARCHITECTURAL FLOOR PLAN

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

12,000 SQUARE FEET

DOOR NOTES:

NOTE 1: ALL DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES SHALL BE LEVER TYPE COMPLYING WITH IBC SECTION 1108.1.1 AND SHALL BE READILY OPENABLE FROM THE EGRESS SIDE WITHOUT THE USE OF A KEY OR SPECIAL KNOWLEDGE OR EFFORT PER IBC SECTION 1008.1.8.

NOTE 2: DOOR HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON DOORS SHALL NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE.

NOTE 3: THRESHOLDS SHALL BE A MAXIMUM OF 1/2" HIGH ABOVE THE ADJACENT FLOOR SURFACE.

NOTE 4: IN ADDITION TO THE HARDWARE NOTED ON THE DOOR SCHEDULE, ALL DOOR LEAVES SHALL RECEIVE 1 1/2 PAIR BUTTS, INCLUDING SPRING HINGES AT RATED DOORS WHRERE REQUIRED, 1 1/2 PAIR SILENCERS, AND A FLOOR OR WALL STOP. ALL HARDWARE REQUIRED FOR A COMPLETE DOOR SET SHALL BE PROVIDED FOR EACH DOOR.

NOTE 5: ALL EXTERIOR DOORS SHALL RECEIVE WEATHERSTRIPPING, BOTTOM SWEEPS, AND THRESHOLDS. ALL HARDWARE REQUIRED FOR A COMPLETE DOOR SET SHALL BE PROVIDED FOR EACH DOOR.

NOTE 6: PROVIDE TEMPERED GLASS (T) IN ALL LOCATIONS REQUIRED BY THE BUILDING CODE. PROVIDE 1/4" WIRE GLASS IN ALL LOCATIONS REQUIRED BY THE BUILDING CODE IF APPLICABLE.

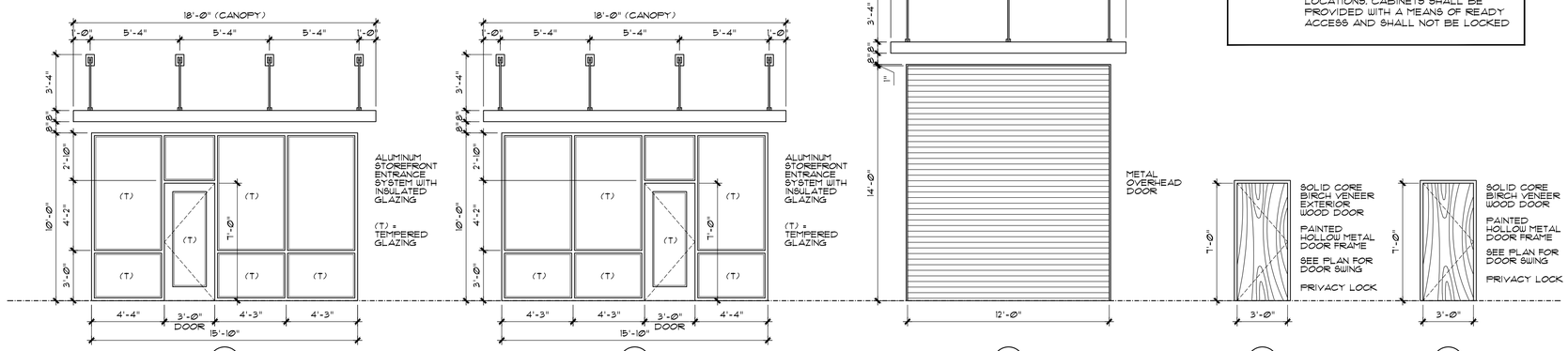
NOTE 7: CAULK EXTERIOR AND INTERIOR SIDES OF ALL DOOR FRAMES.

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED



1 / A1.1 DOOR SCHEDULE AND ELEVATIONS

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

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No.	Revisions	Date

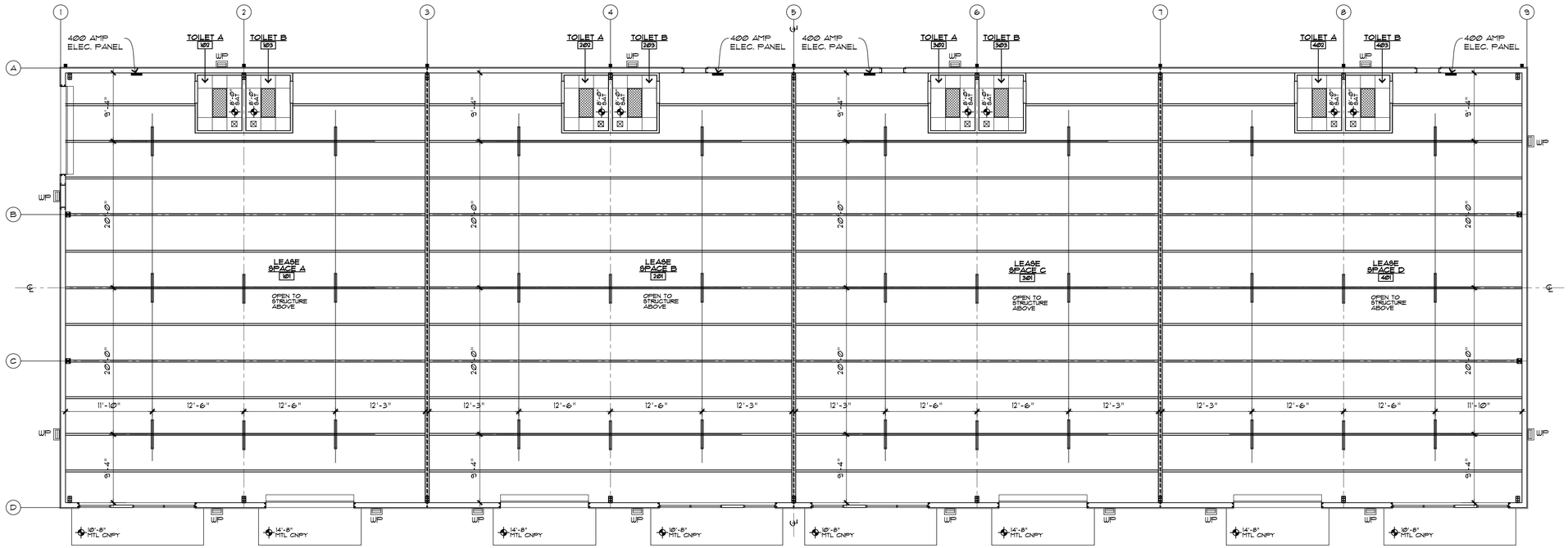
Project Title: DOLLAR GENERAL #31181
WHITE OAK ROAD, THOMSON, GA 30824

Drawing Title: FLOOR PLAN, DETAILS AND DOOR SCHEDULE

Consultant:

Seal: JOHN P. WATKINS REGISTERED ARCHITECT 3629 NORTH CAROLINA COLUMBIA, S.C.

Date: APRIL 11, 2025
Drawn By: JCO
Drawing No.: A1.1



1 / A1.2 REFLECTED CEILING PLAN
SCALE: 1/8" = 1' - 0"

GENERAL NOTES:

NOTE 1: ALL BULKHEADS SHALL BE FRAMED USING 3 5/8" METAL STUDS AND SHALL BE SMOOTH PAINTED

NOTE 2: SEE FINISH SCHEDULE SHEET FOR ALL CEILING TYPES

NOTE 3: SEE MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION

NOTE 4: IF A DESCREPENCY OCCURES BETWEEN THE ARCHITECTURAL DRAWINGS AND THE ENGINEERING DRAWINGS, CONSULT THE ARCHITECT PRIOR TO PROCEEDING

SYMBOL LEGEND

- 2 X 4 RECESSED LED LIGHT
- WP EXTERIOR LED WALL PACK
- RECESSED LED CAN LIGHT
- 8' LONG SUSPENDED LED STRIP LIGHT
- WALL MOUNTED BRACKET LIGHT
- EXHAUST FAN
- HVAC SUPPLY GRILLE
- HVAC RETURN GRILLE
- CJ GYPSUM BOARD CONTROL JOINT LOCATION
- 2 X 4 SUSPENDED ACOUSTICAL TILE CEILING
- SMOOTH, PAINTED, GYPSUM BOARD CEILING

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JACRO DR, FUQUAY VARINA, NC

Drawing Title
REFLECTED CEILING PLAN

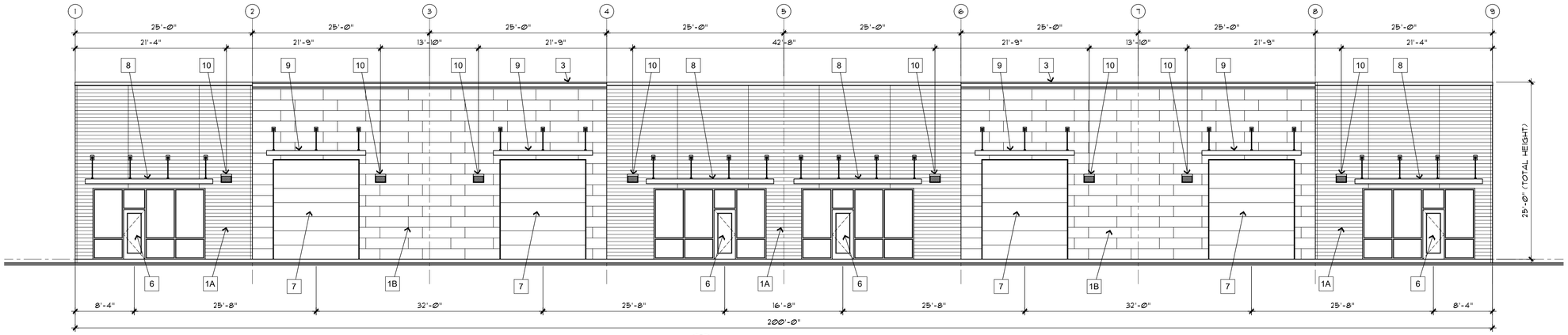
Consultant

Seal
JOHN P. WATKINS REGISTERED ARCHITECT 3629 NORTH CAROLINA COLUMBIA, S.C.

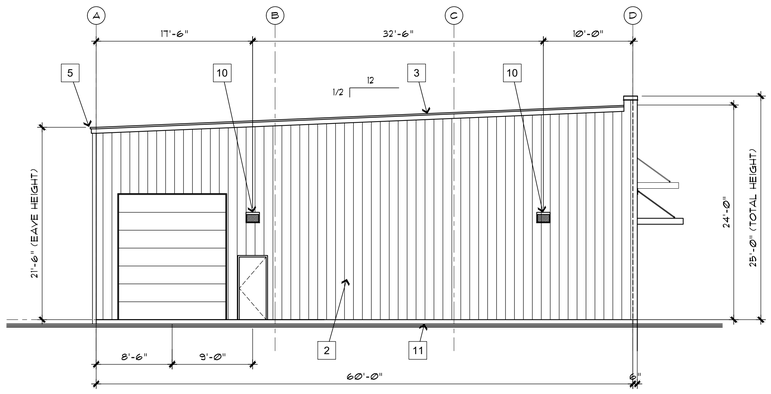
Date
APRIL 11, 2025

Drawn By
JCO

Drawing No.
A1.2



1 A2.1 FRONT ELEVATION
SCALE : 1/8" = 1' - 0"



2 A2.1 LEFT ELEVATION
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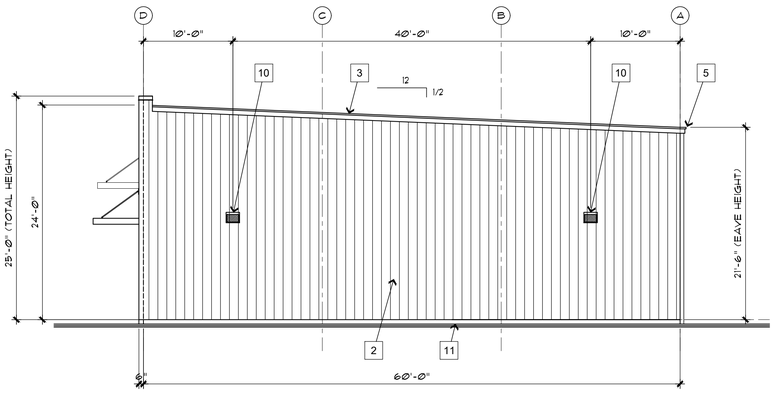
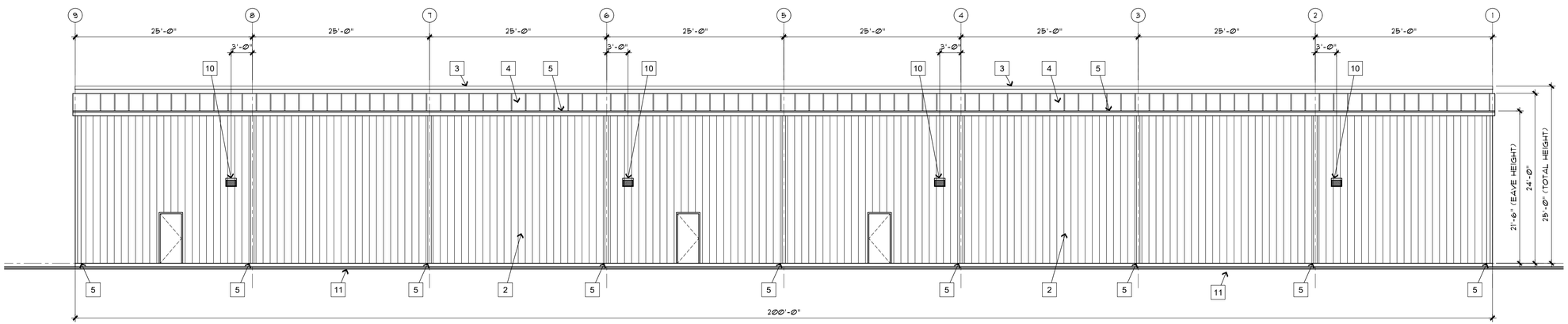


4 A2.1 RIGHT ELEVATION
SCALE : 1/8" = 1' - 0"



3 A2.1 REAR ELEVATION
SCALE : 1/8" = 1' - 0"

EXTERIOR FINISH LEGEND

1A *NICHIHA ROUGHSAWN WOOD SERIES*
"ESPRESSO" FINISH. SECURE TO 1/2" PLYWOOD SHEATHING ON 6" METAL STUDS TO PROVIDE BUMP-OUTS WHERE INDICATED.

1B *NICHIHA ARCHITECTURAL BLOCK MODERN SERIES*
"TUSCAN" FINISH. SECURE TO 1/2" PLYWOOD SHEATHING. CORNICE ABOVE IN "BONE" FINISH. REFER TO DETAIL SHEET A5.1. FINISH CORNICE TO SAME SIZE OF BUMP-OUT.

2 *PREFINISHED METAL WALL PANELS:*
PREFINISHED METAL WALL PANELS AS SELECTED BY THE OWNER ON METAL BUILDING WALL GIRTS WHERE REQUIRED BY THE METAL BUILDING MANUFACTURER.

3 *METAL TRIM:*
PREFINISHED METAL RAKE AND EAVE TRIM AS SELECTED BY THE OWNER AND PROVIDED BY THE METAL BUILDING MANUFACTURER.

4 *METAL ROOF PANELS:*
GALVALUME STANDING SEAM METAL ROOF PANELS WITH CLIPS AS REQUIRED FOR R-19 INSULATION PROVIDED BY THE METAL BUILDING MANUFACTURER. ROOF INSULATION SHALL BE R-19 VINYL FACED INSULATION WITH R-5 THERMAL BLOCKS.

5 *GUTTER AND DOWNSPOUTS:*
ALUMINUM GUTTER AND DOWNSPOUTS BY METAL BUILDING MANUFACTURER.

6 *STOREFRONT DOOR SYSTEM:*
ALUMINUM CENTER SET STOREFRONT SYSTEM WITH INSULATED GLAZING. INSTALL ALL WINDOWS ACCORDING TO THE METAL BUILDING MANUFACTURER'S AND WINDOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.

7 *OVERHEAD DOORS:*
METAL OVERHEAD DOORS AS SELECTED BY THE OWNER. INSTALL ALL OVERHEAD DOORS ACCORDING TO THE METAL BUILDING MANUFACTURER'S AND DOOR MANUFACTURER'S INSTALLATION INSTRUCTIONS.

8 *METAL CANOPY:*
18'-0" x 5'-0" ALUMINUM CANOPY BY METAL BUILDING MANUFACTURER.

9 *METAL CANOPY:*
14'-0" x 5'-0" ALUMINUM CANOPY BY METAL BUILDING MANUFACTURER.

10 *WALLPACK:*
LED WALLPACK AT 12'-0" AFF TO J-BOX. REFER TO ELECTRICAL PLANS.

11 *GRADE:*
SLOPE GRADE AWAY FROM THE BUILDING.

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JACRO DR, FUQUAY VARINA, NC

Drawing Title
EXTERIOR ELEVATIONS

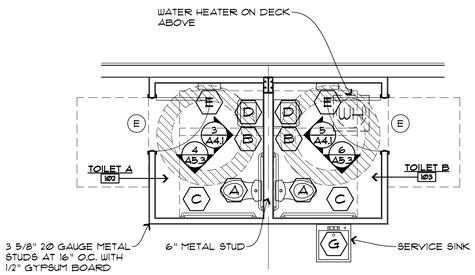
Consultant

Seal
JOHN P. WATKINS ARCHITECT REGISTERED 3629 NORTH CAROLINA COLUMBIA S.C.

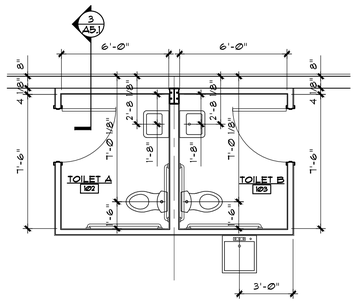
Date
APRIL 11, 2025

Drawn By
JCO

Drawing No.
A2.1



1 A4.1 TYPICAL TOILET PLAN
SCALE : 1/4" = 1' - 0"



2 A4.1 TOILET DIMENSIONED PLAN
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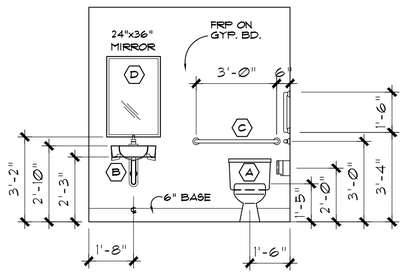
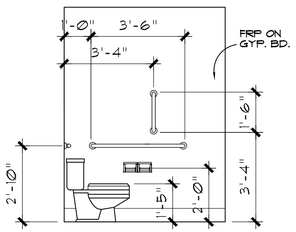
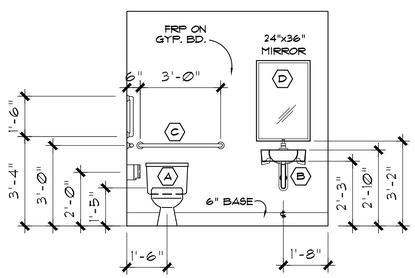


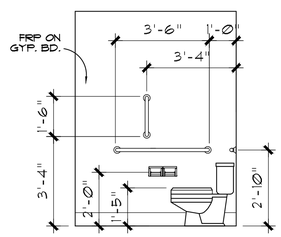
3 A4.1 INTERIOR ELEVATION
SCALE : 3/8" = 1' - 0" (TOILET A)



4 A4.1 INTERIOR ELEVATION
SCALE : 3/8" = 1' - 0" (TOILET A)



5 A4.1 INTERIOR ELEVATION
SCALE : 3/8" = 1' - 0" (TOILET B)



6 A4.1 INTERIOR ELEVATION
SCALE : 3/8" = 1' - 0" (TOILET B)

ACCESSORIES / FIXTURES LEGEND

(A) BARRIER-FREE FLOOR MOUNTED TANK TYPE WATER CLOSET. THE WATER CLOSET SHALL BE POSITIONED WITH A WALL TO THE REAR AND TO ONE SIDE. THE CENTERLINE OF THE WATER CLOSET SHALL BE 16 INCHES MINIMUM TO 18 INCHES MAXIMUM FROM THE SIDE WALL. CLEARANCE AROUND THE WATER CLOSET SHALL BE 60 INCHES MINIMUM, MEASURED PERPENDICULAR FROM THE SIDE WALL, AND 56 INCHES MINIMUM , MEASURED PERPINDICULAR FROM THE REAR WALL. NO OTHER FIXTURES OR OBSTRUCTIONS SHALL BE WITHIN THE WATER CLOSET CLEARANCE. THE TOP OF THE WATER CLOSET SEAT SHALL BE 17 INCHES MINIMUM AND 19 INCHES MAXIMUM ABOVE THE FLOOR. SEATS SHALL NOT RETURN AUTOMATICALLY TO A LIFTED POSITION. PROVIDE TISSUE DISPENSER MOUNTED AT 24" ABOVE FINISHED FLOOR ON ADJACENT WALL OR PARTITION.

(B) VITREOUS CHINA WALL MOUNTED LAVATORY WITH FAUCET AS SPECIFIED BY THE PLUMBING DRAWINGS. WRAP ALL PIPES UNDER SINK WITH INSULATION. TOP OF LAVATORY SHALL BE SET 2'-10" MAXIMUM ABOVE THE FLOOR AND PROVIDE 2'-3" CLEARANCE UNDER THE SINK. SINK SHALL BE 6 1/2 INCHES DEEP MAXIMUM.

(C) GRAB BARS SHALL HAVE A CIRCULAR CROSS SECTION WITH A DIAMETER OF 1 1/4 INCH MINIMUM AND 2 INCHES MAXIMUM. THE SPACE BETWEEN THE WALL AND THE GRAB BAR SHALL BE 1 1/2 INCHES. THE SPACE BETWEEN THE GRAB BAR AND OBJECTS BELOW AND AT THE ENDS SHALL BE 1 1/2 INCHES MINIMUM. THE SPACE BETWEEN THE GRAB BAR AND PROJECTING OBJECTS ABOVE SHALL BE 15 INCHES MINIMUM. HORIZONTAL GRAB BARS SHALL BE MOUNTED IN A POSITION 33 INCHES MINIMUM AND 36 MAXIMUM ABOVE THE FLOOR.

THE HORIZONTAL SIDE WALL GRAB BAR SHALL BE 42 INCHES LONG MINIMUM, LOCATED 12 INCHES MAXIMUM FROM THE REAR WALL AND EXTENDING 54 INCHES MINIMUM FROM THE REAR WALL.

THE VERTICAL SIDE WALL GRAB BAR SHALL BE 18 INCHES LONG MINIMUM, AND SHALL BE MOUNTED WITH THE BOTTOM OF THE BAR BETWEEN 33 INCHES AND 41 INCHES ABOVE THE FLOOR, WITH THE CENTER LINE OF THE BAR LOCATED BETWEEN 33 INCHES AND 41 INCHES FROM THE REAR WALL.

THE REAR WALL GRAB BAR SHALL BE 36 INCHES LONG MINIMUM, 6 INCHES MAXIMUM FROM THE SIDE WALL AND EXTENDING 42 INCHES FROM THE SIDE WALL.

(D) FRAMED MIRROR 24 INCHES WIDE BY 36 INCHES TALL CLIP MOUNTED AT TOP OF SPLASH. DO NOT GLUE MIRROR TO WALL.

(E) SURFACE MOUNTED PAPER TOWEL DISPENSER. MOUNT SUCH THAT PAPER TOWEL DELIVERY POINT IS 48 INCHES MAXIMUM ABOVE FINISHED FLOOR.

(F) SURFACE MOUNTED LAVATORY ON 30" WIDE VANITY WITH FAUCET AS SPECIFIED BY THE PLUMBING DRAWINGS. WRAP ALL PIPES UNDER SINK WITH INSULATION. TOP OF LAVATORY SHALL BE SET 2'-10" MAXIMUM ABOVE THE FLOOR AND PROVIDE 2'-3" CLEARANCE UNDER THE SINK. SINK SHALL BE 6 1/2 INCHES DEEP MAXIMUM.

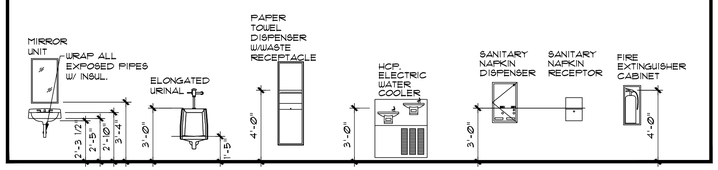
(G) MOP SINK - SEE PLUMBING DRAWINGS

PROVIDE SOLID WOOD BLOCKING FOR ALL FIXTURES AND ACCESSORIES AS REQURIED !!!

MOUNTING HEIGHTS
(ABOVE FINISHED FLOOR)

TOILET TISSUE DISPENSER :	24" TO CENTER
PAPER TOWEL DISPENSER / RECEPTICLE :	48" MAXIMUM TO PAPER DISPENSER
SOAP DISPENSER :	38" TO BOTTOM
MIRROR :	38" MAXIMUM TO BOTTOM
GRAB BARS :	34" TO CENTER
LAVATORY :	27" MIN TO BOTTOM / 34" MAX TO RIM
BARRIER-FREE WATER CLOSET :	17" MINIMUM / 19" MAXIMUM TO RIM
URINAL :	17" TO RIM
FIRE EXTINGUISHER CABINET :	48" MAXIMUM TO TOP OF EXTINGUISHER

NOTE: MOUNTING HEIGHTS SHALL MEET ALL ADA REQUIREMENTS.
SEE LEGEND FOR ACCESSORIES THAT APPLY TO THIS PROJECT



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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR, FUQUAY VARINA, NC

Drawing Title
ENLARGED FLOOR PLAN AND DETAILS

Consultant

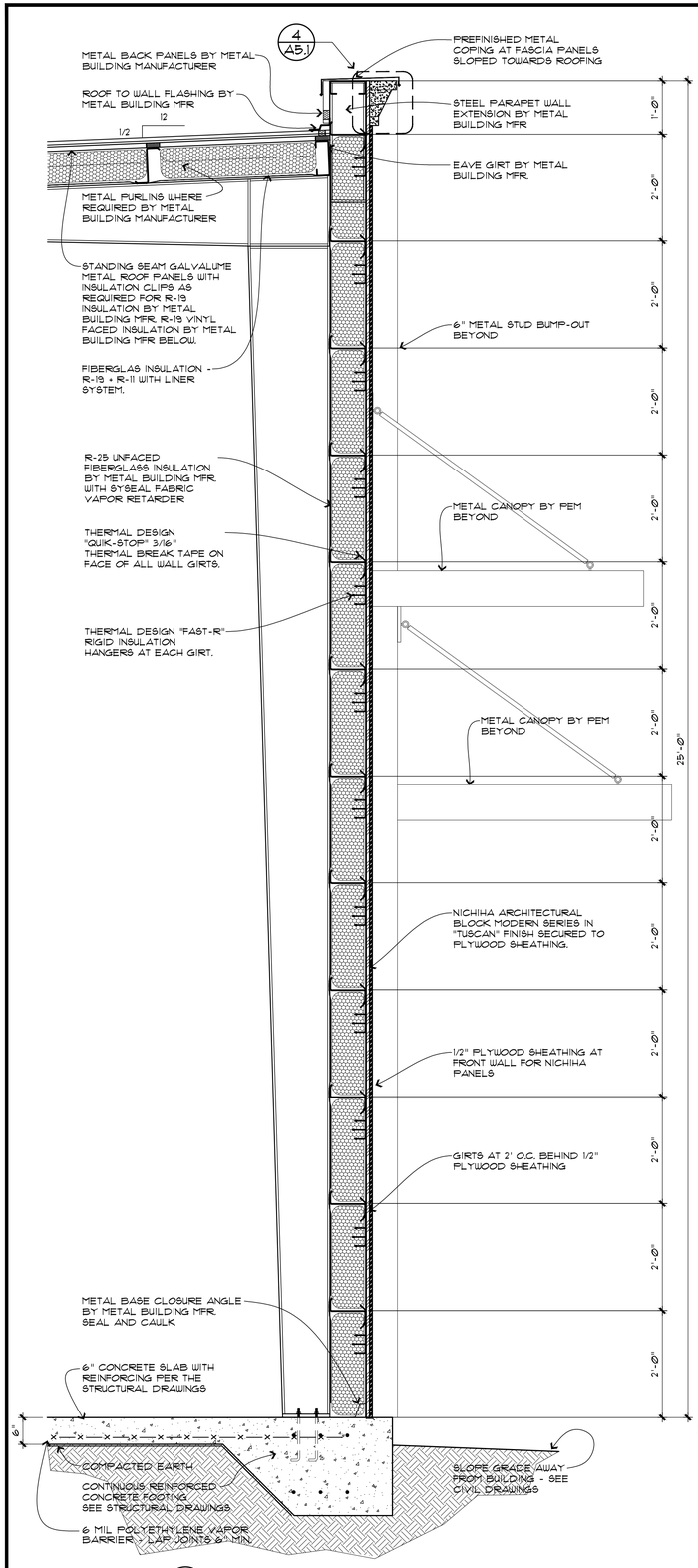
Seal

JOHN P. WATKINS REGISTERED ARCHITECT 3629 NORTH CAROLINA COLUMBIA, S.C.

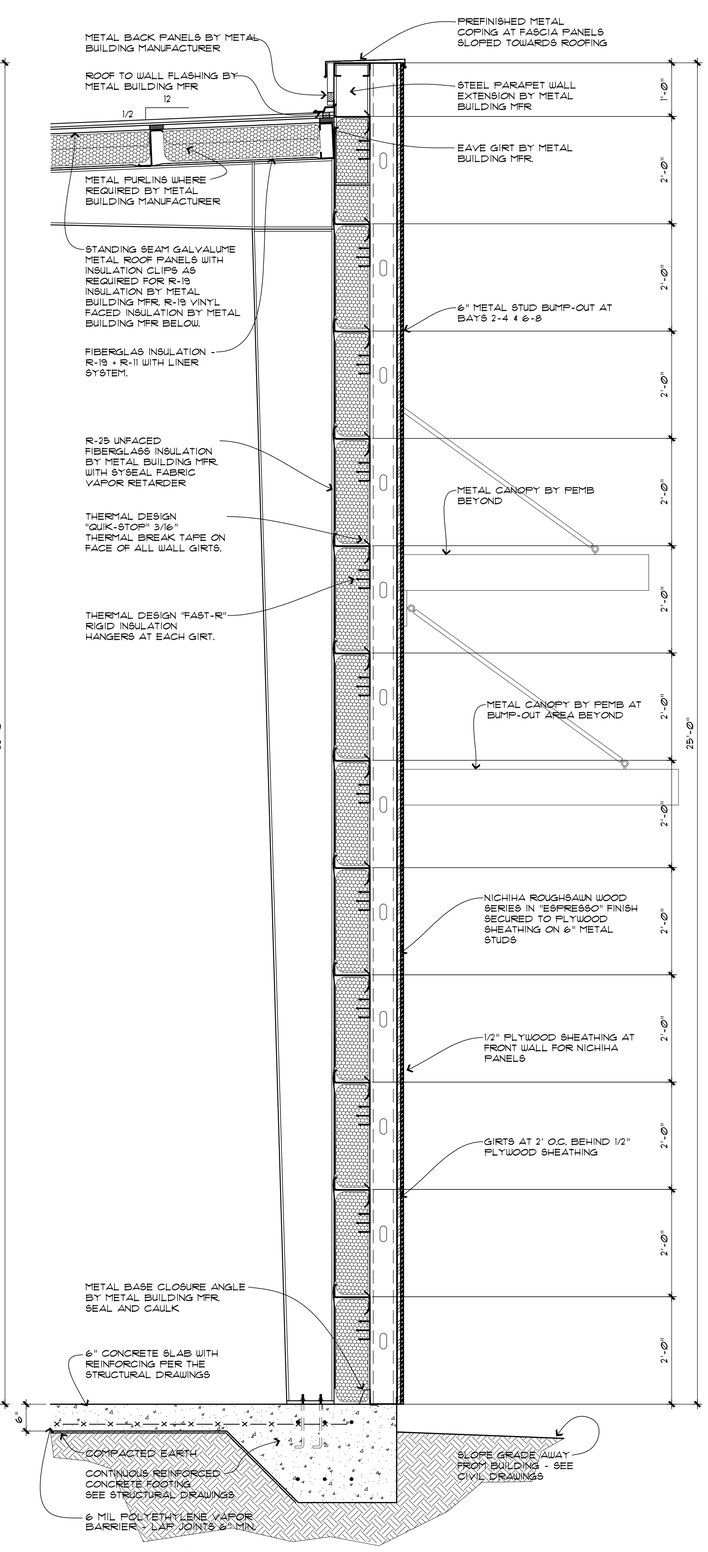
Date
APRIL 11, 2025

Drawn By
JCO

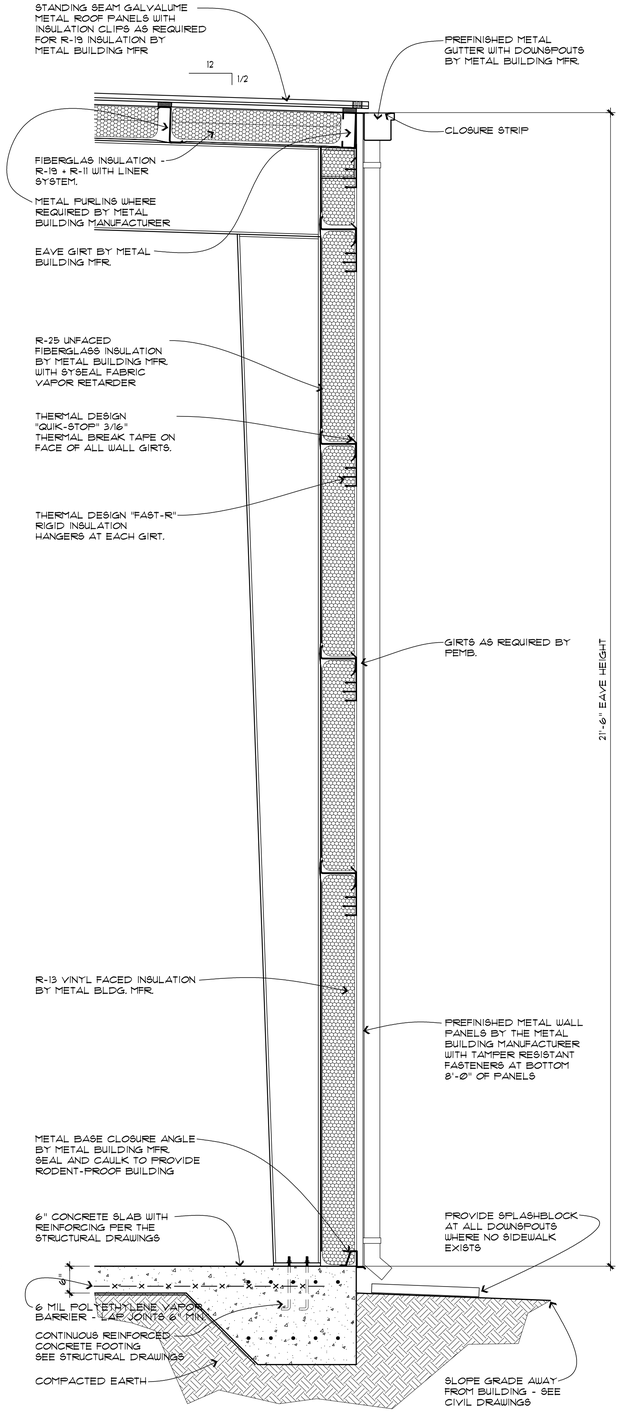
Drawing No.
A4.1



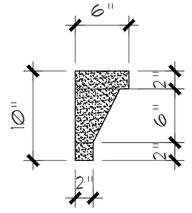
1 A5.1 SECTION AT FRONT SIDE WALL
SCALE : 3/4" = 1' - 0" (BETWEEN BAYS 1-2, 4-6, 8-9)



2 A5.1 SECTION AT FRONT SIDE WALL
SCALE : 3/4" = 1' - 0" (BETWEEN BAYS 2-4, 6-8)



3 A5.1 SECTION AT REAR SIDE WALL
SCALE : 3/4" = 1' - 0"



4 A5.1 CORNICE DETAIL
SCALE : 1-1/2" = 1' - 0"

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Project Title
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Drawing Title
WALL SECTIONS

Consultant

Seal

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Date
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Drawn By
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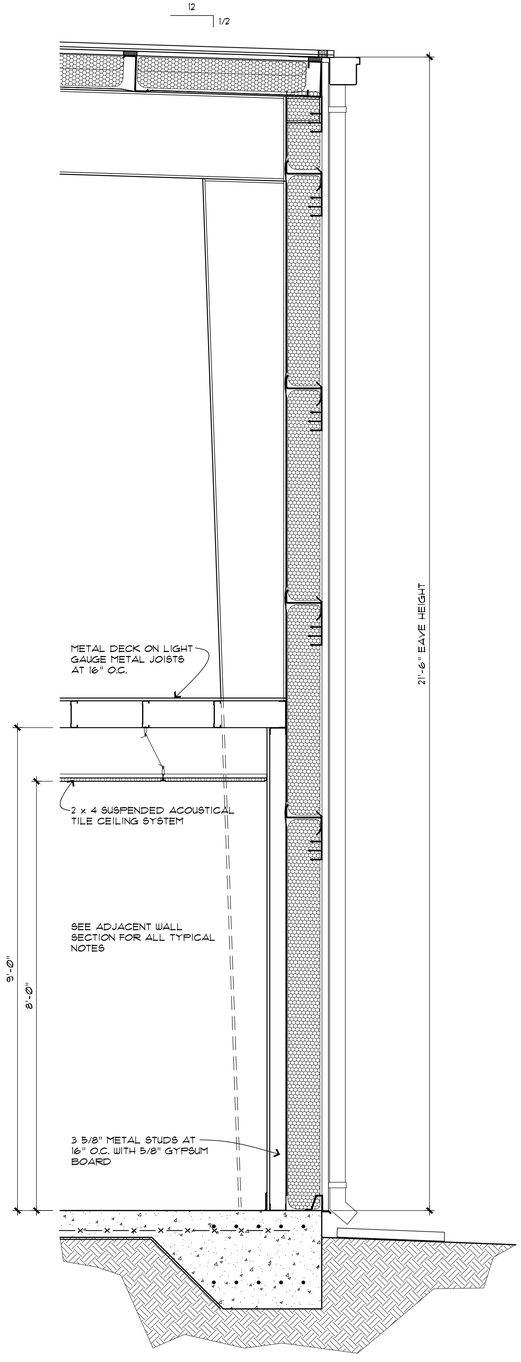
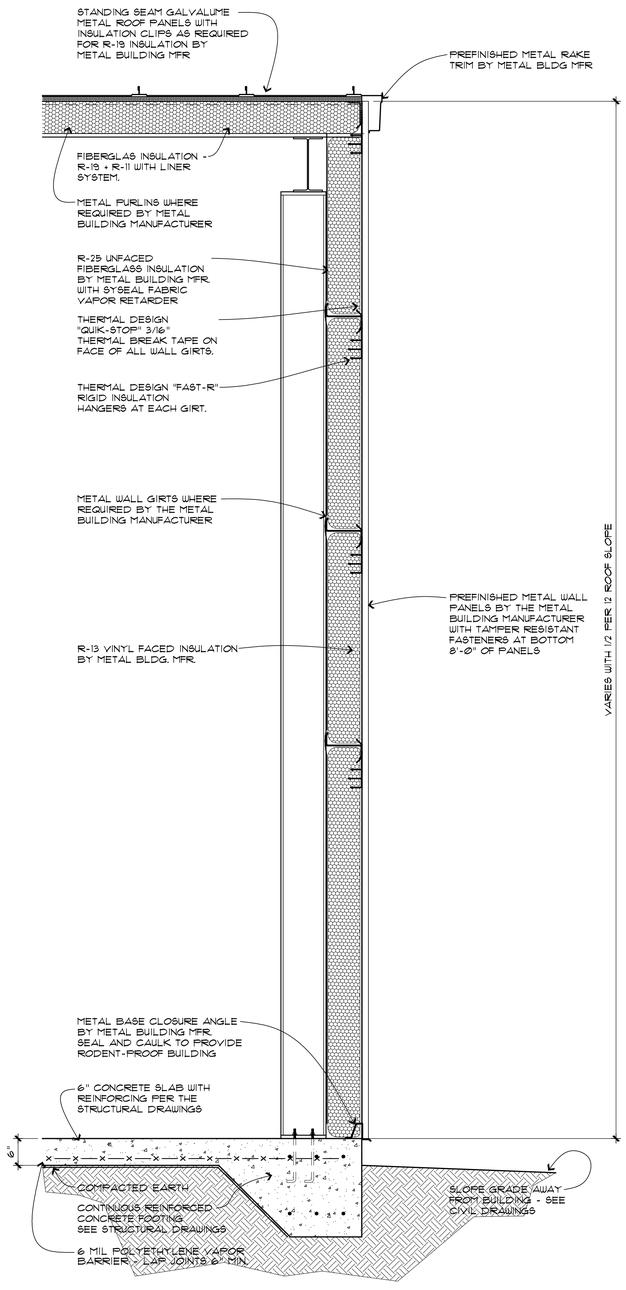
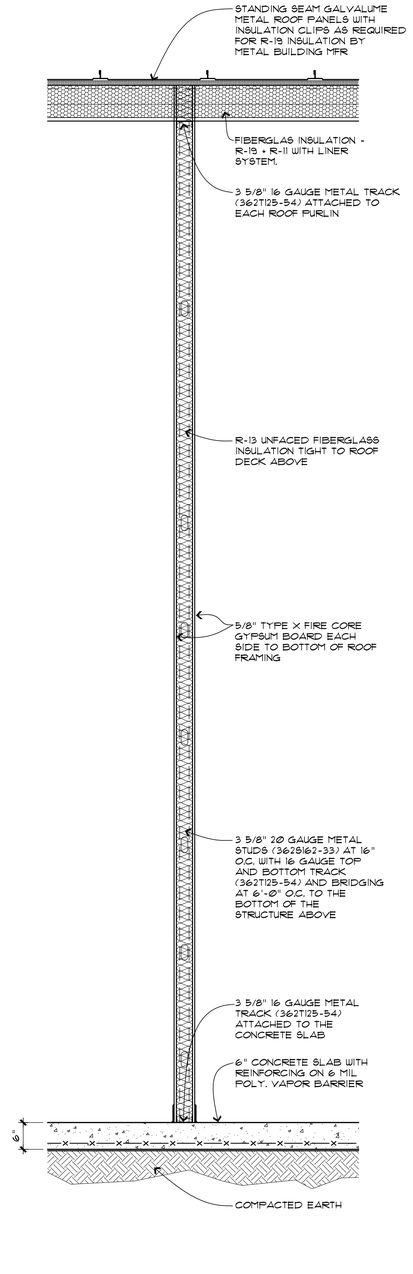


1 A5.2 SECTION AT TYPICAL TOILET
SCALE : 3/4" = 1' - 0"
(REAR SIDE WALL)



2 A5.2 SECTION AT TYPICAL END WALL
SCALE : 3/4" = 1' - 0"



3 A5.2 SECTION AT 1 HOUR RATED SEPARATION WALL
SCALE : 3/4" = 1' - 0"

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Date
APRIL 11, 2025

Drawn By
JCO

Drawing No.
A5.2

GENERAL REQUIREMENTS

1. THE STRUCTURE DESCRIBED BY THESE DOCUMENTS IS INTENDED TO WORK AS A COMPLETED STRUCTURE. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES OF CONSTRUCTION INCLUDING TEMPORARY SHORING, BRACING, AND TEMPORARY SUPPORTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR COORDINATION OF HIS OR HER WORK WITH ALL OTHER TRADES, AND FOR PERFORMING ALL WORK IN A SAFE AND SATISFACTORY MANNER.
2. ENGINEER/ARCHITECT'S APPROVAL MUST BE OBTAINED IN WRITING FOR ALL DEVIATIONS AND SUBSTITUTIONS. THE ENGINEER/ARCHITECT IS NOT RESPONSIBLE FOR THE FAILURE OF THE CONTRACTOR TO BUILD THE STRUCTURE ACCORDING TO THE DOCUMENTS.
3. THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND DIMENSIONS PRIOR TO DETAILING, FABRICATION AND CONSTRUCTION; AND SHALL NOTIFY THE ENGINEER/ARCHITECT OF ANY DISCREPANCIES.
4. OWNER SHALL EMPLOY AND PAY A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS SPECIFIED IN OTHER SECTIONS, AND THOSE REQUIRED BY AUTHORITIES HAVING JURISDICTION, INCLUDING ALL SPECIAL INSPECTIONS. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTIONS AND TESTS. RETESTING: OWNER SHALL PAY FOR RETESTING WHERE RESULTS OF INSPECTIONS AND TESTS PROVE UNSATISFACTORY AND INDICATE NONCOMPLIANCE WITH REQUIREMENTS. THE OWNER RESERVES THE RIGHT TO DEDUCT COSTS OF RETESTING FROM CONSTRUCTION CONTRACT COSTS.
5. SECTIONS SHOWN ON STRUCTURAL DRAWINGS PROVIDE TYPICAL DETAILING INFORMATION THAT SHALL BE APPLIED TO ALL SIMILAR AND LIKE CONDITIONS U.N.O. SHOP DRAWINGS SHALL DETAIL ALL CONDITIONS IN ACCORDANCE WITH PROJECT REQUIREMENTS.
6. COORDINATE FLOOR, ROOF, AND WALL OPENING SIZES AND LOCATIONS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND CIVIL PLANS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.

EARTHWORK

1. AN INDEPENDENT TESTING AGENCY SHALL BE RETAINED BY THE OWNER TO PERFORM TESTING OF EARTHWORK. ALL FOOTING AND SLAB SUB-GRADES SHALL BE INSPECTED, AND TESTED IF REQUIRED, BY THE TESTING AGENCY. ALL FILL PLACEMENT AND COMPACTION SHALL BE MONITORED BY THE TESTING AGENCY. ALL BACKFILL MATERIALS SHALL BE APPROVED BY TESTING AGENCY PRIOR TO PLACEMENT. THE ENGINEER IS NOT RESPONSIBLE FOR SUBSURFACE CONDITIONS ENCOUNTERED IN THE FIELD CONTRARY TO THOSE ASSUMED FOR DESIGN.
2. THE FOUNDATIONS ARE DESIGNED FOR 2000 PSF ALLOWABLE SOIL BEARING PRESSURE AND A SOIL SUBGRADE MODULUS (K) OF 100 PCI. CAPACITY SHALL BE APPROVED BY THE TESTING AGENCY PRIOR TO CONCRETE PLACEMENT.
3. SUBGRADE PREPARATION FOR SLAB ON GRADE SHALL BE PERFORMED IN ACCORDANCE WITH GEOTECHNICAL ENGINEERING REPORT. IN THE ABSENCE OF A GEOTECHNICAL REPORT THE INSPECTOR SHALL VERIFY THE SUBGRADE MEETS THE MINIMUM DESIGN SOIL PROPERTIES SPECIFIED ON THE CONSTRUCTION DOCUMENTS.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING ALL SERVICE AND UTILITY LINES ON THE SITE.
5. REFER TO PROJECT GEOTECHNICAL REPORT FOR ADDITIONAL INFORMATION. IN CASE OF DISCREPANCY, THE GEOTECHNICAL REPORT SHALL GOVERN UNLESS APPROVED OTHERWISE IN WRITING BY THE ENGINEER.

CAST-IN-PLACE CONCRETE

1. ALL WORK SHALL COMPLY WITH ACI 301, "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS"; ASTM C 94; AND CRSI'S "MANUAL OF STANDARD PRACTICE."
2. DESIGN OF ALL FORMWORK AND BRACING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
3. DEFORMED REINFORCING BARS: ASTM A615, GRADE 60.
4. WELDED STEEL WIRE FABRIC: ASTM A1064, FLAT SHEETS, NOT ROLLS. LAP A MINIMUM OF ONE CROSS WIRE SPACING PLUS 2 INCHES.
5. PORTLAND CEMENT: ASTM C 150, TYPE 1.
6. AGGREGATE: NORMAL WEIGHT CONCRETE, ASTM C33; LIGHT WEIGHT CONCRETE, ASTM C330.
7. FLY ASH: ASTM C 618, TYPE F.
8. PROPORTION MIX DESIGNS TO PROVIDE THE FOLLOWNG PROPERTIES:
   A. UNIT WEIGHT: NORMAL WEIGHT CONCRETE 145 PCF
      LIGHT WEIGHT CONCRETE 115 PCF
   B. AIR CONTENT: EXPOSURE CLASS F0 – 0% +2%
      EXPOSURE CLASS F1, F2, F3 – 6% ±1%
   C. CEMENTITIOUS MATERIAL: LIMIT FLY ASH TO 15 PERCENT OF TOTAL CEMENT CONTENT

APPLICATION	EXPOSURE CLASS	28 DAY STRENGTH	MAX W/C	MAX AGGREGATE
INTERIOR SLAB ON GRADE & FOOTINGS	F0	4000 PSI	0.53	1"

9. DO NOT ADD WATER TO CONCRETE DURING DELIVERY, AT PROJECT SITE, OR DURING PLACEMENT, UNLESS APPROVED BY ENGINEER.
10. PROTECT CONCRETE FROM PHYSICAL DAMAGE OR REDUCED STRENGTH DUE TO WEATHER EXTREMES DURING MIXING, PLACING, AND CURING. COMPLY WITH ACI 305R "GUIDE TO HOT WEATHER CONCRETING" AND ACI 306R "GUIDE TO COLD WEATHER CONCRETING".
11. OWNER SHALL ENGAGE AN INDEPENDENT TESTING AGENCY TO PERFORM TESTS AND TO SUBMIT TEST REPORTS TO THE ENGINEER. OBTAIN ONE COMPOSITE SAMPLE FOR EACH DAY'S POUR OF EACH CONCRETE MIXTURE EXCEEDING 5 CU. YD., BUT LESS THAN 25 CU. YD. PLUS ONE SET FOR EACH ADDITIONAL 50 CU. YD OR FRACTION THEREOF. WHEN FREQUENCY OF TESTING PROVIDES FEWER THAN FIVE COMPRESSIVE-STRENGTH TESTS FOR EACH CONCRETE MIXTURE, TESTING SHALL BE CONDUCTED FROM AT LEAST FIVE RANDOMLY SELECTED BATCHES OR FROM EACH BATCH IF FEWER THAN FIVE ARE USED. A COMPOSITE SAMPLE CONSISTS OF FIVE CYLINDERS: ONE CYLINDER TO BE TESTED AT 7 DAYS, THREE CYLINDERS TO BE TESTED AT 28 DAYS AND ONE CYLINDER TO BE RESERVED FOR 56 DAYS IF NEEDED. THE TESTING AGENCY SHALL ALSO RECORD SLUMP, AIR CONTENT, AND TEMPERATURE OF EACH CYLINDER.
12. SLAB FINISHES: REFER TO THE ARCHITECT FOR FLOOR FINISHES. PROVIDE A TROWELED FINISH FOR FLOOR SURFACES TO RECEIVE FLOOR COVERINGS, PAINT, OR OTHER THIN FILM-FINISH COATINGS. SPECIFIED OVERALL VALUES OF FLATNESS, F(F) 35; AND LEVELNESS, F(L) 25; WITH MINIMUM LOCAL VALUES OF FLATNESS, F(F) 24; AND LEVELNESS, F(L) 17. NONSLIP BROOM FINISH TO EXTERIOR CONCRETE PLATFORMS, STEPS, AND RAMPS.
13. PROVIDE A ¾" CHAMFER ON ALL EXPOSED CONCRETE EDGES, U.N.O.
14. FOR SLAB ON GRADE, FORM ⅛" WIDE CONTRACTION JOINTS WITH POWER SAWS WHEN CUTTING ACTION WILL NOT TEAR, ABRADE OR OTHERWISE DAMAGE SURFACE AND BEFORE CONCRETE DEVELOPS RANDOM CONTRACTION JOINTS. SEE DETAILS FOR ADDITIONAL INFO. UNLESS NOTED OTHERWISE, LOCATE CONTRACTION JOINTS AT COLUMN LINES WITH A MAX RATIO OF 1.5 LENGTH TO WIDTH AND NO FARTHER APART THAN 36 TIMES SLAB THICKNESS.
15. BEGIN CURING UNFORMED CONCRETE AFTER FINISHING. KEEP CONCRETE CONTINUOUSLY MOIST FOR AT LEAST 7 DAYS OR APPLY MEMBRANE-FORMING CURING COMPOUND TO CONCRETE. CONTRACTOR SHALL VERIFY COMPOUND IS COMPATIBLE WITH FLOOR COVERING/COATINGS.
16. PROTECT CONCRETE FROM DAMAGE. REPAIR SURFACE DEFECTS IN CONCRETE.

FOUNDATIONS

17. ALL EXCAVATIONS SHALL BE PROPERLY BACKFILLED, BUT NOT BEFORE CONCRETE HAS ATTAINED FULL DESIGN STRENGTH. NO BACKFILL SHALL BE PLACED AGAINST CONCRETE WALLS UNTIL CONCRETE HAS ATTAINED FULL 28-DAY STRENGTH.
18. BASEMENT WALLS (NON-CANTILEVER CAST-IN-PLACE WALLS) SHALL BE BRACED AGAINST LATERAL THRUST. SUCH BRACING SHALL REMAIN IN PLACE UNTIL SLAB ON EARTH (AND SUPPORTED SLAB, IF ANY) HAS BEEN PLACED AND GAINED 75% COMPRESSIVE STRENGTH.
19. CANTILEVER WALLS SHALL BE BRACED AGAINST LATERAL THRUST DURING BACKFILLING UNLESS COMPACTION IS PERFORMED ONLY BY HAND OPERATED EQUIPMENT IN ZONE WITHIN 5 FEET OF BACK WALL. FOUNDATION WALLS, RETAINING WALLS, AND BASEMENT WALLS HAVE NOT BEEN DESIGNED TO RESIST LATERAL LOADS DUE TO CONSTRUCTION EQUIPMENT SURCHARGE.
20. SLEEVE PLUMBING OPENINGS IN SLABS BEFORE PLACING CONCRETE AND BEND REINFORCING AROUND SLEEVES. CORING NOT PERMITTED IN FLOOR SLABS, UNLESS APPROVED BY STRUCTURAL ENGINEER. DO NOT PLACE PIPES OR DUCTS EXCEEDING ONE-THIRD THE SLAB OR WALL THICKNESS WITHIN THE SLAB OR WALL UNLESS SPECIFICALLY SHOWN AND DETAILED ON STRUCTURAL DRAWINGS. SEE MECHANICAL, ELECTRICAL, AND PLUMBING DRAWINGS FOR LOCATION OF SLEEVES, ACCESSORIES, ETC.

REINFORCING STEEL

21. PROVIDE REINFORCING STEEL CONFORMING TO ASTM A706 FOR ALL REINFORCING STEEL REQUIRED TO BE WELDED AND WHERE NOTED ON THESE DRAWINGS.
22. PROVIDE DEFORMED REBAR EMBEDMENT, LAP SPLICES, AND HOOKS AS DETAILED ON DRAWINGS. IF NOT SPECIFIED, FOLLOW ACI 301 STANDARD DETAILING REQUIREMENTS FOR THE APPROPRIATE CONDITIONS WITH CLASS B LAPS.
23. REINFORCING STEEL MARKED "CONTINUOUS" SHALL BE LAPPED WITH CLASS "B" LAP SPLICE UNLESS SPECIFICALLY DETAILED OTHERWISE. PROVIDE CONTINUOUS REINFORCEMENT WHERE EVER POSSIBLE; SPLICE ONLY AS SHOWN OR APPROVED; STAGGER SPLICES WHERE POSSIBLE; USE TENSION SPLICE (CLASS "B") UNLESS NOTED OTHERWISE. DOWELS SHALL MATCH THE SIZE AND SPACING OF THE WALL OR COLUMN SPECIFIED REINFORCEMENT AND SHALL BE LAPPED WITH TENSION SPLICES (CLASS "B"), UNLESS NOTED OTHERWISE.
24. HORIZONTAL REINFORCEMENT IN FOOTINGS, TURNDOWN SLABS, AND WALLS SHALL BE CONTINUOUS AROUND CORNERS. HORIZONTAL REINFORCEMENT SHALL CONTINUE AT BENDS AND CORNERS WITH BEND TO FAR FACE OF INTERSECTING ELEMENT IN EACH DIRECTION. ADDITIONAL HORIZONTAL CORNER BARS OF SAME SIZE AND SPACING MAY BE PROVIDED. PROVIDE CORNER BARS AT ALL TURNDOWN SLAB CORNERS AND C.I.P. CONCRETE WALL CORNERS. PROVIDE LAP SPLICE 48 TIMES BAR DIAMETER. WHERE PERPENDICULAR WALLS ARE NOT POURED CONTINUOUS, PROVIDE A KEYED JOINT WITH CORNER BARS.
25. PROVIDE SPACERS, CHAIRS, BOLTERS, ETC. AS REQUIRED TO ASSEMBLE, PLACE, AND SUPPORT ALL REINFORCING IN PLAN.

METAL BUILDING SYSTEMS

1. THE METAL BUILDING SYSTEM, INCLUDING FRAMES, GIRTS AND PURLINS, SHALL BE DESIGNED BY A REGISTERED ENGINEER IN THE STATE OF BUILDING JURISDICTION TO COMPLY WITH THE APPLICABLE BUILDING CODES.
2. THE METAL BUILDING MANUFACTURER SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR REVIEW, AND STRUCTURAL CALCULATIONS SEALED BY THE ENGINEER.
3. THE METAL BUILDING MANUFACTURER MUST BE A MEMBER COMPANY OF THE INTERNATIONAL ACCREDITATION SERVICE AC472 AND SHALL PROVIDE A CURRENT CERTIFICATE OF ACCREDITATION.
4. THE METAL BUILDING AND IT'S COMPONENTS SHALL BE DESIGNED FOR THE LOADS SHOWN IN THE STRUCTURAL DESIGN CRITERIA AND AS SPECIFIED IN THE APPLICABLE BUILDING CODES.
5. FIXED COLUMN BASES ARE NOT PERMITTED UNLESS NOTED OTHERWISE ON THE STRUCTURAL DRAWINGS.
6. THE METAL BUILDING SHALL BE DESIGNED FOR A MAXIMUM LATERAL DRIFT OF H/100 USING A 10 YEAR WIND LOAD OCCURRENCE.
7. GIRTS SHALL BE DESIGNED FOR A MAXIMUM HORIZONTAL WIND DEFLECTION OF L/240 BASED ON A 10 YEAR OCCURRENCE.
8. PURLINS SHALL BE DESIGNED FOR A MAXIMUM DEFLECTION OF L/240 UNDER TOTAL LOAD.
9. FABRICATION TOLERANCES SHALL COMPLY WITH THE MBMA'S "METAL BUILDING SYSTEMS MANUAL" FOR FABRICATION AND ERECTION TOLERANCES.
10. ERECT STRUCTURAL STEEL ACCORDING TO AISC SPECIFICATIONS AND WITHIN ERECTION TOLERANCES OF AISC'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."
11. COMPLY WITH AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A 325 OR A 490 BOLTS," AND AWS D1.1 "STRUCTURAL WELDING CODE--STEEL."
12. STRUCTURAL-STEEL: COMPLY WITH AISC 360, "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS," FOR DESING REQUIREMENTS AND ALLOWABLE STRESSES.
13. COLD-FORMED STEEL: COMPLY WITH AISI's "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" FOR DESIGN REQUIREMENTS AND ALLOWABLE STRESSES.
14. ANCHOR RODS, BOLTS, NUTS, AND WASHERS: ASTM F1554, GRADE 55, UNHEADED RODS (SUPPLIED BY GENERAL CONTRACTOR PER STRUCTURAL DRAWINGS). SEE METAL BUILDING DRAWINGS FOR BOLT DIAMETER AND QUANTITIES.

SPECIAL INSPECTION NOTES

1. SPECIAL INSPECTION IS TO BE PROVIDED IN ADDITION TO THE INSPECTIONS CONDUCTED BY THE DEPARTMENT OF BUILDING SAFETY AND SHALL NOT BE CONSTRUED TO RELIEVE THE OWNER OR HIS AUTHORIZED AGENT FROM REQUESTING THE PERIODIC AND CALLED INSPECTIONS BY THE BUILDING CODE.
2. OWNER, OR OWNER'S AGENT, SHALL EMPLOY AND PAY A QUALIFIED INDEPENDENT TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS SPECIFIED IN INSPECTION TABLES ON THIS SHEET, AND THOSE REQUIRED BY AUTHORITIES HAVING JURISDICTION. CONTRACTOR IS RESPONSIBLE FOR SCHEDULING INSPECTIONS AND TESTS.
3. THE INSPECTOR(S) SHALL HAVE THE RELEVANT TRAINING & EXPERIENCE REQUIRED TO PERFORM THE NECESSARY INSPECTIONS. THE INSPECTOR SHALL WORK UNDER THE SUPERVISION OF AN ENGINEER LICENSED IN THE STATE OF JURISDICTION.
4. THE GENERAL CONTRACTOR SHALL ENSURE THE WORK REMAINS ACCESSIBLE FOR INSPECTION UNTIL THE WORK HAS BEEN INSPECTED AND APPROVED.
5. THE INSPECTOR(S) SHALL MAINTAIN RECORDS OF INSPECTIONS. COPIES OF THE RECORDS SHALL BE PROVIDED TO THE BUILDING OFFICIAL AND OWNER. IF WORK DOES NOT PASS INITIAL INSPECTION, THE INSPECTOR SHALL PROVIDE A REPORT TO THE STRUCTURAL ENGINEER OF RECORD, ARCHITECT AND GENERAL CONTRACTOR WITHIN 24 HOURS. THE WORK SHALL BE CORRECTED BY THE CONTRACTOR AND RE-INSPECTED PRIOR TO COVERING UP THE WORK. A REPORT INDICATING THE DISCREPANCIES HAVE BEEN CORRECTED SHALL BE FURNISHED TO ALL PARTIES BY THE INSPECTOR.
6. THE SPECIAL INSPECTOR SHALL NOTIFY THE ENGINEER OF RECORD AND GENERAL CONTRACTOR IN WRITING WHEN ALL INSPECTIONS HAVE BEEN COMPLETED AND ANY DEFICIENCIES HAVE BEEN CORRECTED AND APPROVED.

SHOP DRAWING SUBMITTALS

1. SUBMIT NEWLY PREPARED INFORMATION DRAWN TO SCALE. INDICATE DEVIATIONS FROM CONTRACT DOCUMENTS. DO NOT REPRODUCE CONTRACT DOCUMENTS OR COPY STANDARD INFORMATION. DOCUMENTS REPRODUCED FROM FULLER GROUP, LLC DOCUMENTS WITHOUT WRITTEN PERMISSION, WILL BE REJECTED. COMPLIANCE WITH SPECIFIED REQUIREMENTS REMAINS CONTRACTOR'S RESPONSIBILITY.
2. ALLOW A MINIMUM OF 10 WORKING DAYS FOR SUBMITTAL REVIEWS.
3. ELECTRONIC COPIES WILL BE ACCEPTED BUT WILL INCUR PRINTING CHARGES BILLED TO THE CLIENT.
4. SHOP DRAWINGS SHALL BE REVIEWED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO ENGINEER. SHOP DRAWINGS NOT REVIEWED BY THE GENERAL CONTRACTOR MAY BE SUBJECT TO REJECTION.
5. THE CONTRACT DOCUMENTS SHALL NOT BE SCALED FOR DETERMINING DIMENSIONS OR QUANTITIES. USE ONLY PRINTED DIMENSIONS. ANY SCALED DIMENSIONS SHALL ASK FOR VERIFICATION ON THE SHOP DRAWING REVIEW.
6. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN. THE DETAILER SHALL REFER TO ARCHITECTURAL DRAWINGS FOR WALL, DOOR, AND WINDOW LOCATIONS. DIMENSIONS ON THE ARCHITECTURAL DRAWINGS SUPERCEDE DIMENSIONS SHOWN ON STRUCTURAL PLANS. NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
7. PROVIDE THE FOLLOWING SUBMITTALS:
   A. CONCRETE
      1. CONCRETE MIX DESIGNS WITH SAMPLE LABORATORY TEST REPORTS PER ACI 318
      2. CONCRETE ADMIXTURE PRODUCT DATA
      3. REBAR SHOP DRAWINGS
      4. CONCRETE SAMPLE CYLINDER BREAK RESULTS (7 DAYS, 28 DAYS)
   B. PRE-ENGINEERED METAL BUILDING
      1. SHOP DRAWINGS
      2. FOUNDATION REACTIONS AND CALCULATION PACKAGE STAMPED BY A REGISTERED PROFESSIONAL ENGINEER

DESIGN LOAD CRITERIA

This analysis is made utilizing the 2018 North Carolina State Building Code, (2015 IBC).

ROOF DESIGN LOADS	
Dead Load	Per PEMB
Collateral Load	6 psf
Live Load	20 psf / Reducible
SNOW LOADS	
Ground Snow Load, P_g	15 psf
Exposure Factor, C_e	1.0
Thermal Factor, C_t	1.1
Importance Factor, I_s	1.0
Slope Factor, Cs	1.0
Drift Surcharge Load, P_d	5.5 psf
Width of Snow Drift, w	2.73 ft
Rain on Snow Surcharge	5 psf
Flat Roof Snow Load, P_f	11.55 psf + Rain on Snow
RAIN INTENSITY, I	3.38 in/hr
WIND LOADS	
Basic Design Wind Speed, V	115 mph
Allowable Stress Design Wind Speed, V_{asd}	90 mph
Wind Exposure	C
Internal Pressure Coefficient	+.18, -.18
Risk Category	II
Height & Exposure Adjustment, λ	1.0
Wind Directionality Factor, Kd	0.85
Topographic Factor, Kzt	1.0
SEISMIC LOADS	
Importance Factor, I_e	1.0
Risk Category	II
Site Class	D
S_s (Mapped)	0.173 g
S_1 (Mapped)	0.083 g
S_{DS}	0.184 g
S_{D1}	0.133 g
Design Category	B
Basic Seismic Force-Resisting System	Steel System Not Specifically Designed for Seismic
Response Coefficient, Cs	0.062
Response Modification Factor, R	3.0
Design Base Shear	9.26K
Analysis Procedure	Equivalent Lateral Force

ABBREVIATIONS

ADD'L	ADDITIONAL
ARCH	ARCHITECT
B/XXX	BOTTOM OF XXX
BOH	BOTTOM OF HEADER
BOS	BOTTOM OF STEEL
BOT.	BOTTOM
BRG	BEARING
CL	CENTER LINE
CLR	CLEAR
CJ	CONTROL JOINT
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC.	CONCRETE
CONN.	CONNECTION
CONT.	CONTINUOUS
DIA	DIAMETER
DWG	DRAWING
(E)	EXISTING
EA.	EACH
EF	EACH FACE
ELEV.	ELEVATION
EMBED	EMBEDMENT
EOD	EDGE OF DECK
EOJ	END OF JOIST
EOR	ENGINEER OF RECORD
EOS	EDGE OF SLAB
EQ	EQUAL
E.W.	EACH WAY
(F)	FUTURE
FFE	FINISHED FLOOR ELEVATION
FLR.	FLOOR
FIN.	FINISHED
FOB	FACE OF BRICK
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FS	FAR SIDE
FTG	FOOTING
GALV.	GALVANIZED
G.C.	GENERAL CONTRACTOR
(H)	HOOK
HDG	HOT-DIP GALVANIZED
HORIZ.	HORIZONTAL
HS	HIGH STRENGTH
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LONG	LONGITUDINAL
LSH	LONG SIDE HORIZONTAL
LSV	LONG SIDE VERTICAL
LT. GA.	LIGHT GAUGE
MANUF.	MANUFACTURER
MAX	MAXIMUM
MECH	MECHANICAL
MIN	MINIMUM
MSH	METAL STUD HEADER
NIC	NOT IN CONTRACT
NS	NEAR SIDE
O.C.	ON CENTER
O.H.	OPPOSITE HAND
P.A.F.	POWER-ACTUATED FASTENER
PL	PLATE
P.T.	PRESSURE TREATED
REINF.	REINFORCING
REF.	REFERENCE
REQ'D	REQUIRED
R.O.	ROUGH OPENING
RTU	ROOF TOP UNIT
SCHED.	SCHEDULE
SIM	SIMILAR
SJ	SLAB JOINT
SOG	SLAB-ON-GRADE
STD	STANDARD
T&B	TOP AND BOTTOM
T/XXX	TOP OF XXX
TOS	TOP OF STEEL
TRANS	TRANSVERSE
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
VERT.	VERTICAL
V.I.F.	VERIFY IN FIELD
W/	WITH
W.P.	WORK POINT
WWF	WELDED WIRE FABRIC

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Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR, FUQUAY VARINA, NC

Drawing Title
GENERAL NOTES AND DESIGN CRITERIA

Consultant

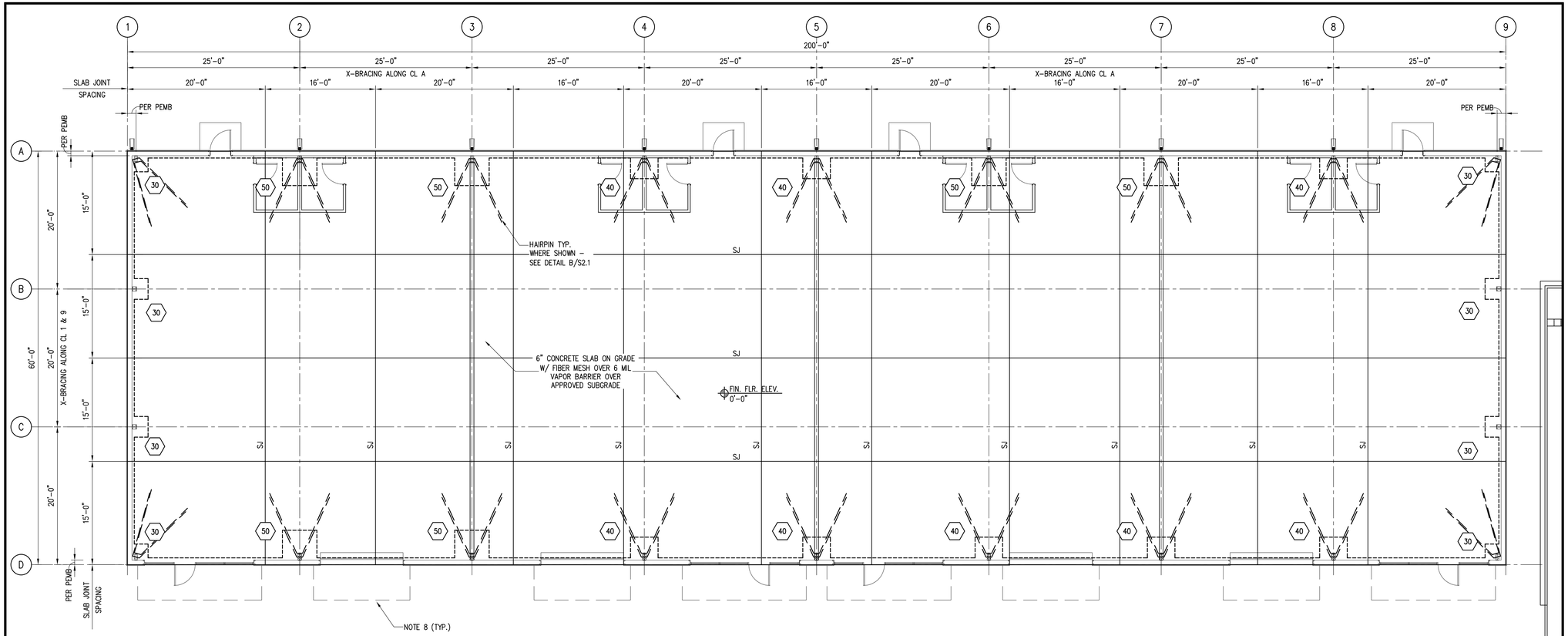
Seal

NORTH CAROLINA PROFESSIONAL SEAL 044856 ENGINEER CRAIG A. YOUNG 4-825

Date
FEBRUARY 7, 2025

Drawn By
NLH

Drawing No.
SO.1



1 FOUNDATION PLAN
S1.1

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

LEGEND

EOS	EDGE OF SLAB
SJ	SAWN JOINT - SEE A/S2.1
⟨30⟩	FOOTING TYPE - SEE SCHEDULE

NOTE:
CIVIL DRAWINGS WERE NOT PROVIDED AT TIME OF DEVELOPMENT OF THESE CONSTRUCTION DOCUMENTS. DOCUMENTS HAVE BEEN DESIGNED AS IF THE SITE IS FLAT. CIVIL DRAWINGS SHALL BE SUBMITTED PRIOR TO BEGINNING CONSTRUCTION TO THE ENGINEER OF RECORD.

NOTE:
FINAL GEOTECHNICAL REPORT RECOMMENDATIONS WERE NOT PROVIDED AT TIME OF DEVELOPMENT OF THESE DOCUMENTS. ASSUMPTIONS REGARDING FROST DEPTH, BEARING CAPACITY AND SUBGRADE WILL NEED TO BE VERIFIED AND MAY IMPACT THE DESIGN SHOWN.

NOTES TO METAL BUILDING MANUFACTURER

1. METAL BUILDING DRAWINGS TO BE SEALED & SIGNED BY AN ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA.
2. ALL STEEL COLUMNS, GIRTS & ROOF FRAMING BY METAL BUILDING MANUFACTURER.
3. NO FIXED BASES ALLOWED UNLESS SPECIFIED ON DWG.
4. FOR ANCHOR BOLT & COLUMN SIZES & LOCATIONS SEE METAL BUILDING DRAWINGS. ANCHOR BOLTS SHALL BE FABRICATED AS PER DETAIL C/S2.1

FOOTING SCHEDULE			
TYPE	SIZE	THICKNESS	REINFORCING
⟨30⟩	3'-0"x3'-0"	1'-10"	(5) #5 EACH WAY
⟨40⟩	4'-0"x4'-0"	1'-10"	(7) #5 EACH WAY
⟨50⟩	5'-0"x5'-0"	1'-10"	(8) #5 EACH WAY

FOUNDATION PLAN NOTES

1. SEE SHEET S0.1 FOR GENERAL NOTES & DESIGN CRITERIA.
2. ELEVATIONS GIVEN ARE SET FROM REFERENCE ELEVATION. REFERENCE ELEVATION (+0'-0") IS SET AT FINISHED FLOOR ELEV. SEE CIVIL DRAWINGS FOR ADDITIONAL INFORMATION.
3. REFER TO ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND DRAWINGS OF OTHER DISCIPLINES FOR LOCATIONS AND DIMENSIONS OF OPENINGS, DEPRESSIONS, AND OTHER NON-STRUCTURAL ITEMS.
4. TYPICAL SLAB-ON-GRADE IS 6" NORMAL WEIGHT CONCRETE REINFORCED W/ 6x6 - W2.9xW2.9 WWF OVER 10 MIL VAPOR BARRIER, OVER APPROVED SUBBASE OVER APPROVED SUBGRADE PREPARED IN ACCORDANCE W/ GEOTECHNICAL REPORT. LOCATE REINFORCING 1½" CLR. FROM T/SLAB.
5. PROVIDE (2) #3x3'-0" IN TOP OF SLAB @ ALL RE-ENTRANT CORNERS NOT INTERSECTING A SLAB JOINT.
6. LOCATE SLAB JOINTS @ 20'-0" O.C. MAX. SLAB JOINTS SHALL BE LOCATED TO MAINTAIN A MAXIMUM PANEL ASPECT RATIO OF 1.5 TO 1.0. SLAB JOINTS SHALL BE CONSTRUCTED PER DETAIL A/S2.1.
7. SEE C/S2.1 FOR ANCHORAGE DETAILS.
8. U.N.O. CANOPY FRAMING & ATTACHMENT IS BY OTHERS. SEE ARCHITECTURAL FOR ADDITIONAL INFORMATION.

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JARCO DR, FUQUAY VARINA, NC

Drawing Title
FOUNDATION PLAN

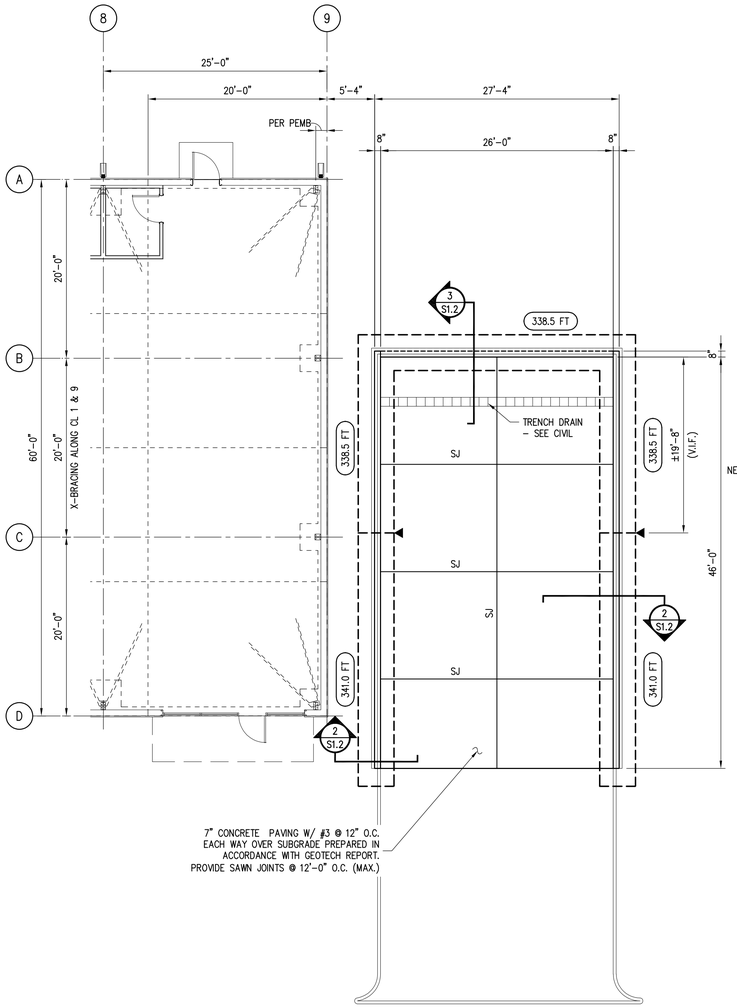
Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 044858 ENGINEER NICASIO G. YCONG
4-825

Date
FEBRUARY 7, 2025

Drawn By
NLH

Drawing No.
S1.1



1 S1.2 TRUCK DOCK FOUNDATION PLAN

SCALE : ⅛" = 1'-0"

LEGEND

SJ	SAWN JOINT - SEE A/S3.1
EOS	EDGE OF SLAB
▶— —	STEP IN FOOTING - SEE DETAIL B/S1.2
???.?? FT	T/FOOTING ELEVATION

NOTE:
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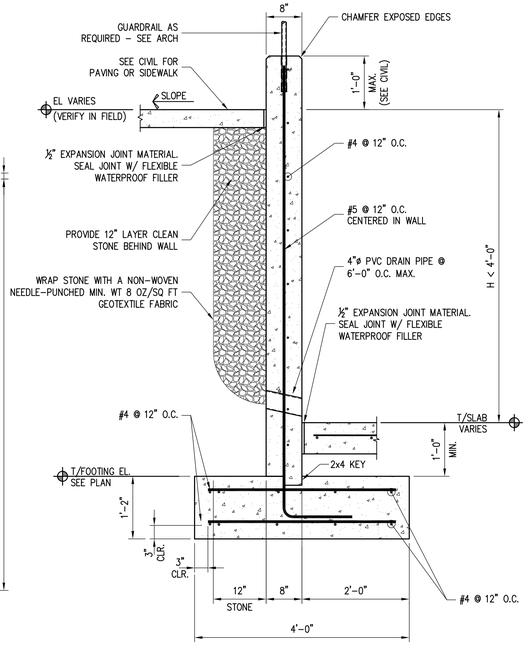
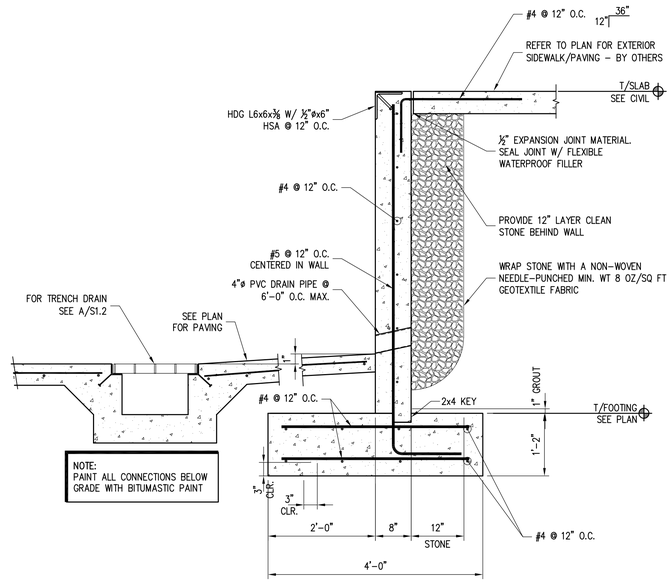


2 S1.2 SECTION

SCALE : ¾" = 1'-0"



3 S1.2 SECTION

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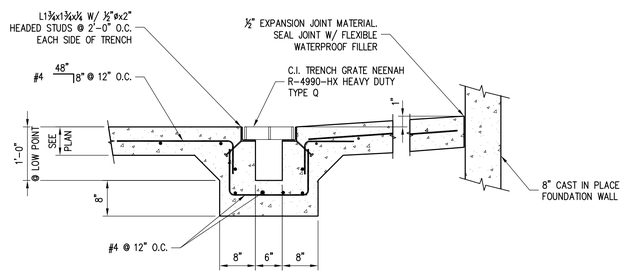
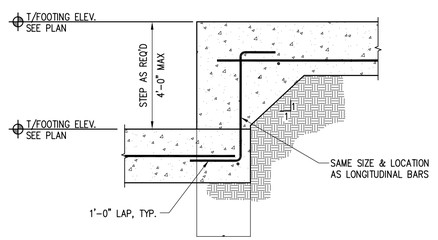


A S1.2 DETAIL

SCALE : ¾" = 1'-0"



B S1.2 DETAIL

SCALE : ¾" = 1'-0"

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Drawing Title
TRUCK DOCK FOUNDATION PLAN
AND DETAILS

Consultant

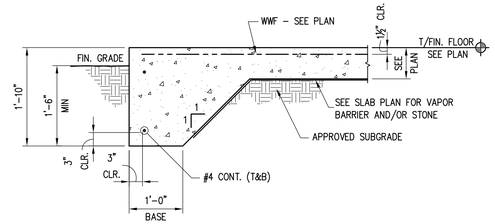
Seal

NORTH CAROLINA PROFESSIONAL SEAL 044858 ENGINEER MICAH G. YOUNG 4-825

Date
FEBRUARY 7, 2025

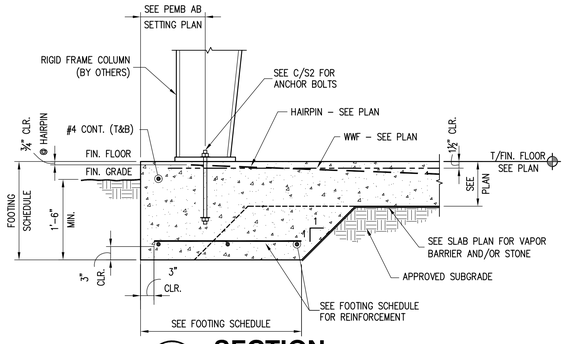
Drawn By
NLH

Drawing No.
S1.2



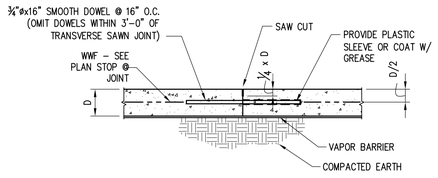
1 S2.1 **SECTION**

SCALE: ¾"=1'-0"

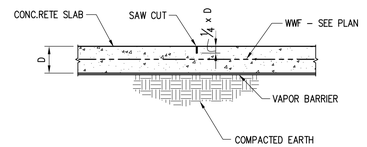


2 S2.1 **SECTION**

SCALE: ¾"=1'-0"



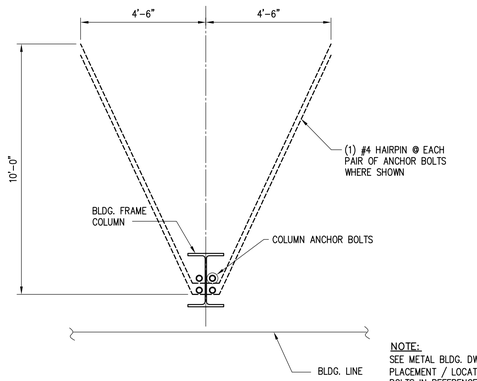
TYP. CONSTRUCTION JOINT



TYP. SAWN JOINT

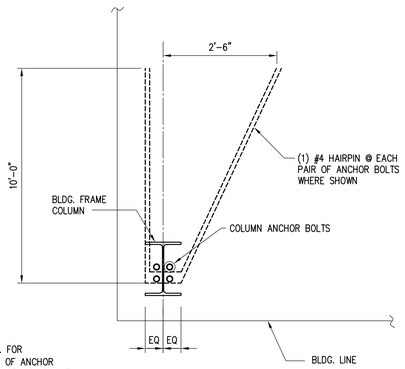
A S2.1 **TYPICAL SLAB JOINT DETAILS**

SCALE: NTS



FRAME COLUMN HAIRPIN DETAIL

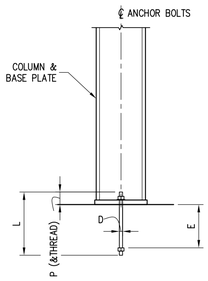
NOTE:
SEE METAL BLDG. DWGS. FOR PLACEMENT / LOCATION OF ANCHOR BOLTS IN REFERENCE TO BUILDING LINE



CORNER COLUMN HAIRPIN DETAIL

B S2.1 **DETAIL**

SCALE: NTS



TYP. ANCHOR BOLT (F1334 GR 50 STEEL)

ANCHOR BOLT SCHEDULE

D	E	P	L
½"	6"	2"	10"
⅝"	7½"	2"	11½"
¾"	9"	2¼"	13¼"
⅞"	10½"	2¾"	15¼"
1"	12"	3"	17"
1¼"	15"	3¾"	20¾"
1½"	18"	4½"	24½"
1¾"	21"	5¼"	28¼"
2"	25"	6"	33"

C S2.1 **DETAIL**

SCALE: NTS

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Seal

NORTH CAROLINA PROFESSIONAL SEAL 044858 ENGINEER LUCAS G. YOUNG 4-825

Date
FEBRUARY 7, 2025

Drawn By
NLH

Drawing No.
S2.1

GENERAL PLUMBING NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC - PLUMBING CONTRACTOR,
   EC - ELECTRICAL CONTRACTOR,
   MC - MECHANICAL CONTRACTOR,
   GC - GENERAL CONTRACTOR,
   FASC - FIRE ALARM SYSTEM CONTRACTOR.
   SPC- CURRENT STATE PLUMBING CODE (2018 NORTH CAROLINA STATE BUILDING CODE: PLUMBING CODE)
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE PLUMBING CONTRACTOR SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR.
3. THE PC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATIONAL SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED AT AN APPROVED LOCATION. PC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE PC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5. ALL MATERIALS USED SHALL BE NEW AND FREE OF DEFECTS. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED AT NO EXPENSE TO THE OWNER. ALL MATERIALS AND EQUIPMENT SHALL BEAR APPROVAL FROM UL OR AN APPROVED THIRD-PARTY AGENCY. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, IT IS TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
6. THE PLUMBING SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE SPC AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE CONTRACTOR SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
7. THE PC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
8. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
9. THESE PLANS ARE DIAGRAMMATIC. THE PC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, FIXTURES, PIPING, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE PC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
10. THE PC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. CONTRACTOR SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. TO AVOID POTENTIAL CONFLICTS, COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
11. ALL UNDERGROUND UTILITIES SHALL BE LOCATED PRIOR TO ANY DIGGING.
12. TRENCHING, COMPACTION, AND BACKFILL SHALL BE BY PC AND SHALL BE IN ACCORDANCE WITH SECTION 306 OF THE SPC. UNDERGROUND LINES SHALL BE LOCATED SUCH THAT THEY DO NOT ENDANGER FOOTINGS OR FOUNDATION WALLS.
13. THE PC SHALL PROVIDE FIRESTOPPING AT ALL PENETRATIONS OF RATED FLOOR/CEILING ASSEMBLIES AND RATED WALL ASSEMBLIES TO PRESERVE OR RESTORE THE FIRE RESISTANCE RATING. SEAL ALL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THE PROJECT.
14. SYSTEM TESTING SHALL BE PERFORMED BY PLUMBING CONTRACTOR IN ACCORDANCE WITH SPC, SECTIONS 312.2, 312.3, AND 312.5.
15. PC SHALL DISINFECT THE ENTIRE DOMESTIC WATER PIPING SYSTEM IN ACCORDANCE WITH THE AMERICAN WATER WORKS ASSOCIATION'S SPECIFICATIONS AND LOCAL HEALTH DEPARTMENT REGULATIONS.
16. AT THE COMPLETION OF WORK AND PRIOR TO ACCEPTANCE BY OWNER, THE PC SHALL CLEAN ALL EXPOSED FIXTURES, MATERIALS, AND EQUIPMENT UNDER THIS CONTRACT.
17. PC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.
18. ALL PLUMBING SCOPE IS WITHIN FIVE (5) FEET OF EXTERIOR OF BUILDING OR AS SHOWN ON PLANS.

METHODS:

1. EXTEND DOMESTIC WATER PIPE AS INDICATED ON THE PLANS AND INSTALL DOMESTIC WATER DISTRIBUTION PIPING TO ALL FIXTURES AND EQUIPMENT REQUIRING THE SAME. WATER SERVICE PIPE AND THE BUILDING SEWER SHALL BE SEPARATED BY 5 FEET OF UNDISTURBED OR COMPACTED EARTH IN ACCORDANCE WITH 603.2 SPC. PROVIDE ALL FITTINGS, VALVES, AND OTHER ACCESSORIES AS NECESSARY FOR A COMPLETE INSTALLATION. ALL DOMESTIC WATER PIPING SHALL BE CONCEALED IN FINISHED AREAS. ANY OPEN ENDS SHALL BE PROTECTED UNTIL FINAL CONNECTIONS ARE MADE.
2. ABOVE GRADE DOMESTIC WATER PIPING SHALL BE SLOPED AT A MINIMUM OF 1/32 INCH PER FOOT AND ARRANGED TO DRAIN AT LOW POINTS. INSTALL PIPING TO ALLOW FOR EXPANSION AND CONTRACTION WITHOUT STRESSING PIPE, JOINTS, OR CONNECTED EQUIPMENT. ROUTE PIPING IN AN ORDERLY MANNER-PARALLEL OR PERPENDICULAR TO WALLS WHEN POSSIBLE-AND MAINTAIN GRADIENT. EACH SUPPLY BRANCH LINE SERVING MORE THAN ONE FIXTURE SHALL HAVE A SHUTOFF VALVE INSTALLED TO ISOLATE ALL FIXTURES AND PIECES OF EQUIPMENT SUPPLIED BY THE BRANCH LINE. THE SHUTOFF VALVE SHALL BE LABELED AND LOCATED AS CLOSE TO THE CONNECTION TO THE SUPPLY MAIN AND RISER AS POSSIBLE. PROVIDE A FULL-OPEN VALVE ON THE BASE OF EVERY WATER RISER PIPE AND ON THE TOP OF EVERY WATER DOWN-FEED PIPE. PROVIDE VALVE HANDLE EXTENSIONS AS NECESSARY FOR INSULATION.
3. IT SHALL BE THE RESPONSIBILITY OF THE PC TO SUSPEND AND SUPPORT ALL PIPING SYSTEMS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED PIPE HANGERS AND SUSPENSION EQUIPMENT. ALL FIXTURES, DEVICES, AND EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE FIXTURE OR EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT AND PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING. USE STEEL HANGERS FOR STEEL AND PLASTIC PIPE AND COPPER OR COPPER-PLATED HANGERS FOR COPPER PIPE. PROVIDE PROTECTION FOR COPPER PIPING IN CONTACT WITH DISSIMILAR METALS. WHERE COPPER PIPING IS SUPPORTED ON HANGERS WITH OTHER PIPING, PROVIDE A PERMANENT ELECTROLYTIC ISOLATION MATERIAL TO PREVENT CONTACT WITH OTHER METALS. IN GENERAL, HANGERS SHALL BE CLEVIS TYPE, STANDARD WEIGHT. FOR PIPING, HANGER SPACING SHALL BE IN ACCORDANCE WITH TABLE 308.5 OF THE SPC. HANGERS AND ACCESSORIES SHALL BE GRINNEL, MASON, OR B-LINE.
4. SLEEVE ALL PIPES PASSING THROUGH PARTITIONS, WALLS, AND FLOORS. SLEEVES IN FLOORS AND INTERIOR WALLS OF POURED IN PLACE CONCRETE, BRICK, TILE, OR MASONRY SHALL BE SCHEDULE 40 STEEL PIPE, MACHINE CUT. SLEEVES IN GYPSUM BOARD WALLS SHALL BE 22 GAUGE, ROLLED GALVANIZED SHEET METAL. TACK WELD ON THE LONGITUDINAL SEAM. PROVIDE SLEEVES WHERE PIPES PASS THROUGH FLOORS AND WALLS ABOVE AND BELOW CEILINGS. PROVIDE SPLIT PIPE SLEEVES IN NEW WALLS BUILT UP AROUND EXISTING PIPES. TACK WELD SPLIT SLEEVES TOGETHER. SLEEVES IN WALLS SHALL BE INSTALLED FLUSH WITH THE WALL. SLEEVES IN FLOORS SHALL EXTEND 3/4 INCH ABOVE THE FLOOR-EXCEPT THEY SHALL BE FLUSH FOR 2 HOUR RATED FLOORS-AND SHALL BE FLUSH WITH THE STRUCTURE BELOW. EACH SLEEVE SHALL HAVE AN INSIDE DIAMETER 1 INCH LARGER THAN THE OUTSIDE DIAMETER OF THE COVERING OF EACH COVERED PIPE TO ALLOW CONTINUOUS INSULATION-BUT NOT LESS THAN TWO PIPE SIZES LARGER THAN EACH UNCOVERED. ANNULAR SPACES BETWEEN SLEEVES AND PIPES SHALL BE FILLED OR CAULKED IN AN APPROVED MANNER.
5. THE TOP OF WATER PIPES INSTALLED BELOW GRADE OUTSIDE THE BUILDING SHALL BE BELOW THE FROST LINE OR A MINIMUM OF 12 INCHES BELOW FINISHED GRADE WHICHEVER IS GREATER. WATER PIPING INSTALLED IN A WALL EXPOSED TO THE EXTERIOR SHALL BE LOCATED ON THE HEATED SIDE OF THE WALL INSULATION. WATER PIPING INSTALLED IN AN UNCONDITIONED UTILITY ROOM OR UNCONDITIONED ATTIC SHALL BE INSULATED TO A MINIMUM OF R6.5 DETERMINED IN ACCORDANCE WITH ASTM C 177.
6. HOT WATER PROVIDED TO PUBLIC HAND-WASHING FACILITIES/LAVATORIES SHALL BE TEMPERED WATER DELIVERED THROUGH AN APPROVED WATER-TEMPERATURE LIMITING DEVICE THAT CONFORMS TO ASSE 1070 OR CSA B125.3.
7. INSULATE ALL EXPOSED WASTE AND SUPPLY PIPING UNDER LAVATORIES, SINKS, AND ELECTRIC WATER COOLERS WITH THE HANDI-LAV GUARD INSULATION KIT BY TRUEBRO OR EQUAL.
8. POTABLE WATER OUTLETS SHALL BE PROTECTED FROM BACKFLOW IN ACCORDANCE WITH 608.15 SPC. PRESSURE TYPE VACUUM BREAKERS SHALL CONFORM TO ASSE 1020 AND SPILPROOF VACUUM BREAKERS SHALL COMPLY WITH ASSE 1056. HOSE-CONNECTION VACUUM BREAKERS SHALL CONFORM TO ASSE 1011, ASSE 1019, ASSE 1035, OR ASSE 1052. CONNECTIONS TO BEVERAGE DISPENSERS, COFFEE MACHINES, AND NON-CARBONATED BEVERAGE DISPENSERS SHALL BE PROTECTED BY A BACKFLOW PREVENTER IN ACCORDANCE WITH ASSE 1022.
9. THE PC SHALL INSTALL WATER HAMMER ARRESTORS ON BRANCH LINES WITH QUICK CLOSING VALVES PER MANUFACTURER'S INSTALLATION INSTRUCTIONS. WATER HAMMER ARRESTORS SHALL CONFORM TO ASSE 1010.
10. THE PC SHALL PROVIDE CHECK VALVES AT ALL FIXTURES WITH THREADED OUTLETS AS REQUIRED BY CODE. TRAP PRIMERS SHALL BE PROVIDED AS SHOWN ON THE PLANS OR AS REQUIRED.
11. ADJUST STOPS AND VALVES FOR INTENDED FLOW RATE TO FIXTURES WITHOUT SPLASHING, NOISE, OR OVERFLOW.
12. BEFORE COMMENCING WORK, CHECK INVERT ELEVATIONS REQUIRED FOR SEWER CONNECTIONS, CONFIRM INVERTS, AND VERIFY THESE CAN BE PROPERLY CONNECTED TO WITH SLOPE FOR DRAINAGE AND COVER TO AVOID FREEZING. ONCE INVERTS AND FALL HAVE BEEN ESTABLISHED, EXTEND SANITARY SEWER AS SHOWN AND INSTALL ALL DRAINS, STACKS, VENTS, FLOOR DRAINS, AND CLEANOUTS NECESSARY FOR A COMPLETE INSTALLATION.
13. ALL SANITARY SEWER PIPING IS BELOW GRADE OR WITHIN WALLS UNLESS OTHERWISE NOTED. ALL SANITARY VENT PIPING IS ABOVE THE CEILING OR WITHIN WALLS UNLESS OTHERWISE NOTED. SOIL AND WASTE PIPING SHALL BE INSTALLED TO PROVIDE PROTECTION AGAINST FREEZING PER 305.4.1 SPC. WASTE AND SOIL LINES LEAVING THE BUILDING MUST HAVE A MINIMUM COVER OF 3 INCHES.
14. SOIL AND WASTE LINES 2-1/2 INCHES AND SMALLER SHALL BE SLOPED AT 1/4 INCH PER FOOT MINIMUM. SOIL AND WASTE LINES 3 INCHES TO 6 INCHES IN DIAMETER SHALL BE SLOPED AT 1/8 INCH PER FOOT MINIMUM.
15. FOR WATER CLOSET WASTE CONNECTIONS, A 4 INCH BY 3 INCH CLOSET BEND SHALL BE ACCEPTABLE. WHERE A 3 INCH BEND IS UTILIZED ON WATER CLOSETS, A 4 INCH BY 3 INCH FLANGE SHALL BE INSTALLED TO RECEIVE THE FIXTURE HORN.
16. FOR PLASTIC PIPE SIZES GREATER THAN 6 INCHES, AND OTHER PIPE SIZES GREATER THAN 4 INCHES, RESTRAINTS SHALL BE PROVIDED FOR DRAINPIPES AT ALL CHANGES IN DIRECTION AND AT ALL CHANGES IN DIAMETER GREATER THAN TWO PIPE SIZES. BRACES, BLOCKS, RODDING, BACKFILL AND OTHER SUITABLE METHODS AS SPECIFIED BY THE COUPLING MANUFACTURER SHALL BE UTILIZED.
17. BASES OF STACKS SHALL BE SUPPORTED BY THE BUILDING STRUCTURE, VIRGIN OR COMPACTED EARTH, OR OTHER SUITABLE MATERIAL TO SUPPORT THE WEIGHT OF THE PIPING.
18. HORIZONTAL DRAINPIPES SHALL HAVE CLEANOUTS IN ACCORDANCE WITH 708.1 SPC. EXTEND CLEANOUTS TO FINISHED FLOOR OR WALL SURFACE. LUBRICATE THREADED CLEANOUT PLUGS WITH A MIXTURE OF GRAPHITE AND LINSEED OIL. ENSURE CLEARANCE AT ALL CLEANOUTS FOR RODDING OF DRAINAGE SYSTEM. INSTALL FLOOR CLEANOUTS AT AN ELEVATION TO ACCOMMODATE FINISHED FLOOR. EVERY CLEANOUT SHALL BE INSTALLED TO ALLOW CLEANING IN THE DIRECTION OF FLOW OF THE DRAINAGE PIPE OR AT RIGHT ANGLES THERETO. CLEANOUTS ON 6 INCH AND SMALLER PIPES SHALL BE PROVIDED WITH A CLEARANCE OF NOT LESS THAN 18 INCHES FOR RODDING.
19. DRAINAGE PIPING FOR FUTURE FIXTURES SHALL TERMINATE WITH AN APPROVED CAP OR PLUG.
20. AIR ADMITTANCE VALVES SHALL BE INSTALLED AFTER THE DWV TESTING REQUIRED BY SECTIONS 312.2 AND 312.3 OF THE SPC. PROVIDE ACCESS TO ALL AIR ADMITTANCE VALVES PER CODE. INSTALLATION OF ALL AIR ADMITTANCE VALVES SHALL CONFORM TO SECTION 918 OF THE SPC. AIR ADMITTANCE VALVES SHALL CONFORM TO ASSE 1050 OR 1051.
21. INDIRECT WASTE PIPING THAT EXCEEDS 2 FEET IN DEVELOPED LENGTH MEASURED HORIZONTALLY, OR 4 FEET IN TOTAL DEVELOPED LENGTH, SHALL BE TRAPPED. THE AIR GAP BETWEEN THE INDIRECT WASTE PIPE AND THE FLOOD LEVEL RIM OF THE WASTE RECEPTOR SHALL BE A MINIMUM OF TWICE THE EFFECTIVE OPENING OF THE INDIRECT WASTE PIPE.
22. THE PC SHALL PROVIDE UNIONS FOR DISASSEMBLY AND SERVICE OF ALL FIXTURES AND OTHER RELEVANT PLUMBING EQUIPMENT. UNIONS SHALL BE GROUND-JOINT WITH BRASS SEAT. PROVIDE INSULATING UNIONS AT EACH JUNCTION OF DISSIMILAR MATERIALS.
23. THE PC SHALL ACCURATELY ROUGH-IN ALL FIXTURES ACCORDING TO MANUFACTURER'S INSTALLATION DIMENSIONS AND INSTRUCTIONS. OFFSET ADAPTERS AND FLEXIBLE CONNECTORS ARE NOT ACCEPTABLE. FLUSH HANDLES SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREAS FOR ADA COMPLIANCE. INSTALL EACH FIXTURE WITH TRAP EASILY REMOVABLE FOR SERVICING AND CLEANING. SEAL FIXTURES TO WALL AND FLOOR SURFACES WITH SEALANT. SOLIDLY ATTACH WATER CLOSETS TO FLOOR WITH LAG SCREWS. SEAL ALL SELF-RIMMING LAVATORIES AND SINKS (VITREOUS CHINA AND STAINLESS STEEL) WITH A COMMERCIAL GRADE PLUMBER'S PUTTY OR ACRYLIC LATEX CAULK APPLIED TO THE UNDERSIDE OF THE FIXTURE RIM IN A GENEROUS AMOUNT SO THAT WHEN FIXTURE IS SET, SEALANT SHALL OOZE OUT.
24. ALL VENT THRU THE ROOF (VTR) PENETRATIONS SHALL BE COORDINATED WITH THE GENERAL CONTRACTOR. PC SHALL PROVIDE FLASHING MATERIAL REQUIRED FOR VTRS. JOINTS AT THE ROOF AND AROUND VENT PIPES SHALL BE MADE WATERTIGHT BY THE USE OF LEAD, COPPER, GALVANIZED STEEL, ALUMINUM, OR OTHER APPROVED FLASHINGS OR FLASHING MATERIAL. MAINTAIN MINIMUM 10 FEET FROM ALL OUTSIDE AIR INTAKES.
25. INSTALL FULL OPEN VALVES PER SPC 606.1 ON THE MAIN WATER LINE INTO THE BUILDING. INSTALL SHUTOFF VALVES PER SPC 606.2.

MATERIALS:

1. BALL VALVES SHALL HAVE BRASS BODY, FULL PORT, CHROME PLATED BALL, WITH TEFLON SEATS, 150 PSI WSP, AND COMPLY WITH MSS SP-110. GATE VALVES SHALL HAVE BRONZE BODY, CLASS 150, AND COMPLY WITH MSS SP-80, TYPE 2 STANDARD. VALVE BODY SHALL BE ASTM B 62, BRONZE WITH INTEGRAL SEAT AND UNION RING BONNET. ENDS SHALL BE THREADED OR SOLDER WITH COPPER-SILICON BRONZE STEM AND SOLID-WEDGE BRONZE DISC. INSTALL VALVES IN LOCATIONS THAT PERMIT EASY ACCESS WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS; PROVIDE ACCESS DOORS IF REQUIRED. VALVES SHALL BE BY NIBCO, WATTS, OR STOCKHAM.
2. COLD WATER LINES SHALL BE INSULATED WITH 1/2 INCH THICK FIBROUS GLASS INSULATION WITH A FLAME DENSITY RATING LESS THAN 25 AND A SMOKE DENSITY RATING LESS THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. HOT WATER LINES UP TO 2 INCHES DIAMETER SHALL HAVE 1 INCH THICK INSULATION CONFORMING TO THE SAME STANDARD. PIPING LARGER THAN 2 INCHES SHALL RECEIVE 1-1/2 INCH THICK INSULATION. CLOSED CELL RUBBER INSULATION MEETING THE SMOKE AND FLAME RATINGS ABOVE MAY BE SUBSTITUTED FOR FIBROUS GLASS TYPE IF SO DESIRED. INSULATION INSTALLED ON PIPING OPERATING BELOW AMBIENT TEMPERATURES MUST HAVE A CONTINUOUS VAPOR RETARDER. ALL JOINTS, SEAMS AND FITTINGS MUST BE SEALED. ON SYSTEMS OPERATING ABOVE AMBIENT, THE BUTT JOINTS SHOULD NOT BE SEALED. ON COLD SURFACES WHERE A VAPOR SEAL MUST BE MAINTAINED, INSULATION SHALL BE APPLIED WITH A CONTINUOUS, UNBROKEN MOISTURE AND VAPOR RETARDER. ALL HANGERS, SUPPORTS, ANCHORS, OR OTHER PROJECTIONS SECURED TO COLD SURFACES SHALL BE INSULATED AND VAPOR SEALED TO PREVENT CONDENSATION. ALL PIPE INSULATION SHALL BE CONTINUOUS THROUGH WALLS, CEILING OR FLOOR OPENINGS, OR SLEEVES EXCEPT WHERE FIRESTOP OR FIRESAFING MATERIALS ARE REQUIRED. INSULATION SHALL HAVE A FACTORY APPLIED ALL-SERVICE JACKET WITH SELF-SEALING LAP. WHITE-KRAFT PAPER BONDED TO ALUMINUM FOIL AND REINFORCED WITH GLASS FIBERS; CONFORMING TO ASTM C 1136 TYPE 1; VAPOR RETARDER; WITH A SELF-SEALING ADHESIVE. VERIFY THAT PIPING HAS BEEN TESTED, SURFACES ARE CLEAN AND DRY, AND ALL FOREIGN MATERIALS ARE REMOVED BEFORE APPLYING INSULATION MATERIALS. INSULATION SHALL BE BY KNAUF, ARMACELL, JOHNS-MANVILLE, OR OWENS-CORNING.
3. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578 91. ALL INSULATION SHALL BE LOW-EMITTING WITH NOT GREATER THAN 0.05 PPM FORMALDEHYDE EMISSIONS. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
4. FAUCETS AND FIXTURE FITTINGS SHALL CONFORM TO ASME A112.18.1. FAUCETS AND FIXTURE FITTINGS THAT SUPPLY DRINKING WATER FOR HUMAN CONSUMPTION SHALL CONFORM TO THE REQUIREMENTS OF NSF 61, SECTION 9. FIXTURE FITTINGS, FAUCETS, AND DIVERTERS SHALL BE INSTALLED AND ADJUSTED SO THAT THE FLOW OF HOT WATER FROM THE FITTINGS CORRESPONDS TO THE LEFT-HAND SIDE OF THE FIXTURE FITTING.
5. BACKFLOW PREVENTION SHALL BE IN ACCORDANCE WITH SECTION 608.13 OF THE SPC AND THE LOCAL AUTHORITY HAVING JURISDICTION. REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTERS SHALL CONFORM TO ASSE 1013 OR AWWA C511. THE RELIEF OPENING SHALL DISCHARGE BY AIR GAP. AIR GAPS SHALL COMPLY WITH ASME A112.1.1 AND AIR GAP FITTINGS WITH ASME A112.1.3. DOUBLE CHECK VALVE ASSEMBLIES SHALL CONFORM TO ASSE 1015 OR AWWA C510. ACCESS TO BACKFLOW PREVENTERS SHALL BE PROVIDED AS SPECIFIED BY THE INSTALLATION INSTRUCTIONS OF THE APPROVED MANUFACTURER.
6. FOR BELOW GRADE SANITARY WASTE PIPING, PC SHALL USE SERVICE WEIGHT CAST IRON PIPE WITH COMPRESSION JOINTS (ASTM A 74). USE MINIMUM 2" SIZE UNDERGROUND. SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE PIPE FITTINGS (ASTM D 3311) MAY ALSO BE USED. DO NOT USE PVC PIPE FOR APPLICATIONS WHERE THE WASTEWATER TEMPERATURE EQUALS OR EXCEEDS 140°F OR IF THE BUILDING HEIGHT EXCEEDS 75 FEET.
7. FOR ABOVE GRADE SANITARY WASTE AND VENT PIPING, USE SERVICE WEIGHT CAST IRON NO-HUB TYPE WITH COUPLINGS (CISPI 301). SOLID WALL SCHEDULE 40 PVC (ASTM D 2665) WITH SCHEDULE 40 SOCKET TYPE FITTINGS (ASTM D 3311) MAY BE USED IF PERMITTED BY LOCAL CODE, EXCEPT IN BUILDINGS EXCEEDING 75 FEET IN HEIGHT. DO NOT INSTALL PVC IN RETURN AIR PLENUMS. ALL VENT AND BRANCH VENT PIPES SHALL BE SO GRADED AND CONNECTED AS TO DRAIN BACK TO THE DRAINAGE PIPE BY GRAVITY. BRANCH VENTS EXCEEDING 40 FEET IN DEVELOPED LENGTH SHALL BE INCREASED BY ONE NOMINAL SIZE FOR THE ENTIRE DEVELOPED LENGTH OF THE PIPE.
8. ALL OVERHEAD DOMESTIC WATER PIPING SHALL BE TYPE L COPPER WITH 95/5 LEAD FREE SOLDER, AND ALL BELOW GRADE WATER PIPING SHALL BE TYPE K COPPER WITH NO JOINTS. ALL PIPING SHALL HAVE MANUFACTURER'S NAME AND THE APPLICABLE STANDARD TO WHICH IT WAS MANUFACTURED CLEARLY MARKED ON EACH LENGTH. PIPING SHALL COMPLY WITH ASTM B-88. USE BRAZED JOINTS ON ALL COPPER PIPING 1-1/2 INCH AND LARGER. ALL PIPE AND PIPE FITTINGS, INCLUDING VALVES AND FAUCETS, USED IN THE WATER DISTRIBUTION SYSTEM SHALL HAVE A MAXIMUM LEAD CONTENT OF 0.25-PERCENT AND SHALL CONFORM TO NSF 61. HOT WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 100 PSI AT 180°F. COLD WATER DISTRIBUTION PIPE AND TUBING SHALL HAVE A MINIMUM PRESSURE RATING OF 160 PSI AT 73.4°F. DO NOT INSTALL PEX OR CPVC PIPING IN RETURN AIR PLENUMS.
   8.1 PC MAY USE PEX (ASTM F 877) WITH APPROVED FITTINGS (ASTM F 1807) WITH OWNER'S APPROVAL. CPVC PIPING (ASTM D 2846 OR ASTM F 441) WITH APPROVED FITTINGS (ASTM D 2846, ASTM F 438, OR ASTM F 439) MAY ALSO BE USED WHERE NOT LOCATED IN PLENUMS. ALL PLASTIC PIPE, FITTINGS, AND COMPONENTS SHALL BE THIRD-PARTY CERTIFIED AS CONFORMING TO NSF 14.
9. PC SHALL PROVIDE ALL WATER HEATERS (WATTAGE/INPUT AND CAPACITY AS NOTED IN SCHEDULE). ALL WATER HEATERS SHALL BE THIRD PARTY CERTIFIED; PROVIDE PANS FOR WATER HEATERS IN ACCORDANCE WITH 504.7 OF THE SPC. ELECTRICAL CONNECTIONS SHALL BE BY ELECTRICAL CONTRACTOR, PC SHALL COORDINATE WITH EC ON ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT PROVIDED.
10. ALL PUMPS SHALL BE RATED FOR TRANSPORT OF POTABLE WATER. PUMPS IN AN INDIVIDUAL WATER SUPPLY SYSTEM SHALL BE CONSTRUCTED AND INSTALLED SO AS TO PREVENT CONTAMINATION FROM ENTERING THE WATER SUPPLY SYSTEM.

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Drawn By REW/EMB
Drawing No. P-1

PLUMBING FIXTURE SCHEDULE						
SYMBOL	FIXTURE	MANUFACTURER	FITTING	HW	CW	WASTE
P1H	TWO PIECE TANK TYPE ADA WATER CLOSET	TOTO CST744EL OR EQUAL BY AMERICAN STANDARD OR KOHLER	TWO-PIECE VITREOUS CHINA TOILET WITH HIGH-PROFILE TANK, ELONGATED FRONT BOWL AND CHROME TRIP LEVER. 1.28 GPF. PROVIDE SC534 OPEN FRONT SEAT LESS COVER. ASME 112. 19. 2 COMPLIANCE. TOP OF SEAT SHALL BE 17-19 INCHES AFF FOR ADA. LEVER MOUNTED ON WIDE SIDE FOR ADA.	-	1/2"	3"
P2	WALL MOUNT LAVATORY	TOTO LT307.4 OR EQUAL BY AMERICAN STANDARD OR KOHLER	VITREOUS CHINA LAVATORY WITH BACKSPLASH COMPLYING WITH ASME 112. 19. 2. TOP OF RIM SHALL BE 34 INCHES AFF FOR ADA. PROVIDE WITH LAV-GUARD PROTECTORS FOR SUPPLY AND DRAIN LINES. PROVIDE JR SMITH 0700 (CONCEALED ARMS) WITH 19" ARMS 0800 (WALL SUPPORT PLATE). USE MOEN 8430 FAUCET.	1/2"	1/2"	2"
P3	SERVICE SINK	FIAT FL-1 OR APPROVED EQUAL	FLOOR MOUNTED SERV-A-SINK LAUNDRY TUB SUPPORTED WITH STEEL PAINTED ANGLE LEGS. SUPPLY WITH FIAT A1000 LAUNDRY DECK FAUCET. CONFIRM FAUCET SELECTION WITH OWNER BEFORE ORDERING.	1/2"	1/2"	2"
P4	EXPANSION TANK	AMTROL ST-5 OR EQUAL BY WATTS OR BELL & GOSSETT	INSTALL ON COLD WATER LINE BETWEEN WATER HEATER AND RPZ	-	3/4"	-
P5	THERMOSTATIC MIXING VALVE	WATTS LFMMV OR EQUAL BY LAWLER OR LEONARD VALVE	ASSE STANDARD 1069 OR 1070 APPROVED WITH 1/2 INCH FEMALE NPT INLET AND OUTLET CONNECTIONS, BRASS BODY, AND INTEGRAL MOUNTING HOLES. TAMPER RESISTANT THERMOPLASTIC ENCLOSURE. SINGLE REPLACEABLE CARTRIDGE DESIGN.	1/2"	1/2"	-
P6	1" RPZ BACKFLOW PREVENTER	WATTS LF909 QT OR EQUAL BY CONBRACO OR WILKINS	RPZ ASSEMBLY CONSISTING OF A PRESSURE DIFFERENTIAL RELIEF VALVE LOCATED IN A ZONE BETWEEN TWO POSITIVE SEATING CHECK VALVES. THE ASSEMBLY SHALL INCLUDE TWO TIGHTLY CLOSING SHUTOFF VALVES BEFORE AND AFTER THE ASSEMBLY, TEST COCKS AND A PROTECTIVE STRAINER UPSTREAM OF THE FIRST SHUTOFF VALVE. THE ASSEMBLY SHALL MEET THE REQUIREMENTS OF ASSE 1013 AND AWWA C511	-	1"	-
P7	FREEZEPROOF HOSE BIBB	WOODFORD MODEL 68 OR EQUAL BY ZURN OR MIFAB	THE MODEL 68 IS A ASSE 1053 LISTED HYDRANT, WITH A ASSE 1052 DOUBLE CHECK BACKFLOW PREVENTER, COMES WITH A CHROME PLATED BRASS HEAD WITH STAINLESS STEEL COVER, IT DRAINS AUTOMATICALLY EVEN WITH A ATTACHED HOSE, HAS A ONE PIECE PLUNGER WHICH CONTROLS DRAIN AND FLOW FUNCTION, WORKS WITH PRESSURES UP TO 125 PSI, AND A MAX TEMPERATURE OF 120 DEGREES, TEE KEY FOR HYDRANT DOOR AND LOCK, EASIER TO INSTALL THAN STANDARD RECESSED BOX HYDRANT, WALL CLAMP IS INCLUDED, HEAD COVER FLIPS DOWN AND OUT OF THE WAY FOR UNOBSTRUCTED HYDRANT USE	-	3/4"	-
FCO	FLOOR CLEANOUT	ZURN, WATTS, JR SMITH	EPOXY COATED CAST IRON FLOOR CLEANOUT WITH ROUND ADJUSTABLE GASKETED NICKEL BRONZE TOP, REMOVABLE GAS TIGHT GASKETED BRASS CLEANOUT PLUG, AND NO HUB INLET.	-	-	-

ELECTRIC WATER HEATER SCHEDULE											
MARK	MFG	MODEL	TANK VOL.	INPUT	RECOVERY	SET POINT	POWER		CONNECTIONS		OPTIONS
			GALS	KW	GPH @ 60°F ΔT	°F	VOLTAGE	PHASE	HOT	COLD	
WH-1-4	RHEEM	EGSP10	10	1.5	10	110	120	1	3/4	3/4	1-5

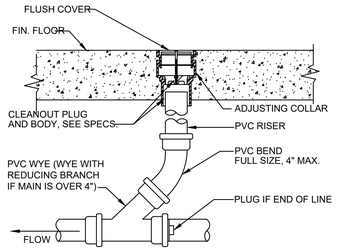
1. PROVIDE GALVANIZED STEEL SAFETY PAN
2. UL 174 LISTED
3. PROVIDE ASME LISTED TEMPERATURE AND PRESSURE RELIEF VALVE
4. MEET OR EXCEED ENERGY FACTOR REQUIREMENTS OF ASHRAE 90.1-2007
5. OR EQUAL BY A.O. SMITH, BRADFORD WHITE, OR STATE.

PLUMBING LINE SIZING PER UNIT

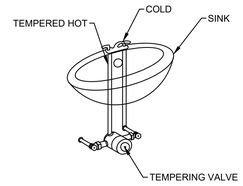
FIXTURE TYPE	QTY	DRAINAGE FIXTURE UNITS		WATER SUPPLY FIXTURE UNITS				
		EACH	TOTAL	CW	HW	CW & HW	HW TOTAL	TOTAL
WATER CLOSET, PUBLIC, FLUSH TANK	2	4.0	8.0	5.0	0.0	5.0	0.0	10.0
LAVATORY, PUBLIC	2	2.0	4.0	1.5	1.5	2.0	3.0	4.0
SERVICE SINK, OFFICES, ETC.	1	2.0	2.0	2.3	2.3	3.0	2.3	3.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
N/A	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

DEMAND FIXTURE	GPM	QTY	TOTAL GPM		TOTAL DFU	14.0	
HOSE BIB	5	2	5		TOTAL WSFU	5.3	17.0
					GPM	10.0	18.4
					OTHER FIXTURES' GPM	0	5
					TOTAL GPM	10.0	23.4

MINIMUM BUILDING DRAIN SIZE	4"	ONLY HALF OF HOSE BIBS USED IN CALCUALTION
MINIMUM WATER LINE SIZE	1"	

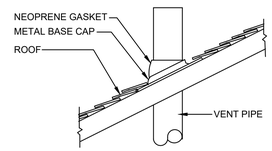


1 FLOOR CLEANOUT DETAIL
Scale: NONE

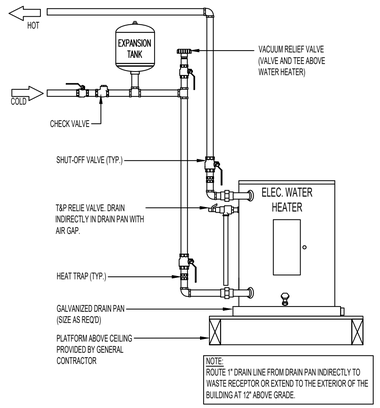


HAND SINK

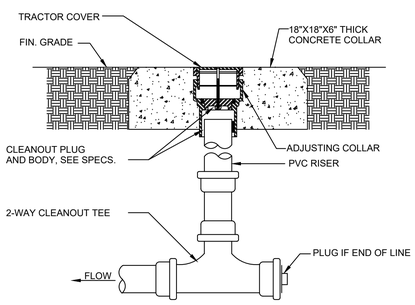
2 THERMOSTATIC MIXING VALVE DETAIL
Scale: NONE



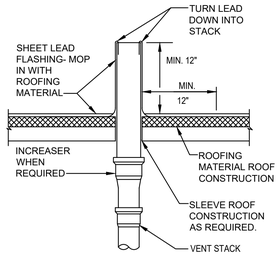
SLOPED ROOF



3 ELECTRIC WATER HEATER (ABOVE CEILING) DETAIL
Scale: NONE



4 GRADE CLEANOUT DETAIL
Scale: NONE



FLAT ROOF

5 VENT THRU ROOF DETAIL
Scale: NONE

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
PLUMBING SCHEDULES AND DETAILS

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

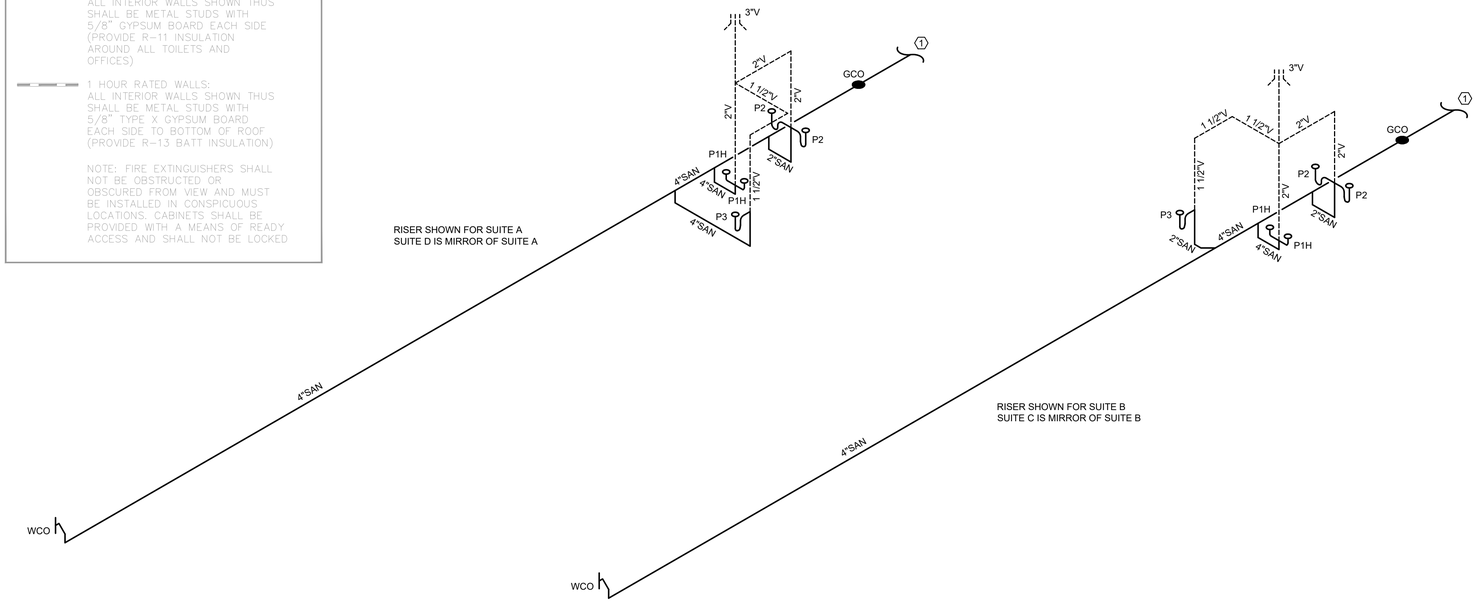
Date 03/07/2025
Drawn By REW/EMB
Drawing No. P — 2

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

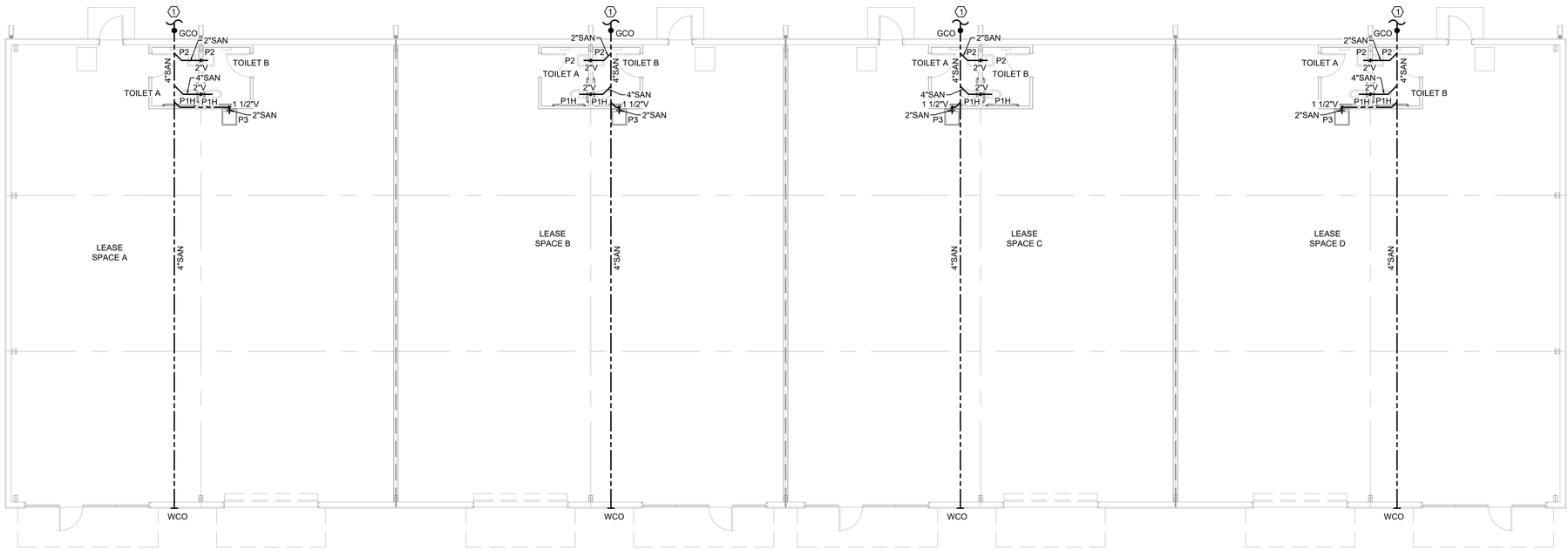
NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED



1 SANITARY RISER
Scale: NONE

SANITARY HEX NOTES

1. CONNECT TO SEWER. COORDINATE EXACT LOCATION ON SITE.



2 SANITARY PLAN
Scale: 1/8" = 1'-0"

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
SANITARY PLAN

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By REW/EMB
Drawing No. P-3

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

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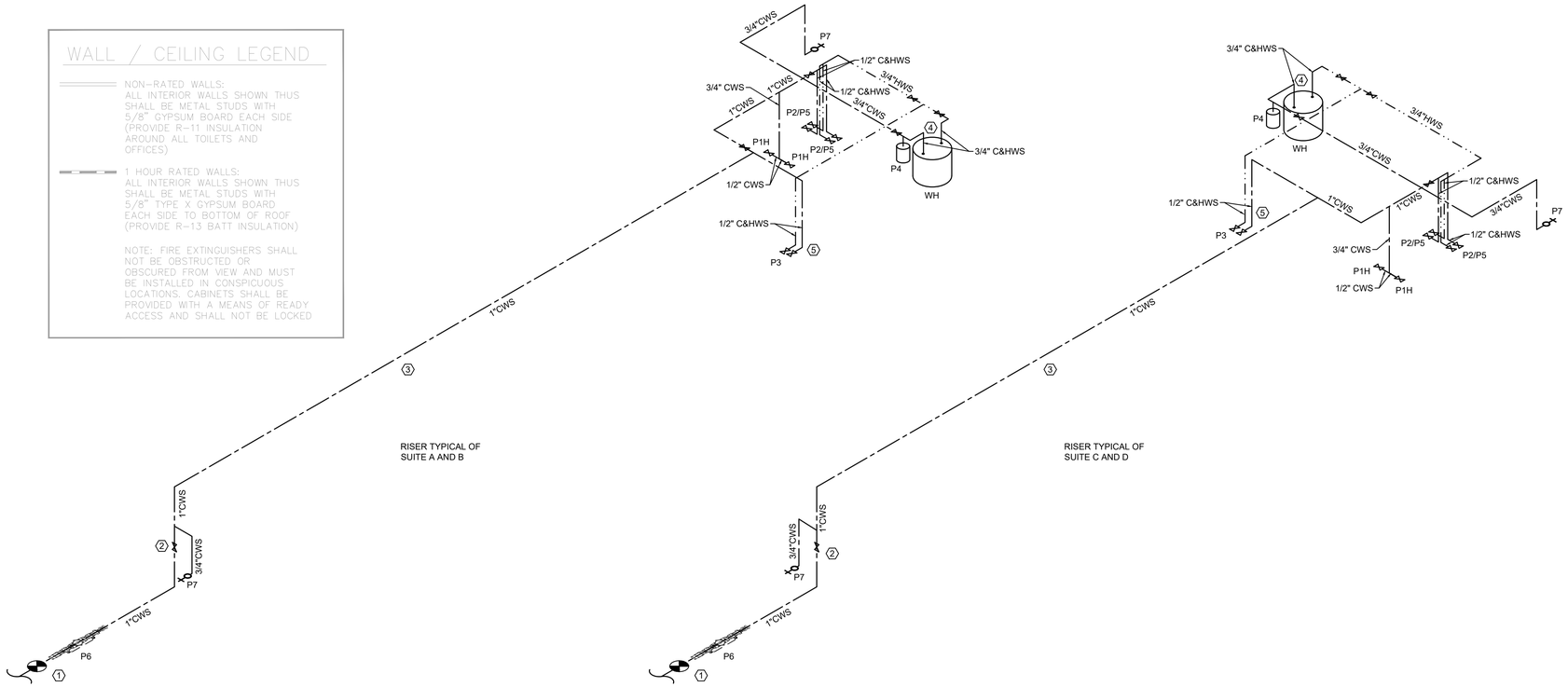
NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED

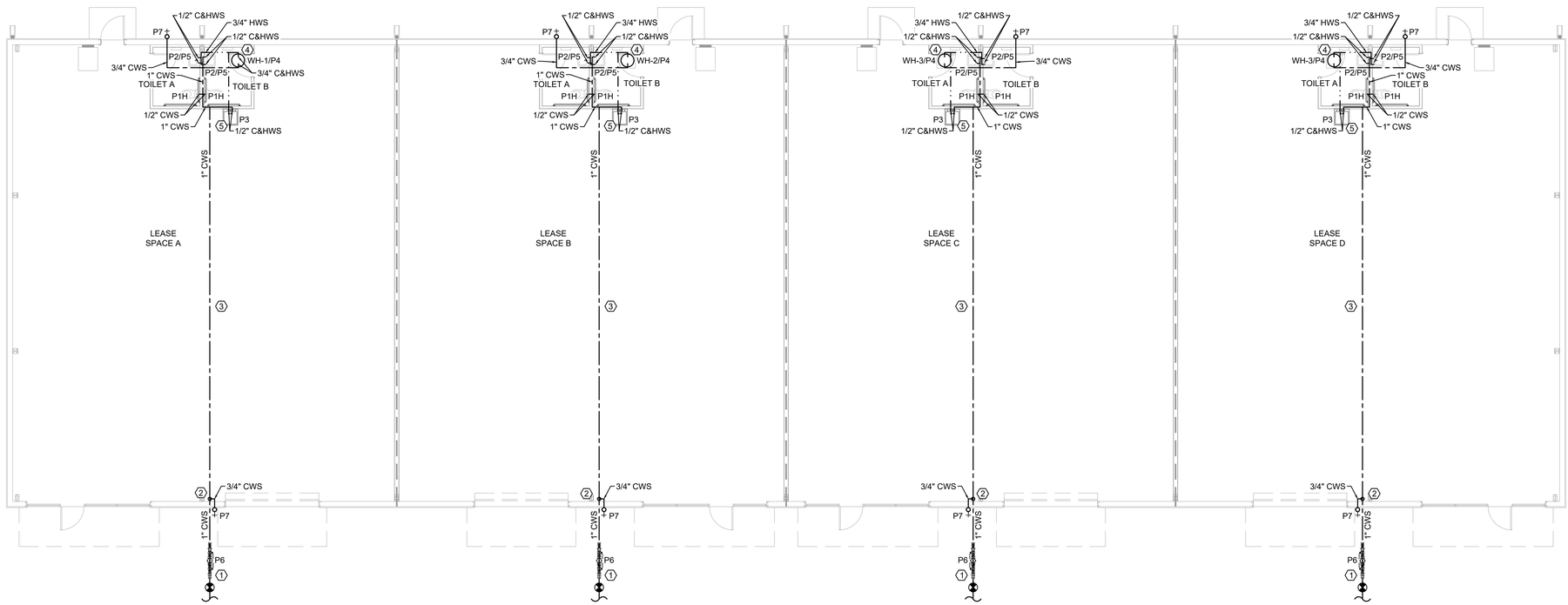


1 DOMESTIC SUPPLY RISER

Scale: NONE

DOMESTIC SUPPLY HEX NOTES

1. CONNECT TO WATER MAIN. COORDINATE EXACT LOCATION ON SITE. INSTALL RPZ IN HOT BOX AT METER.
2. ROUTE CWS UP THROUGH SLAB TO 20' A.F.F. CONFIRM HEIGHT WITH ARCHITECT. PC TO SUPPORT CWS AT HEIGHT. COORDINATE LOCATION WITH OWNER/GC. INSTALL ACCESSIBLE CUT OFF VALVE.
3. ANY WATER LINES THAT MUST BE INSTALLED IN UNCONDITIONED SPACES SHOULD BE INSULATED AND WHERE ACCESSIBLE PROTECTED BY THERMOSTATICALLY CONTROLLED HEAT TAPE.
4. WATER HEATER LOCATED ABOVE CEILING. SEE DETAIL FOR INSTALLATION. EXPANSION TANK CONNECTION AND DRAINAGE PAN TO BE INSTALLED ON WATER HEATER.
5. INSTALL INSULATION AND THERMOSTATICALLY CONTROLLED HEAT TAPE ON CONNECTIONS FOR SERVICE SINK.



2 DOMESTIC SUPPLY PLAN

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

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Project Title
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JARCO DR., FUQUAY VARINA, NC

Drawing Title
DOMESTIC SUPPLY PLAN

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA
03/07/2025

Date 03/07/2025
Drawn By REW/EMB
Drawing No. P-4

GENERAL MECHANICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC - PLUMBING CONTRACTOR,
   EC - ELECTRICAL CONTRACTOR,
   MC - MECHANICAL CONTRACTOR,
   GC - GENERAL CONTRACTOR,
   FASC - FIRE ALARM SYSTEM CONTRACTOR,
   AHJ - AUTHORITY HAVING JURISDICTION.
   SMC - CURRENT STATE MECHANICAL CODE (2018 NORTH CAROLINA STATE BUILDING CODE: MECHANICAL CODE)
   SBC - CURRENT STATE BUILDING CODE (2018 NORTH CAROLINA STATE BUILDING CODE: BUILDING CODE)
   SECC- CURRENT STATE ENERGY CONSERVATION CODE (2018 NORTH CAROLINA STATE BUILDING CODE: ENERGY CONSERVATION CODE)
   NFPA - NATIONAL FIRE PROTECTION ASSOCIATION
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. MC SHALL ALSO INSTALL MATERIALS FURNISHED BY OTHERS AND GENERAL CONTRACTOR AS SHOWN ON THE PLANS OR NECESSARY FOR A COMPLETE INSTALLATION.
3. THE MC SHALL BE RESPONSIBLE FOR A COMPLETE AND OPERATING SYSTEM AS DESCRIBED BY THESE PLANS AND SPECIFICATIONS.
4. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE CONTRACTOR AT AN APPROVED LOCATION. THE MC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE MC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
5. THE MC SHALL INSTALL ALL MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE SMC AND SBC AND ANY APPLICABLE LOCAL CODES. WHERE A CONFLICT EXISTS BETWEEN THE ABOVE REQUIREMENTS, THE MC SHALL OBTAIN CLARIFICATION FROM THE ENGINEER OR IN THE EVENT ANY PART OF THESE PLANS CONFLICTS WITH THE ABOVE REQUIREMENTS.
6. THE MC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. THE MC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE MC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE MC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
9. ALL MECHANICAL MATERIALS SHALL BE NEW AND FREE OF DEFECT AND LISTED AND LABELED BY UL OR AN APPROVED THIRD-PARTY AGENCY. ANY MATERIALS FOUND TO BE DEFECTIVE SHALL BE REPLACED BY THE MC WITHOUT ADDITIONAL COST TO THE OWNER. WHERE A MANUFACTURER AND MODEL NUMBER IS GIVEN, THE CITED EXAMPLE IS INTENDED TO ESTABLISH A STANDARD OF QUALITY AND NOT TO LIMIT PRODUCTS TO A PARTICULAR MANUFACTURER. SUCH EXAMPLES ARE USED TO CONVEY A GENERAL STYLE, TYPE, CHARACTER, AND QUALITY OF THE PRODUCT DESIRED; PRODUCTS DETERMINED TO BE EQUAL BY THE ENGINEER WILL BE ACCEPTED.
10. THESE PLANS ARE DIAGRAMMATIC. THE MC SHALL ADJUST THE LOCATIONS OF EQUIPMENT, DUCTS, REGISTERS, GRILLES, ETC, TO ACCOMMODATE PLANNED AND ENCOUNTERED INTERFERENCES. THE DRAWINGS DO NOT SHOW ALL BENDS, OFFSETS, AND FITTINGS THAT MAY BE REQUIRED FOR A COMPLETE AND OPERATIONAL SYSTEM. THE MC SHALL MAKE ALLOWANCES FOR SUCH DEVIATIONS AND CONTINGENCIES IN BID TO IMPLEMENT THEM WITHOUT ADDITIONAL COST TO THE OWNER.
11. EC SHALL BE RESPONSIBLE FOR ALL POWER CONNECTIONS TO THE MECHANICAL EQUIPMENT. MC SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING.
12. IT IS THE MC'S RESPONSIBILITY TO VERIFY THAT ITEMS FURNISHED FOR THIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. THE MC SHALL MAKE FIELD MEASUREMENTS AS NECESSARY TO DETERMINE SPACE REQUIREMENTS. IF THE MC MUST ALTER EQUIPMENT DUE TO SPACE CONSIDERATIONS, THE MC SHALL PROVIDE SIZES AND SHAPES THAT FIT THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS.
13. MC SHALL COORDINATE WITH THE EC REGARDING THE ELECTRICAL REQUIREMENTS OF ALL EQUIPMENT BEING PROVIDED.
14. MAINTAIN CLEARANCES FOR ALL EQUIPMENT ACCORDING TO MANUFACTURER'S RECOMMENDATIONS FOR SERVICEABILITY. ALL ROOFTOP EQUIPMENT MUST BE A MINIMUM OF 10 FEET FROM ROOF EDGE.
15. MC SHALL FURNISH A BOUND SET OF OPERATING AND MAINTENANCE INSTRUCTIONS FOR ALL EQUIPMENT TO THE OWNER UPON COMPLETION OF THE PROJECT. MC SHALL PROVIDE ALL DOCUMENTATION TO THE OWNER AS NECESSARY TO SUBMIT FOR FACTORY WARRANTIES.
16. CONTRACTOR SHALL PROTECT ALL HVAC EQUIPMENT FROM CONSTRUCTION AND SHEET ROCK DUST DURING CONSTRUCTION. ALL FILTERS SHALL BE REPLACED WITH NEW AT THE COMPLETION OF THE PROJECT.
17. ALL EQUIPMENT INSTALLED ON ROOF MUST BE WITHIN THE ROOF SCREEN.
18. IF A ROOF PENETRATION IS REQUIRED AND THE ROOF IS UNDER WARRANTY, USE THE AUTHORIZED ROOFER. PROVIDE DOCUMENTATION.
19. ALL PIPING, WIRING, CONDUIT, INSULATION, EQUIPMENT, SUPPORTS, ETC. SHALL BE SUITABLE FOR INSTALLATION IN A RETURN PLENUM AS NECESSARY. COORDINATE WITH OTHER TRADES ON LOCATIONS OF ALL PLENUMS.
20. MC SHALL COORDINATE WITH THE GENERAL CONTRACTOR TO ENSURE ALL APPLICABLE CONSTRUCTION WASTE IS RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT.

METHODS:

1. INSULATE DUCTWORK WITH FIBERGLASS DUCT WRAP; INSTALLED R-VALUE SHALL BE A MINIMUM R-6. COVERINGS AND LININGS, INCLUDING ADHESIVES WHEN USED, SHALL HAVE A FLAME SPREAD INDEX NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84. ALL NEW DUCTWORK SHALL RECEIVE INSULATION ON THE OUTSIDE. INSTALL DUCT WRAP INSULATION WITH FACING OUTSIDE SO THAT TAPE FLAP OVERLAPS INSULATION AND FACING OF ADJACENT PIECE OF DUCT WRAP. INSULATION SHALL BE TIGHTLY BUTTED. FOR RECTANGULAR DUCTS, INSTALL SO INSULATION IS NOT EXCESSIVELY COMPRESSED AT DUCT CORNERS. STAPLE SEAMS APPROXIMATELY 6 INCHES ON CENTER WITH OUTWARD CLINCHING STAPLES. SEAL SEAMS WITH PRESSURE SENSITIVE TAPE MATCHING THE FACING. FOR RECTANGULAR DUCTS 24 INCHES IN WIDTH OR GREATER, SECURE DUCT WRAP TO THE BOTTOM OF THE DUCT WITH MECHANICAL FASTENERS SPACED 18 INCHES ON CENTER TO PREVENT SAGGING OF INSULATION. ADJACENT SECTIONS OF DUCT WRAP SHALL BE TIGHTLY BUTTED WITH THE 2 INCH TAPE FLAP OVERLAPPING. ALL TEARS, PUNCTURES, ETC. OF THE DUCT WRAP INSULATION SHALL BE SEALED WITH TAPE OR MASTIC TO PROVIDE A VAPOR TIGHT SYSTEM. INSULATION SHALL BE BY KNAUF INSULATION, OWENS CORNING CORP, OR CERTAINTEED CORPORATION.
2. VERIFY THAT DUCTS HAVE BEEN TESTED BEFORE APPLYING INSULATION MATERIALS. VERIFY THAT DUCT SURFACES ARE CLEAN, DRY AND FREE OF FOREIGN MATERIAL PRIOR TO INSULATING. DUCT COVERINGS SHALL NOT PENETRATE A WALL OR FLOOR REQUIRED TO HAVE A FIRE-RESISTANCE RATING OR REQUIRED TO BE FIRE BLOCKED.
3. WHERE DUCTS ARE CONNECTED TO EXTERIOR WALL LOUVERS AND DUCT OUTLET IS SMALLER THAN LOUVER FRAME, PROVIDE BLANK-OUT PANELS SEALING LOUVER AREA AROUND DUCT. USE SAME MATERIAL AS DUCT, PAINTED BLACK ON EXTERIOR SIDE. SEAL TO LOUVER FRAME AND DUCT.
4. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS.
5. CONSTRUCT T's, BENDS, AND ELBOWS WITH RADII OF NOT LESS THAN 1-1/2 TIMES THE WIDTH OF THE DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS MUST BE USED, PROVIDE TURNING VANES.
6. INCREASE DUCT SIZES GRADUALLY, NOT EXCEEDING 15 DEGREES DIVERGENCE; MAXIMUM OF 30 DEGREES DIVERGENCE UPSTREAM OF EQUIPMENT AND 45 DEGREES CONVERGENCE DOWNSTREAM.
7. IT SHALL BE THE RESPONSIBILITY OF THE MC TO SUSPEND AND SUPPORT ALL EQUIPMENT, DUCTWORK, DIFFUSERS, AND OTHER MATERIALS FOLLOWING RECOGNIZED ENGINEERING PRACTICES AND USING STANDARD, COMMERCIALLY ACCEPTED HANGERS AND SUSPENSION EQUIPMENT. ALL HVAC EQUIPMENT SHALL BE SECURELY MOUNTED TO THE BUILDING STRUCTURE AND SHALL NOT RELY ON CEILING OR WALL SURFACES FOR SUPPORT. THE SUPPORT ATTACHMENT SHALL SUPPORT THE WEIGHT OF THE EQUIPMENT PLUS THE WEIGHT OF THE SUPPORT ATTACHMENT ITSELF. SUPPORT FROM THE TOP CHORD OF THE ROOF JOISTS, GIRDERS, AND BEAMS. THE BOTTOM CHORD IS NOT TO BE USED FOR EQUIPMENT OR PIPING SUPPORT. HANGERS SHALL NOT BE ATTACHED TO CORRUGATED STEEL DECKING.
8. DUCTS SHALL BE SUPPORTED IN ACCORDANCE WITH SMACNA AT INTERVALS NOT EXCEEDING 10 FEET. DUCTS 36 INCHES OR LARGER SHALL HAVE TRAPEZE TYPE HANGERS SUSPENDED WITH THREADED ROD. SUPPORT DUCTS FROM BAR JOISTS, GIRDERS, OR BEAMS.
9. CHECK LOCATIONS OF AIR OUTLETS AND INLETS AND MAKE NECESSARY ADJUSTMENTS IN POSITION TO CONFORM WITH ARCHITECTURAL FEATURES, SYMMETRY, AND LIGHTING ARRANGEMENT. COORDINATE WITH SPRINKLER CONTRACTOR IF APPLICABLE.
10. PROVIDE BALANCING DAMPERS AT POINTS ON SUPPLY WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. INSTALL MINIMUM 2 DUCT WIDTHS FROM DUCT TAKE-OFF. PROVIDE BALANCING DAMPERS ON DUCT TAKE-OFFS TO DIFFUSERS AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER OR REGISTER ASSEMBLY. ADJUST AIR HANDLING AND DISTRIBUTION SYSTEMS TO PROVIDE DESIGN SUPPLY, RETURN, AND EXHAUST AIR QUANTITIES AT SITE ALTITUDE.
11. MC SHALL INSTALL ALL EXHAUST FANS AND VENT TO THE BUILDING'S EXTERIOR. EC SHALL SWITCH FANS WITH LIGHTS OR ON SEPARATE SWITCH AS SHOWN.
12. INSTALL BACKDRAFT DAMPERS ON FRESH AIR AND EXHAUST DUCTS WHERE THEY PENETRATE THE THERMAL ENVELOPE PER SECC C402.5.5
13. MC SHALL INSTALL FIRE DAMPERS AT EACH PENETRATION OF A RATED WALL AS INDICATED ON THE DRAWINGS OR AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. FIRE DAMPERS SHALL BE UL LABELED (UL 555), CURTAIN TYPE, WITH INTEGRAL FACTORY SLEEVE AND BLADES LOCATED OUTSIDE THE AIR STREAM. INSTALLATION OF ALL FIRE DAMPERS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS AND SECTION 607 OF THE SMC. PROVIDE ACCESS PANELS FOR TESTING AND SERVICE AS NECESSARY. MC SHALL PROVIDE RADIATION DAMPERS AND THERMAL BLANKETS FOR ALL PENETRATIONS OF RATED CEILING ASSEMBLIES. RADIATION DAMPERS SHALL BE UL LABELED (UL 555C) AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFIC INSTALLATION INSTRUCTIONS. FIRE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, AND CEILING RADIATION DAMPERS SHALL BE BY RUSKIN, NAILOR, OR LLOYD INDUSTRIES.

MATERIALS:

1. THE MC SHALL PROVIDE ALL HEATING AND COOLING EQUIPMENT AS SCHEDULED ON THE DRAWINGS. ALTERNATES SHALL BE FROM MANUFACTURERS LISTED IN SCHEDULES. THE MC SHALL PROVIDE FACTORY AND FIELD INSTALLED ACCESSORIES AS SCHEDULED OR AS NECESSARY FOR A COMPLETE AND OPERATIONAL HVAC SYSTEM.
2. THE MC SHALL PROVIDE ALL EXHAUST AND SUPPLY FANS AS SCHEDULED OR BY EQUALS LISTED.
3. DUCTWORK IS SHOWN WITH FREE AREA DIMENSIONS. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT STANDARD, 2 INCH S.P.
4. EXTERNAL DUCT INSULATION AND FACTORY-INSULATED FLEXIBLE DUCT SHALL BE LEGIBLY PRINTED OR IDENTIFIED AT INTERVALS NOT GREATER THAN 36 INCHES WITH THE NAME OF THE MANUFACTURER, THE THERMAL RESISTANCE R-VALUE AT THE SPECIFIED INSTALLED THICKNESS AND THE FLAME SPREAD AND SMOKE-DEVELOPED INDEXES OF THE COMPOSITE MATERIALS. ALL DUCT INSULATION PRODUCT R-VALUES SHALL BE BASED ON INSULATION ONLY, EXCLUDING AIR FILMS, VAPOR RETARDERS OR OTHER DUCT COMPONENTS, AND SHALL BE BASED ON TESTED C-VALUES AT 75ºF MEAN TEMPERATURE AT THE INSTALLED THICKNESS, IN ACCORDANCE WITH RECOGNIZED INDUSTRY PROCEDURES. THE INSTALLED THICKNESS OF DUCT INSULATION USED TO DETERMINE ITS R-VALUES SHALL BE DETERMINED AS FOLLOWS:
   4.1. FOR DUCT BOARD, DUCT LINER AND FACTORY-MADE RIGID DUCTS NOT NORMALLY SUBJECTED TO COMPRESSION, THE NOMINAL INSULATION THICKNESS SHALL BE USED.
   4.2. FOR DUCT WRAP, THE INSTALLED THICKNESS SHALL BE ASSUMED TO BE 75 PERCENT (25-PERCENT COMPRESSION) OF NOMINAL THICKNESS.
   4.3. FOR FACTORY-MADE FLEXIBLE AIR DUCTS, THE INSTALLED THICKNESS SHALL BE DETERMINED BY DIVIDING THE DIFFERENCE BETWEEN THE ACTUAL OUTSIDE DIAMETER AND NOMINAL INSIDE DIAMETER BY TWO.
5. COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY IN PLACE. ADHESIVE BONDED PINS ARE NOT PERMITTED DUE TO LONG-TERM ADHESIVE AGING CHARACTERISTICS. LININGS SHALL BE INTERRUPTED AT THE AREA OF OPERATION OF A FIRE DAMPER AND AT A MINIMUM OF 6 INCHES UPSTREAM AND 6 INCHES DOWNSTREAM OF ELECTRIC RESISTANCE AND FUEL-BURNING HEATERS IN A DUCT SYSTEM. METAL NOSINGS OR SLEEVES SHALL BE INSTALLED OVER EXPOSED DUCT LINER THAT FACE OPPOSITE THE DIRECTION OF AIRFLOW. UPON COMPLETION OF INSTALLATION OF DUCT LINER AND BEFORE OPERATION IS TO COMMENCE, VISUALLY INSPECT SYSTEM AND VERIFY THAT THE DUCT LINER IS PROPERLY INSTALLED. OPEN ALL SYSTEM DAMPERS AND TURN ON FANS TO BLOW ALL SCRAPS AND OTHER LOOSE PIECES OF MATERIAL OUT OF THE DUCT SYSTEM. ALLOW FOR A MEANS OF REMOVAL OF SUCH MATERIAL.
6. ALL INSULATION CONTAINING FIBROUS MATERIALS EXPOSED TO AIRFLOW SHALL BE RATED FOR THAT EXPOSURE OR SHALL BE ENCAPSULATED. INSULATING PROPERTIES FOR ALL MATERIALS SHALL MEET OR EXCEED INDUSTRY STANDARDS. POLYSTYRENE PRODUCTS SHALL MEET ASTM C578. ALL INSULATION SHALL HAVE FORMALDEHYDE EMISSIONS NOT GREATER THAN 0.05 PPM. THE MAXIMUM FLAME SPREAD AND SMOKE DEVELOPED INDEX FOR INSULATION SHALL MEET THE REQUIREMENTS OF THE LOCAL CODES AND ORDINANCES ADOPTED BY THE JURISDICTION IN WHICH THE BUILDING IS LOCATED.
7. MASTIC USED TO SEAL DUCTWORK SHALL BE LISTED AND LABELED IN ACCORDANCE WITH UL 181A OR UL 181B MAINTAIN AMBIENT TEMPERATURES AND CONDITIONS REQUIRED BY MANUFACTURER OF ADHESIVES, MASTICS, AND INSULATION CEMENTS. DO NOT INSTALL DUCT SEALANT WHEN TEMPERATURES ARE LESS THAT THOSE RECOMMENDED BY THE SEALANT MANUFACTURER.
8. ALL ADHESIVES AND SEALANTS SHALL HAVE VOC CONTENT BELOW 20 GRAMS PER LITER AND WHICH MEET THE REQUIREMENTS OF THE MANUFACTURER OF THE PRODUCTS BEING ADHERED OR INVOLVED. ADHESIVES AND SEALANTS SHALL CONTAIN NO HEAVY METALS OR FORMALDEHYDE.
9. FACTORY-MADE AIR DUCTS AND CONNECTORS SHALL COMPLY WITH UL 181.
10. FLEXIBLE DUCT SHALL BE UL LISTED CLASS 0 OR CLASS 1, INSULATED, AND COMPLY WITH UL 181. FLEXIBLE DUCT SHALL BE FACTORY FORMED, COMPOSED OF SPIRAL WOUND CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER. DUCT SHALL BE FACTORY INSULATED WITH A FOIL VAPOR BARRIER JACKET. CONNECT TO RIGID DUCT WITH SPIN-IN FITTING AND DAMPER. FLEXIBLE DUCTS AND AIR CONNECTORS SHALL NOT PASS THROUGH ANY FIRE RESISTANCE RATED ASSEMBLY.
11. THE MC SHALL PROVIDE ALL DIFFUSERS GRILLES, LOUVERS, AND OTHER AIR DISTRIBUTION OUTLETS AND INLETS. LOUVERS, GRILLES, AND DIFFUSERS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS. FOR LAY-IN CEILINGS, INSTALL SUPPORT FROM THE STRUCTURE FOR EACH DIFFUSER OR DAMPER. AIR DISTRIBUTION OUTLETS AND INLETS SHALL BE AS SCHEDULE OR ALTERNATES LISTED.

RECTANGULAR/SQUARE TO ROUND DUCT EQUIVALENT

RECTANGULAR DUCT	ROUND DUCT
30"X26"	30"Ø
20"X26"	24"Ø
18"X18"	20"Ø
18"X20"	20"Ø
20"X16"	18"Ø
16"X16"	16"Ø
10"X16"	14"Ø
10"X20"	16"Ø
16"X14"	16"Ø
16"X12"	14"Ø

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KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By REW/EMB
Drawing No. M-1

MECHANICAL PLAN HEX NOTES

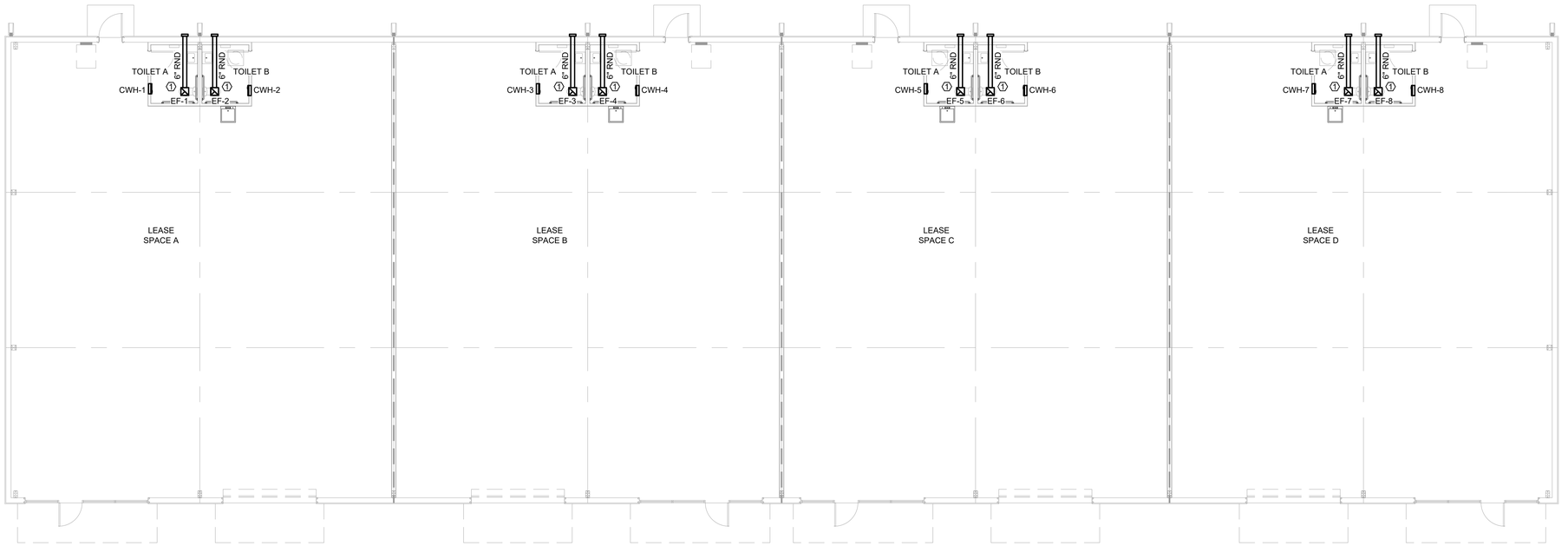
1. ROUTE 6" Ø EXHAUST DUCT TO EXTERIOR. TERMINATE WITH APPROVED WALL CAP.

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED



1 MECHANICAL PLAN
Scale: 1/8" = 1'-0"

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
MECHANICAL PLAN

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

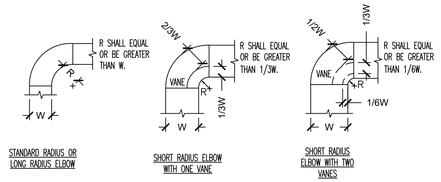
Date 03/07/2025
Drawn By REW/EMB
Drawing No. M-2

ELECTRIC FAN-FORCED WALL HEATER SCHEDULE							
MARK	MFG/Model #	AIR FLOW	HEATER	VOLT/PH	FLA	MOCP	NOTES
		CFM	KW		AMPS	AMPS	
CWH-1-8	QMARK CWH3404F	100	4	208/1	14.5	20	1-4

1. BUILT-IN THERMOSTAT
2. BUILT-IN DISCONNECT SWITCH
3. PROVIDE WITH SURFACE MOUNTING SLEEVE KIT
4. PROVIDE WITH 14-GAUGE SECURITY FRONT COVER, WHITE

EXHAUST FAN SCHEDULE								
MARK	MFG/MODEL #	TYPE	ESP (in WG)	CFM	VOLT/PH	FLA	SONES	NOTES
EF-1-8	GREENHECK SP-B110	CEILING	0.40	96	120/1	1.14	2	1-3

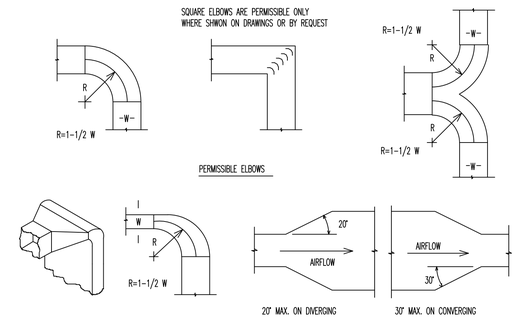
1. PROVIDE WITH PITCHED ROOF CURB & CAP FOR FLAT OR SLOPED ROOF, OR HOODED WALL WITH BACKDRAFT DAMPER CAP AS APPLICABLE
2. PROVIDE WITH SQUARE TO ROUND DUCT ADAPTER AS NECESSARY
3. OR EQUAL BY LOREN COOK OR PENNBARRY OR TWIN CITY



NOTES:

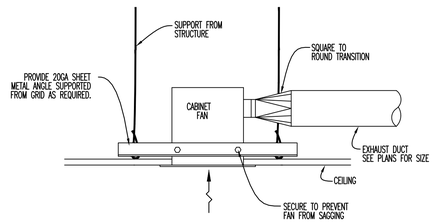
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

1 ACCEPTABLE ELBOWS



NOTE: AIRFLOW ARROWS ARE SHOWN FOR SUPPLY DUCT BY DEFAULT. AIRFLOW DIRECTION IS REVERSED FOR RETURN AND EXHAUST DUCTWORK.

2 ACCEPTABLE DUCT TRANSITIONS



NOTE: CEILING IS PART OF A RATED STRUCTURE. FAN PROVIDED MUST HAVE INTEGRAL RADIATION DAMPER COMPLYING WITH UL555C

3 EXHAUST FAN DETAIL

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Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
MECHANICAL SCHEDULES AND DETAILS

Project No.
250077

Consultant

Seal

NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025

KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By REW/EMB
Drawing No. M-3

GENERAL ELECTRICAL NOTES:

ADMINISTRATIVE:

1. THE FOLLOWING ABBREVIATIONS SHALL APPLY TO NOTES AND PLANS:
   PC - PLUMBING CONTRACTOR,
   EC - ELECTRICAL CONTRACTOR,
   MC - MECHANICAL CONTRACTOR,
   GC - GENERAL CONTRACTOR,
   FASC - FIRE ALARM SYSTEM CONTRACTOR,
   AHJ - AUTHORITY HAVING JURISDICTION
   NECA- NATIONAL ELECTRICAL CONTRACTORS ASSOCIATION
   NEC- NATIONAL ELECTRICAL CODE (2020)
   SBC- CURRENT STATE BUILDING CODE (2018 NORTH CAROLINA STATE BUILDING CODE: BUILDING CODE)
   SFC: CURRENT STATE BUILDING CODE: FIRE CODE (2018 NORTH CAROLINA STATE BUILDING CODE: FIRE PREVENTION CODE)
2. "PROVIDE" MEANS TO FURNISH AND INSTALL. THE EC SHALL ALSO INSTALL MATERIALS AND EQUIPMENT FURNISHED BY OTHERS AND THE GENERAL CONTRACTOR AS REQUIRED.
3. EC SHALL PROVIDE LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY AND REASONABLY INCIDENTAL TO INSURE A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS. MINOR ITEMS, ACCESSORIES, AND DEVICES REASONABLY INFERABLE AS NECESSARY FOR THE COMPLETION AND PROPER OPERATION OF ANY ELECTRICAL SYSTEM SHALL BE PROVIDED BY THE EC.
4. WORKMANSHIP SHALL BE IN ACCORDANCE WITH NECA 1 "STANDARD PRACTICE FOR GOOD WORKMANSHIP IN ELECTRICAL CONTRACTING."
5. ALL MATERIALS AND EQUIPMENT SHALL BE DELIVERED TO THE SITE AND UNLOADED BY THE EC AT AN APPROVED LOCATION. THE EC SHALL PROTECT ALL MATERIALS AND EQUIPMENT FROM BREAKAGE, THEFT, AND THE ELEMENTS. ALL MATERIALS AND EQUIPMENT SHALL REMAIN THE PROPERTY OF THE EC UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
6. THE EC SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS NECESSARY FOR THE COMPLETION OF THE WORK UNDER THIS CONTRACT.
7. DO NOT SCALE THESE DRAWINGS-REFER TO ARCHITECTURAL SHEETS FOR DIMENSIONS.
8. TRADE NAMES AND MANUFACTURERS ARE SPECIFIED TO ESTABLISH A QUALITY STANDARD. SUBSTITUTIONS SHALL BE PERMITTED IF APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ALL LISTED MODEL NUMBERS SHALL BE VERIFIED WITH THE MANUFACTURER FOR PROPER APPLICATION OF EQUIPMENT.
9. THE EC SHALL VISIT THE SITE PRIOR TO BIDDING TO BECOME FAMILIAR WITH EXISTING CONDITIONS. THE EC SHALL CONTACT THE ENGINEER TO RESOLVE ANY DISCREPANCIES BETWEEN EXISTING CONDITIONS AND THESE PLANS. THE EC SHALL COORDINATE WITH OTHER TRADES PRIOR TO THE START OF CONSTRUCTION.
10. GROUNDING AND BONDING SHALL BE PER NEC ARTICLE 250. THE RACEWAY SYSTEM SHALL NOT BE RELIED UPON FOR GROUNDING CONTINUITY. A GREEN EQUIPMENT GROUNDING CONDUCTOR, SIZED PER NEC TABLE 250-122, SHALL BE RUN IN ALL POWER RACEWAYS. FOR NON-ISOLATED GROUND CIRCUITS PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. FOR ISOLATED GROUND CIRCUITS, PROVIDE ONE NEUTRAL AND ONE ISOLATED GROUND WIRE FOR EACH CIRCUIT; IN ADDITION, PROVIDE ONE EQUIPMENT GROUNDING CONDUCTOR PER CONDUIT RUN. MAIN BONDING JUMPERS AND SYSTEM BONDING JUMPERS SHALL BE INSTALLED IN ACCORDANCE WITH 250.28 OF THE NEC. FOR BUILDINGS OR STRUCTURES SUPPLIED BY FEEDERS OR BRANCH CIRCUITS, GROUNDING AND BONDING SHALL BE IN ACCORDANCE WITH NEC 250.32. SEPARATELY DERIVED AC SYSTEMS SHALL BE GROUNDED IN ACCORDANCE WITH NEC 250.30. RESISTANCE TO GROUND SHALL NOT EXCEED 25 OHMS; ADDITIONAL GROUNDING ELECTRODES SHALL BE INSTALLED PER 250.56 AS NECESSARY.
11. ALL MATERIALS AND EQUIPMENT SHALL COMPLY WITH THE UNDERWRITERS' LABORATORIES, INC. STANDARDS OR HAVE UL APPROVAL, OR BEAR UL RE-EXAMINATION LISTING WHERE SUCH APPROVAL HAS BEEN ESTABLISHED FOR THE TYPE OF DEVICE IN QUESTION.
12. CONDUCTORS, FUSES, CIRCUIT BREAKERS, AND DISCONNECT SWITCHES SHOWN ON THESE PLANS HAVE BEEN SIZED FOR THE SPECIFIED EQUIPMENT. BEFORE ORDERING ELECTRICAL EQUIPMENT, THE EC SHALL COORDINATE WITH OTHER CONTRACTORS ON THE SITE AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES SHOULD CONDUCTOR, CIRCUIT BREAKER, OR FUSE SIZES REQUIRE CHANGE.
13. THE EC SHALL COORDINATE WITH THE GC TO ENSURE THE FOLLOWING MATERIALS ARE RECYCLED DURING THE CONSTRUCTION PHASE OF THE PROJECT: LIGHT FIXTURES, INCLUDING PROPER DISPOSAL OF BALLASTS, FLUORESCENT LIGHT BULBS, AND TRANSFORMERS, WIRING AND ELECTRICAL EQUIPMENT, AND INSULATION. WASTE MATERIALS CONTAINING LEAD, ASBESTOS, PCBs (FLUORESCENT LAMP BALLASTS), OR OTHER HARMFUL SUBSTANCES SHALL BE HANDLED AND DISPOSED OF IN ACCORDANCE WITH FEDERAL AND STATE LAWS AND REQUIREMENTS CONCERNING HAZARDOUS WASTE.
14. ALL WORK SHALL CONFORM TO NEC, SBC, AND ALL APPLICABLE LOCAL CODES.
15. THE EC SHALL ALSO COORDINATE WITH THE GC REGARDING THE BONDING OF THE FOOTING REBAR, SO THAT IT WILL BE IN PLACE AND READY AT TIME OF FOOTING INSPECTION.

METHODS:

1. EC SHALL REVIEW THE MECHANICAL PLANS TO ESTABLISH POINTS OF CONNECTION AND THE EXTENT OF THE ELECTRICAL WORK TO BE PROVIDED IN THE CONTRACT.
2. ALL CIRCUIT BREAKERS FEEDING HVAC EQUIPMENT SHALL BE HACR BREAKERS. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE MINIMUM #12 AWG IN 3/4 in CONDUIT. EACH MULTI-WIRE BRANCH CIRCUIT SHALL BE PROVIDED WITH A MEANS TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE SOURCE PER NEC 210.4(B). GROUP ALL CONDUCTORS OF EACH MULTI-WIRE BRANCH CIRCUIT PER 210.4(D) WITH WIRE TIES OR SIMILAR MEANS. DO NOT EXCEED THREE HOMERUNS PER CONDUIT. DO NOT INSTALL ISOLATED GROUND AND NON-ISOLATED GROUND CIRCUITS IN THE SAME CONDUIT. INSTALL CONDUCTORS OF DIFFERENT VOLTAGES IN SEPARATE CONDUITS.
3. ALL LIGHT FIXTURES SHALL BE SUPPORTED INDEPENDENTLY OF THE SUSPENDED CEILING. COORDINATE LIGHTING LAYOUT WITH CEILING GRID, MECHANICAL EQUIPMENT, DUCTWORK AND SPRINKLER HEADS AS NECESSARY. SEE REFLECTED CEILING PLAN FOR DETAILS. FLUORESCENT FIXTURES UTILIZING DOUBLE-ENDED LAMPS MUST HAVE A DISCONNECTING MEANS COMPLYING WITH NEC 410.130(G).
4. MOUNT LIGHT SWITCHES AT 48 in AFF. MULTIPLE SWITCHES AT SAME LOCATION SHALL BE UNDER ONE WALL PLATE. VERIFY WALL PLATE COLOR AND MATERIAL WITH THE ARCHITECT/OWNER. INSTALL SWITCHES WITH off POSITION DOWN. ALL SWITCHES SHALL BE HEAVY DUTY, IVORY PLASTIC WITH TOGGLE HANDLE, RATED 120-277V AC, AND COMPLYING WITH NEMA WD 6 AND WD 1. SWITCHES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. PROVIDE BOX DEVICE PARTITION/DIVIDERS FOR MULTI-GANG BOXES FOR COMPLIANCE WITH NEC 404.8(B).
5. EC SHALL PROVIDE FIRE-STOPPING AT ALL ELECTRICAL PENETRATIONS OF RATED FLOORS AND WALLS TO PRESERVE OR RESTORE THE FIRE-RESISTANCE RATING. SEAL PENETRATIONS USING A UL LISTED SYSTEM FOUND IN THE UL DIRECTORY SPECIFIC TO THE UL LISTING OF THE ASSEMBLY BEING PENETRATED. SEE ARCHITECTURAL PLANS FOR UL RATED ASSEMBLIES SPECIFIC TO THIS PROJECT.
6. EC SHALL PROVIDE GFCI RECEPTACLES IN KITCHENS, RESTROOMS, OUTDOORS, AND IN SHOP AREAS AS REQUIRED BY NEC. REFRIGERATORS AND WATER COOLERS MUST HAVE A DEDICATED GFCI BREAKER. EACH OUTDOOR HVAC UNIT MUST HAVE A GFCI RECEPTACLE WITHIN 25 FEET FOR SERVICING. GFCI RECEPTACLES SHALL CONFORM TO UL 943 CLASS A AND UL 498 STANDARDS. SHOW WINDOW RECEPTACLES SHALL BE PROVIDED IN ACCORDANCE WITH 210.62 OF THE NEC. RECEPTACLES SHALL BE BY COOPER WIRING DEVICES, LEVITON MANUFACTURING, PASS & SEYMOUR, OR HUBBELL. ALL RECEPTACLES SHALL BE 125V RATED, HEAVY DUTY, AND COMPLY WITH NEMA WD 6 AND WD 1.
7. LOCATIONS AND HEIGHTS OF ALL WALL-MOUNTED DEVICES SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO INSTALLATION.
8. CONCEAL ALL CONDUIT EXCEPT IN MECHANICAL ROOMS OR UNFINISHED AREAS AS NOTED. USE EMT CONDUIT FOR ALL BRANCH CIRCUITS AND FEEDERS INSIDE THE BUILDING. TYPE MC CABLE AND TYPE AC CABLE MAY BE INSTALLED WITHIN WALLS IF ALL NEUTRAL WIRES, ISOLATED GROUND WIRES, AND EQUIPMENT GROUND WIRES AS LISTED ABOVE ARE CONTAINED IN THE CABLE. FLEXIBLE CONNECTIONS TO MOTORS AND OTHER EQUIPMENT SHALL BE MADE USING WEATHERPROOF FLEXIBLE CONDUIT. FOR LAY-IN LIGHT FIXTURES, USE MAXIMUM OF SIX (6) FEET OF FLEXIBLE MC CABLE (OR THE FLEXIBLE CONDUIT PROVIDED BY THE FIXTURE MANUFACTURER). SCHEDULE 40 PVC CONDUIT MAY BE USED FOR THE SECONDARY UNDERGROUND SERVICE, UNDERGROUND TELEPHONE SERVICE, AND BRANCH AND FEEDER CIRCUITS UNDER SLAB OR EXTERIOR TO THE BUILDING. EXPOSED EXTERIOR CONDUIT SHALL BE SCHEDULE 80 PVC. ALL UNDERGROUND RACEWAYS SHALL BE IDENTIFIED WITH UNDERGROUND LINE MARKING TAPE 6-8 in BELOW GRADE DIRECTLY ABOVE THE RACEWAY. PROVIDE PULL WIRE IN EMPTY CONDUITS. UPSIZE CONDUIT FROM MINIMUM SIZE AS NECESSARY FOR LONGER PULLS. UNDERGROUND RACEWAYS THAT STUB INTO THE BOTTOM OF SWITCHBOARDS, OUTDOOR TRANSFORMERS, GENERATORS, ETC., SHALL RISE AT LEAST 2 in ABOVE THE FINISHED SLAB TO PREVENT WATER FROM DRAINING INTO THE RACEWAYS. RACEWAYS THAT PENETRATE EXTERIOR WALLS OR INTERIOR PARTITIONS SEPARATING SPACES THAT WILL BE AT SIGNIFICANTLY DIFFERENT TEMPERATURES SHALL BE SEALED IN ACCORDANCE WITH ARTICLES 300.5(G), 300.7(A), AND 300.50(F) OF THE NEC. ROUTE CONDUIT IN AND UNDER SLAB FROM POINT-TO-POINT. ROUTE EXPOSED CONDUIT AND CONDUIT INSTALLED ABOVE ACCESSIBLE CEILINGS PARALLEL AND PERPENDICULAR TO WALLS. COMPLETELY AND THOROUGHLY SWAB ALL RACEWAYS BEFORE INSTALLING WIRE. PULL ALL CONDUCTORS INTO EACH RACEWAY AT ONE TIME. USE A SUITABLE WIRE PULLING LUBRICANT FOR BUILDING WIRE #4 AWG AND LARGER.
9. CABLES, RACEWAYS, OR BOXES, INSTALLED IN EXPOSED OR CONCEALED LOCATIONS UNDER METAL-CORRUGATED SHEET ROOF DECKING, SHALL BE INSTALLED AND SUPPORTED SO THERE IS NOT LESS THAN 1-1/2 in MEASURED FROM THE LOWEST SURFACE OF THE ROOF DECKING TO THE TOP OF THE CABLE, RACEWAY, OR BOX. A CABLE, RACEWAY, OR BOX SHALL NOT BE INSTALLED IN CONCEALED LOCATIONS IN METAL-CORRUGATED, SHEET DECKING-TYPE ROOF. SEE NEC 300.4(E)
10. THE EC SHALL PROVIDE ALL OUTLET, JUNCTION, PULL BOXES, FITTINGS, AND SUPPORTS. ALL OUTLET AND JUNCTION BOXES SHALL BE GALVANIZED STEEL TYPE BY APPLETON, STEEL CITY, OR RACO. EXTERIOR BOXES SHALL BE TYPE FS. VAPORTITE BOXES SHALL BE TYPE GS. WHERE SURFACE MOUNTED BOXES ARE USED, THOSE BOXES AND THEIR FACEPLATES SHALL HAVE ROUNDED CORNERS. BOXES INSTALLED IN FLOORS SHALL BE RATED FOR THE APPLICATION. MOUNT JUNCTION AND OUTLET BOXES FLUSH WITH FINISH SURFACES UNLESS OTHERWISE NOTED. WHERE MOUNTING HEIGHTS ARE GIVEN, THEY SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE BOX. ALL BOXES SHALL BE SIZED PER NEC ARTICLE 314. ALL OUTLET AND JUNCTION BOXES SHALL HAVE A COVER PLATE, PROVIDED BY THE EC. OUTLET BOXES IN RATED WALLS SHALL BE INSTALLED IN ACCORDANCE WITH SBC 714.3.2 (MAXIMUM BOX SIZE IS 16 SQUARE in AND MAXIMUM OF SIX (6) BOXES PER 100 SQUARE FEET). INSTALL OUTLET BOXES IN RATED WALLS SUCH THAT OPENINGS OCCUR IN ONE SIDE ONLY WITHIN ANY GIVEN STUD SPACE. ALL CLEARANCES BETWEEN THE OUTLET BOX AND THE GYPSUM BOARD SHALL BE FILLED WITH JOINT COMPOUND OR OTHER APPROVED FIRE STOP MATERIAL. FLUSH MOUNTED JUNCTION BOXES IN ADJACENT ROOMS SHALL NOT BE MOUNTED BACK-TO-BACK. SURFACE MOUNTED FIXTURES SHALL BE FED THROUGH FLUSH MOUNTED 4X4 OCTAGONAL OR SQUARE BOXES.
11. ALL CONDUIT, BOXES, AND ELECTRICAL EQUIPMENT SHALL BE FIRMLY AND SECURELY FASTENED TO OR SUPPORTED FROM THE BUILDING STRUCTURAL MEMBERS OR EMBEDDED IN CONCRETE OR MASONRY. ELECTRICAL SUPPORTS SHALL NOT BE ATTACHED TO DUCTWORK, PIPING, OR THEIR SUPPORTS. HANGERS SHALL BE CATALOG ITEMS COMPATIBLE WITH AND SUITABLE FOR THE INTENDED USE. FOR METAL ROOF DECK INSTALLATIONS, 1 in EMT CONDUIT MAXIMUM AND 4 in JUNCTION BOXES MAXIMUM MAY BE SUPPORTED BY DECKING. THE SUSPENDED CEILING SYSTEM SHALL NOT BE USED FOR THE SUPPORT OF ELECTRICAL RACEWAY SYSTEMS OR SUPPORT OF COMMUNICATIONS OR DATA SYSTEMS WIRING. CONTRACTOR SHALL COMPLY WITH 1613 OF THE SBC.
12. ALL TELEPHONE AND COMMUNICATIONS OUTLETS AND RACEWAYS ARE ROUGH-INS ONLY. EACH TELEPHONE AND COMMUNICATIONS OUTLET SHALL BE A 4 in SQUARE BY 2-1/8 in DEEP BOX WITH 3/4 in KNOCK-OUTS AND A 3/4 in CONDUIT STUBBED FROM THE OUTLET BOX TO ABOVE THE CEILING. PROVIDE A NON-METALLIC INSULATING BUSHING ON ALL CONDUITS STUBBED ABOVE THE CEILING. PROVIDE A BLANK COVER PLATE ON ALL OUTLET BOXES.
13. EC SHALL INSTALL DISCONNECT SWITCHES IN SIGHT OF ALL HARDWIRED EQUIPMENT AND APPLIANCES OR PROVIDE BREAKERS CAPABLE OF BEING LOCKED IN THE OPEN POSITION PER NEC 422.31. FOR MOTOR DRIVEN APPLIANCES, PROVIDE A DISCONNECTING MEANS PER NEC 422.31 AND 430 PART IX. WHERE AN INDIVIDUAL DISCONNECT SWITCH, CIRCUIT BREAKER, STARTER, ETC, IS SHOWN ON THE PLANS ADJACENT TO ITS LOAD AND NOT LOCATED ON A WALL, PROVIDE NECESSARY MATERIALS AND LABOR TO SUPPORT THE DEVICE.
14. EC SHALL FIELD IDENTIFY ALL SWITCH BOARD, PANEL BOARDS, CONTROL PANELS, METER SOCKETS, ETC., TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRICAL ARC FLASH HAZARDS PER 110.16 OF NEC.
15. EC SHALL PROVIDE NAMEPLATES FOR IDENTIFICATION OF ALL EQUIPMENT, SWITCHES, PANELS, ETC. THE NAMEPLATES SHALL BE LAMINATED PHENOLIC PLASTIC, BLACK FRONT, AND BACK WITH WHITE CORE, WHITE ENGRAVED LETTERS (1/4 in MINIMUM) ETCHED INTO THE WHITE CORE. EC SHALL PROVIDE A TYPE WRITTEN DIRECTORY CARD THAT ACCURATELY IDENTIFIES CIRCUITS INSIDE EACH PANEL. HANDWRITTEN LABELS ARE NOT ACCEPTABLE.
16. IN ACCORDANCE WITH SECTION 510 OF THE SFC, TESTING WILL BE REQUIRED TO DETERMINE SATISFACTORY FIRST RESPONDER RADIO SIGNAL STRENGTH INSIDE EACH BUILDINGS ON SITE. TESTING WILL NEED TO EITHER BE COMPLETED BY A COUNTY FIRE INSPECTOR (OBTAIN BY REQUESTING A COURTESY INSPECTION) OR A CERTIFIED 3RD PARTY. TESTING SHALL TAKE PLACE AT BOTH 80% PROJECT COMPLETION AND AGAIN AT 100% COMPLETION. IF UNACCEPTABLE SIGNAL DEGRADATION IS PRESENT AT EITHER 80% OR 100% INSPECTION, THEN AN ACCEPTABLE BOOSTER SYSTEM SHALL BE ADDED TO THE BUILDING DESIGN AT THAT TIME.
17. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
18. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.10(G).
19. PROVIDE AN UNDERGROUND PVC CONDUIT SYSTEM FOR TELEPHONE SERVICE WITH PULL WIRES. EC SHALL COORDINATE WITH TELEPHONE UTILITY REGARDING ADDITIONAL FACILITIES REQUIRED FOR THE SERVICE INSTALLATION.
20. INSTALL ONE (1) 3/4 in FIRE RETARDANT TREATED PLYWOOD BACKBOARD WHERE INDICATED ON THE DRAWINGS FOR THE USE BY THE TELEPHONE SYSTEM. PROVIDE A 120 VOLT RECEPTACLE ADJACENT TO THE TELEPHONE BOARD. GROUND ALL TELEPHONE AND COMMUNICATIONS CIRCUITS PER NEC 800.

MATERIALS:

1. THE EC SHALL PROVIDE ALL NECESSARY DISCONNECTS, SWITCHES, RECEPTACLES, TERMINALS, ETC, UNDER THE ELECTRICAL BID AND SHALL INCLUDE ALL NECESSARY CIRCUITS AND CONNECTIONS TO THE EQUIPMENT PROVIDED BY ALL SUPPLIERS, UNLESS NOTED OTHERWISE BY OTHER DISCIPLINES.
2. EC SHALL PROVIDE ALL SERVICE ENTRANCE EQUIPMENT, SUB PANELS, AND OTHER ELECTRICAL DISTRIBUTION EQUIPMENT AS NECESSARY FOR A COMPLETE INSTALLATION. EC SHALL COORDINATE WITH UTILITY REGARDING SERVICE AND METERING DETAILS. *PRIOR TO ORDERING EQUIPMENT, THE EC SHALL OBTAIN THE AVAILABLE FAULT CURRENT OR TRANSFORMER SIZE AND IMPEDANCE FROM THE UTILITY AND CONTACT THE ENGINEER IF THE VALUE EXCEEDS THE EQUIPMENT SPECIFIED.* PANEL BOARDS AND SWITCH BOARDS SHALL BE SQUARE D, CUTLER-HAMMER, SIEMENS, OR GE. BUSES SHALL BE COPPER UNLESS OTHERWISE APPROVED BY THE ENGINEER. RECESSED PANEL BOARDS SHALL BE INSTALLED FLUSH WITH THE WALL FINISH. METER BASES SHALL COMPLY WITH THE UTILITY'S SPECIFICATIONS AND SHALL BE MOUNTED AT A HEIGHT APPROVED BY THE UTILITY. ALL EQUIPMENT IDENTIFIED FOR SERVICE ENTRANCE USE SHALL BE SO LABELED AND UL LISTED FOR SUCH USE. EC SHALL INSTALL ALL ELECTRICAL EQUIPMENT WITH CLEARANCES PER NEC 110.26. EC SHALL PERMANENTLY LABEL EQUIPMENT PER NEC 110.24.
3. ENCLOSED SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE BY SQUARE D, EATON, OR GE. ENCLOSED SWITCHES SHALL HAVE A HANDLE LOCKABLE IN THE OFF POSITION AND SHALL HAVE A HANDLE INTERLOCKED TO PREVENT OPENING THE FRONT COVER WHILE IN THE ON POSITION. ENCLOSED SWITCHES OF THE FUSIBLE TYPE SHALL BE FUSED IN ACCORDANCE WITH NAMEPLATE DATA WITH DUAL ELEMENT TYPE FUSES BY BUSSMAN, LITTELFUSE, OR MERSEN.
4. OCCUPANCY SENSORS SHALL BE BY WATTSTOPPER, LUTRON, LEVITON, SENSOR SWITCH, HUBBELL, OR APPROVED EQUAL.
5. CIRCUIT BREAKERS SHALL BE MOLDED-CASE, THERMAL MAGNETIC TYPE WITH QUICK-MAKE, QUICK-BREAK MECHANISM, COMMON TRIP ON MULTI-POLE BREAKERS, AND UL LISTED FOR BOTH COPPER AND ALUMINUM CONDUCTORS. CIRCUIT BREAKERS IN PANELS SHALL BE SERIES RATED WITH THE MAIN BREAKER, FULLY RATED FOR THE SYSTEM, OR SERIES RATED WITH THE BREAKER FEEDING THE PANEL FROM THE FACTORY.
6. ALL WIRE, CONNECTORS, TERMINALS, AND LUGS SHALL BE PROVIDED BY THE EC. WHERE CONDUCTORS ARE RUN IN PARALLEL, LUGS SHALL BE LISTED FOR PARALLEL CONDUCTORS. PUSH WIRE CONNECTORS ARE NOT ALLOWED FOR BUILDING WIRE. PUSH CONNECTORS ARE ONLY ALLOWED, WHEN APPROVED, AS PART OF MANUFACTURED LISTED PRODUCTS. ALL WIRE SHALL BE INSTALLED IN CONDUIT UNLESS SPECIFICALLY NOTED OTHERWISE.
7. THE INSULATION TYPE FOR INTERIOR WIRING SHALL BE DUAL RATED THHN/THWN OR XHHW; ALL WIRING INSTALLED BELOW GRADE OR IN MOIST OR WET LOCATIONS SHALL HAVE TYPE THWN OR XHHW INSULATION. INSULATION VOLTAGE RATING SHALL BE 600 VOLTS AND A MINIMUM TEMPERATURE RATING OF 75°C. CONDUCTORS SHALL BE SOLID OR STRANDED COPPER FOR #10 AWG AND #12 AWG, AND STRANDED COPPER FOR #8 AWG AND LARGER SIZES. ALL WIRING AND CABLE SHALL BE UL LISTED. ALL TERMINATIONS AND DEVICES SHALL BE RATED FOR USE WITH 75°C CONDUCTORS. FINAL CONNECTIONS TO ALL MOTORS AND EQUIPMENT SUBJECT TO VIBRATION OR MOVEMENT SHALL BE MADE WITH STRANDED COPPER CONDUCTORS. CONDUCTORS SHALL BE BY CERRO WIRE, INC, INDUSTRIAL WIRE & CABLE, INC, ENCORE WIRE CORPORATION, OR SOUTHWIRE COMPANY.
8. JOINTS IN SOLID CONDUCTORS SHALL BE SPLICED USING IDEAL "WIRE NUTS", 3M "SCOTCH LOCK", OR T&B "PIGGY" CONNECTORS IN JUNCTION BOXES, OUTLET BOXES, AND LIGHTING FIXTURES. JOINTS IN STRANDED CONDUCTORS SHALL BE SPLICED BY APPROVED MECHANICAL CONNECTORS AND GUM RUBBER TAPE OR FRICTION TAPE. SOLDERLESS MECHANICAL CONNECTORS FOR SPLICES AND TAPS, PROVIDED WITH UL APPROVED INSULATING COVERS, MAY BE USED INSTEAD OF MECHANICAL CONNECTORS PLUS TAPE. IN ALL CASES, CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET AND NO SPLICING SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES, TROUGHS, OR GUTTERS. WHERE CONCENTRIC, ECCENTRIC, OR OVERSIZED KNOCKOUTS ARE ENCOUNTERED, A GROUNDING TYPE INSULATED BUSHING SHALL BE PROVIDED.
9. ALL LUMINAIRES SHALL BE LISTED. LUMINAIRES IN WET OR DAMP LOCATIONS SHALL BE MARKED AS SUITABLE FOR THE RESPECTIVE USE. EMERGENCY LIGHTING SHALL BE INSTALLED AS SHOWN. FINAL LOCATIONS OF ALL EXIT AND EMERGENCY LIGHTS SHALL BE VERIFIED WITH THE BUILDING INSPECTOR PRIOR TO INSTALLATION. ALL FLUORESCENT FIXTURES SHALL HAVE ELECTRONIC BALLASTS MEETING ANSI C82.11 FOR ELECTRONIC BALLAST PERFORMANCE. ALL BALLASTS SHALL BE UL LISTED AND MEET FEDERAL AND STATE EFFICIENCY REQUIREMENTS.
10. ALL CONDUIT, FITTINGS, COUPLINGS, AND SUPPORTS SHALL BE PROVIDED BY THE EC. CONDUIT FITTINGS AND COUPLINGS SHALL BE BY APPLETON, RACO, OR O-Z/GEDNEY. COUPLINGS SHALL BE THREADED, SET-SCREW, OR COMPRESSION TYPE. INDENTER OR CRIMP TYPE ARE NOT PERMITTED. CONDUIT FITTINGS AT ALL ELECTRICAL BOXES INCLUDING PULL, JUNCTION, AND OUTLET BOXES, SHALL HAVE INSULATED THROATS TO PREVENT INSULATION SCORING. DIE CAST FITTINGS ARE NOT PERMITTED
11. EMT SHALL BE MANUFACTURED IN ACCORDANCE WITH AMERICAN NATIONAL STANDARDS INSTITUTE-AMERICAN NATIONAL STANDARD FOR STEEL ELECTRICAL METALLIC TUBING (EMT), ANSI C80.3 AND UL 797. RIGID METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR ELECTRICAL RIGID STEEL CONDUIT (ERSC), ANSI C80.1 AND UL 6. INTERMEDIATE METAL CONDUIT SHALL BE MANUFACTURED IN ACCORDANCE WITH ANSI-AMERICAN NATIONAL STANDARD FOR INTERMEDIATE METAL CONDUIT ANSI C80.6 AND UL 1242.
12. METAL CONDUIT SHALL BE BY ALLIED TUBING & CONDUIT, BECK MANUFACTURING, INC, OR WHEATLAND TUBE COMPANY. FLEXIBLE METAL CONDUIT, LIQUID-TIGHT FLEXIBLE METAL CONDUIT, AND NONMETALLIC CONDUIT SHALL BE BY AFC CABLE SYSTEMS, INC, ELECTRI-FLEX COMPANY, OR INTERNATIONAL METAL HOSE.

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ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
ELECTRICAL NOTES

Project No.
250077

Consultant

Seal: NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E-1

LIGHTING DEVICE LEGEND

SYMBOL	DESCRIPTION	REMARKS
$	SINGLE POLE WALL SWITCH	HEAVY DUTY, AC ONLY, COMMERCIAL GRADE GENERAL USE SNAP SWITCH COMPLYING WITH NEMA WD 6 AND WD 1. IVORY PLASTIC BODY WITH TOGGLE HANDLE. 120-277V, 20A. MEET FEDERAL SPECIFICATION W-S-896.
$D	DIMMER SWITCH	COMMERCIAL GRADE, 120V, 1500W
$M	WALL MOUNTED OCCUPANCY SENSOR	WATTSTOPPER DSW-301-W LINE VOLTAGE OCCUPANCY SENSOR. ULTRA SONIC AND INFRARED.
$LV	LOW VOLTAGE SWITCH	WATTSTOPPER LVSW-101-B LOW VOLTAGE MOMENTARY CONTROL SWITCH.
$3	3 WAY SWITCH	3-WAY TYPE SWITCH WITH SAME CHARACTERISTICS AS SINGLE POLE SWITCH ABOVE.
(DT)	CEILING OCCUPANCY SENSOR	WATTSTOPPER, HBL7 LOW VOLTAGE OCCUPANCY SENSOR. 360° ULTRA SONIC AND INFRARED.
(P)	POWER PACK	WATTSTOPPER, BZ-150 LOW VOLTAGE POWER PACK FOR CEILING PACK SENSORS.
(J)	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.
⊠	EXHAUST FAN	VENT FAN, 120V, CFM AS NOTED MC TO PROVIDE AND VENT, EC TO WIRE.

POWER DEVICE LEGEND

SYMBOL	DESCRIPTION	REMARKS
▶	DATA AND TELEPHONE JACK	PHONE/DATA OUTLET. EC TO INSTALL 3/4"C WITH PULL-STRING FROM OUTLET BOX TO ABOVE CEILING FOR FUTURE USE. JACKS AND COMMUNICATION CABLING BY OTHERS.
	DUPLEX RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596.
	QUAD RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE.
	DEDICATED RECEPTACLE	NEMA 5-20R, HEAVY DUTY, COMMERCIAL GRADE, 125V, 20A COMPLYING WITH NEMA WD 6 AND WD 1 UNLESS OTHERWISE NOTED ON PLANS. VERIFY PLUG TYPE PRIOR TO PURCHASE & INSTALLATION. GFCI OR AFCI IF NOTED. 'WP' DENOTES WEATHERPROOF COVER. 'CH' DENOTES COUNTER HEIGHT. LISTED TAMPERPROOF IF NOTED. MEET FEDERAL SPECIFICATION W-C-596. MAY BE EITHER SIMPLEX, DUPLEX, OR QUAD.
	240V RECEPTACLE	240V RECEPTACLE WITH SAME CHARACTERISTICS AS DUPLEX TYPE ABOVE. VERIFY NEMA PLUG CONFIGURATION.
	DUPLEX FLOOR RECEPTACLE	DUPLEX RECEPTACLE OF SAME CHARACTERISTICS AS ABOVE WITH BRASS COVER. MOUNT IN FLOOR. ALL FLOOR BOXES MUST BE LISTED FOR FLOOR APPLICATION.
	QUAD FLOOR RECEPTACLE	QUAD RECEPTACLE OF SAME CHARACTERISTICS AS ABOVE WITH BRASS COVER. MOUNT IN FLOOR. ALL FLOOR BOXES MUST BE LISTED FOR FLOOR APPLICATION.
	FUSIBLE DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS, FUSE ACCORDING TO NAMEPLATE DATA.
	DISCONNECT SWITCH	HEAVY DUTY TYPE. TYPE 1 ENCLOSURE IN INTERIOR APPLICATIONS, TYPE 3R ENCLOSURE IN EXTERIOR APPLICATIONS.
(J)	JUNCTION BOX	GALVANIZED METAL BOX CONSTRUCTED IN ACCORDANCE WITH 314.40 OF THE NEC.

ELECTRICAL DESIGNER'S STATEMENT			
ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE			
PRESCRIPTIVE _X__ PERFORMANCE____ ENERGY COST BUDGET___			
LIGHTING SCHEDULE:			
LAMP TYPE REQUIRED IN FIXTURE:		SEE LIGHTING LEGEND	
NUMBER OF LAMPS PER FIXTURE:		SEE LIGHTING LEGEND	
BALLAST TYPE USED IN FIXTURE:		SEE LIGHTING LEGEND	
NUMBER OF BALLASTS IN FIXTURE:		SEE LIGHTING LEGEND	
TOTAL WATTAGE PER FIXTURE:		SEE LIGHTING LEGEND	
TOTAL INTERIOR WATTAGE SPECIFIED VS ALLOWED:		WATTS SPECIFIED	WATTS ALLOWED
		1409.6	14685.3
OCCUPANCY	AREA (sf)	ALLOWANCE (W/sf)	WATTAGE ALLOWED
RETAIL	11655	1.26	14685.3
TOTAL	11655		14685.3
EQUIPMENT SCHEDULES WITH MOTORS (NOT USED FOR MECHANICAL SYSTEMS)			
MOTOR HORSEPOWER: N/A			
NUMBER OF PHASES: N/A			
MINIMUM EFFICIENCY: N/A			
MOTOR TYPE: N/A			
DESIGNER STATEMENT: TO THE BEST OF MY KNOWLEDGE AND BELIEF, THE DESIGN OF THIS BUILDING COMPLIES WITH THE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE.			

FOR THE ADDITIONAL PRESCRIPTIVE REQUIREMENT REQUIRED BY C406 OF 2018 NORTH CAROLINA ENERGY CONSERVATION CODE, WE ARE CHOOSING C406.3 - REDUCED LIGHTING POWER DENSITY.			
1409.6W SPECIFIED	<=	13216.77W	14685.3W ALLOWED X 90%

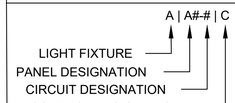
OCCUPANCY SENSORS SEQUENCE OF OPERATION WITH LOW-VOLTAGE MOMENTARY SWITCH

1. OCCUPANCY SENSOR DETECTS MOTION AND TURNS THE LIGHTS ON. SENSOR HOLDS LIGHTS ON AS LONG AS MOTION IS DETECTED. IF AFTER THE SET TIME DELAY, NO MOTION IS DETECTED, LIGHTS TURN OFF. CONSULT OWNER FOR DESIRED TIME DELAY SETTING.
2. THE LOAD CAN BE TURNED ON USING THE MANUAL SWITCH AND IT STAYS ON ACCORDING TO THE OCCUPANCY LOGIC SETTING. THE TIME DELAY OPERATES AS PROGRAMMED. WHEN THE LOAD TURNS OFF DUE TO LACK OF OCCUPANCY DETECTION, IT CAN BE TURNED ON AGAIN BY OCCUPANCY DETECTION OR THE SWITCH.
3. ACTIVATING THE MANUAL SWITCH WHILE THE LOAD IS ON TURNS THE LOAD OFF.
   - 3.1. WHEN THE LOAD IS TURNED OFF MANUALLY, AS LONG AS THE SENSOR CONTINUES TO DETECT OCCUPANCY THE LOAD STAYS OFF. FIVE MINUTES AFTER THE LAST OCCUPANCY DETECTION, THE LIGHTS STAY OFF AND THE SENSOR REVERTS TO THE AUTOMATIC-ON MODE.
   - 3.2. WHEN THE LOAD IS TURNED OFF MANUALLY, PRESSING THE SWITCH AGAIN TURNS THE LOAD ON AND THE SENSOR REVERTS TO THE AUTOMATIC-ON MODE.
   - 3.3. ONCE RETURNING TO AUTOMATIC-ON MODE, EITHER THE SWITCH OR OCCUPANCY DETECTION CAN TURN THE LOAD ON.
4. LOW-VOLTAGE INPUT SIGNAL FROM TIME CLOCK HOLDS LIGHTS ON DURING RETAIL HOURS REGARDLESS OF OCCUPANCY DETECTION.

NOTES FOR EMERGENCY FIXTURES

1. FOR INTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE FIXTURE BALLAST AHEAD OF ALL SWITCHES, SENSORS, ETC.
2. FOR EXTERIOR FIXTURES WITH EMERGENCY BATTERIES, WIRE THE BATTERY CHARGER ON THE SAME CIRCUIT AS THE NORMAL EXTERIOR LIGHTS OR AS SHOWN ON PLANS AHEAD OF ALL CONTACTORS, PHOTOCELLS, ETC.
3. IN BOTH CASES, EMERGENCY POWER SHOULD INITIATE ONLY IN THE EVENT OF THE LOSS OF NORMAL POWER. ALL BATTERIES SHALL BE RATED TO POWER EMERGENCY ILLUMINATION FOR 90 MINUTES MINIMUM.

LIGHTING CIRCUIT DESIGNATIONS



* LOWER CASE LETTER INDICATES SWITCH ID
- NL - NIGHT LIGHT - 24/7 OPERATION
- P - PHOTOCELL
- D - DIMMER
- A# - OCCUPANCY SENSOR CIRCUIT (E.G. RMJ-B1)
- T - TIMER/TIME CLOCK
- $ - TOGGLE SWITCH

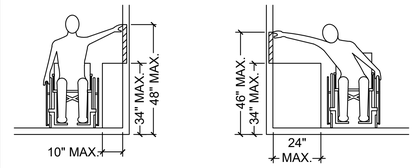
POWER CIRCUIT DESIGNATIONS

OCCUPANCY SENSORS SEQUENCE OF OPERATIONS WITH LINE-VOLTAGE SWITCH

1. LINE VOLTAGE SWITCH MUST BE TURNED ON OR IN ON POSITION.
2. OCCUPANCY SENSOR DETECTS MOTION AND TURNS THE LIGHTS ON. SENSOR HOLDS LIGHTS ON AS LONG AS MOTION IS DETECTED. IF AFTER THE SET TIME DELAY, NO MOTION IS DETECTED, LIGHTS TURN OFF. CONSULT OWNER FOR DESIRED TIME DELAY SETTING.
3. THE LOAD CAN BE TURNED OFF USING THE MANUAL LINE VOLTAGE SWITCH AND IT STAYS OFF UNTIL THE SWITCH IS TURNED TO ON POSITION AND THE OCCUPANCY SENSOR DETECTS OCCUPANCY.

LEGEND

- [T] REFER TO TRANSFORMER SCHEDULE ABOVE
- [B] REFER TO BREAKER FEEDER SCHEDULE ABOVE
- [#] REFER TO GENERAL FEEDER SCHEDULE ABOVE



ANSI A117.1 FIG. 308.3.2 OBSTRUCTED HIGH REACH SIDE.
ALL SWITCHES AND CONTROLS MUST COMPLY FOR ALL COUNTERTOPS

LIGHT FIXTURE SCHEDULE

MARK	DESCRIPTION	LOUVER/LENS	LAMPS		VOLTAGE	INPUT WATTAGE	MOUNTING	REMARKS	MFG	MODEL
			TYPE	CCT						
A	4' LED STRIP LIGHT	VERIFY	LED	4000K	120	35.3	SUSPENDED	2	LITHONIA	CSS L48 4000LM MVOLT 40K 80CRI
B	2X4 LED PANEL	VERIFY	LED	4000K	120	35	RECESSED	2	LITHONIA	CPANL 2X4 AL06 SWW7 M2
C	EXTERIOR WALL PACK	VERIFY	LED	4000K	120	36	SURFACE	2	LITHONIA	TWR1 LED ALO SWW2 UVOLT PE DDBTXD
EXH	LED EXIT/EMERGENCY COMBO	ACRYLIC	LED	N/A	-	-	VARIES	1,2	EELP	XC-LED-2-R-W-SD
EM	DUAL HEAD EMERGENCY FIXTURE	ACRYLIC	LED	N/A	-	2	VARIES	1,2	LITHONIA	ELM2L-SDRT
OE	EXTERIOR LIGHT	ACRYLIC	LED	N/A	-	2	VARIES	1,2	LITHONIA	AFO-DB-MVOLT-N-SD

1. FIXTURE SHALL HAVE BATTERY BACKUP FOR 90 MINUTE ILLUMINATION.
2. OR EQUAL BY COOPER, MOBERN, OR CURRENT BY GE LIGHTING.

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No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
ELECTRICAL SCHEDULES

Project No.
250077

Consultant

Seal: NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E – 2

LIGHTING PLAN HEX NOTES

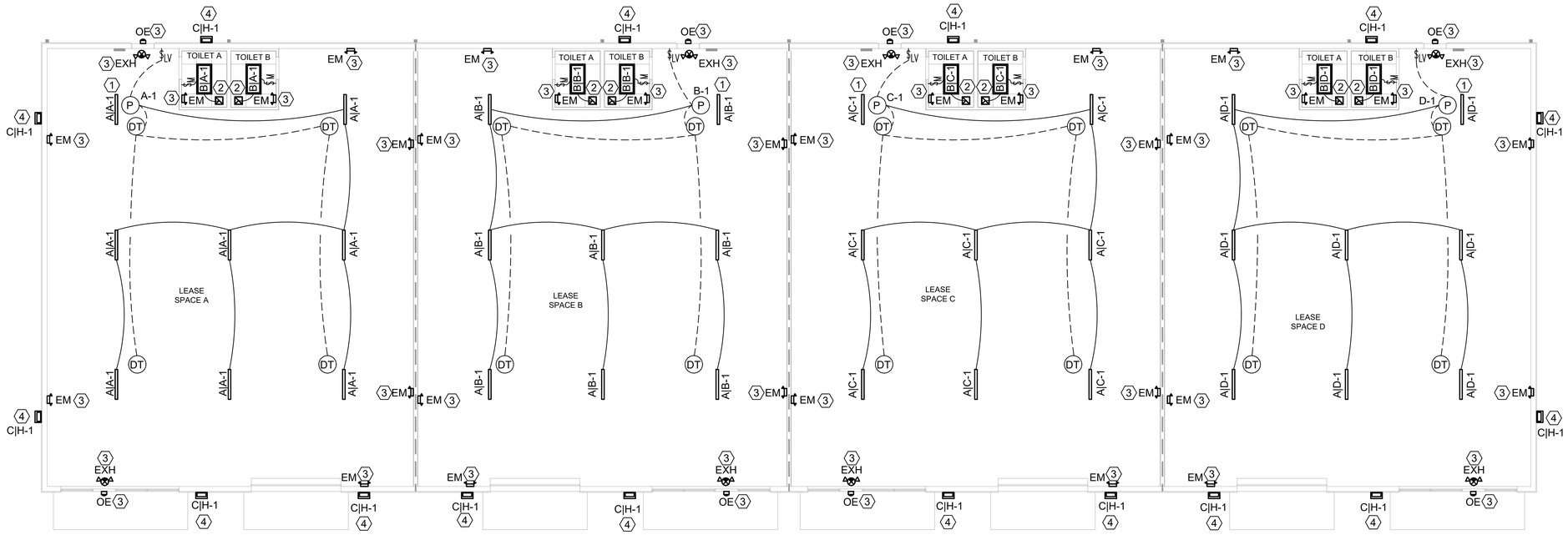
1. LIGHT TO BE 24/7
2. EXHAUST FAN TO BE POWERED THROUGH ROOM LIGHTING
3. EMERGENCY LIGHTING TO BE WIRED INTO NEAREST AREA LIGHTING CIRCUIT AHEAD OF ALL LIGHTING CONTROLS.
4. EXTERIOR LIGHTING TO BE CONTROLLED VIA PHTOTCELL

WALL / CEILING LEGEND

NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED



1 LIGHTING PLAN
Scale: 1/8" = 1'-0"

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Drawing Title
LIGHTING PLAN

Project No.
250077

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KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E-3

WALL / CEILING LEGEND

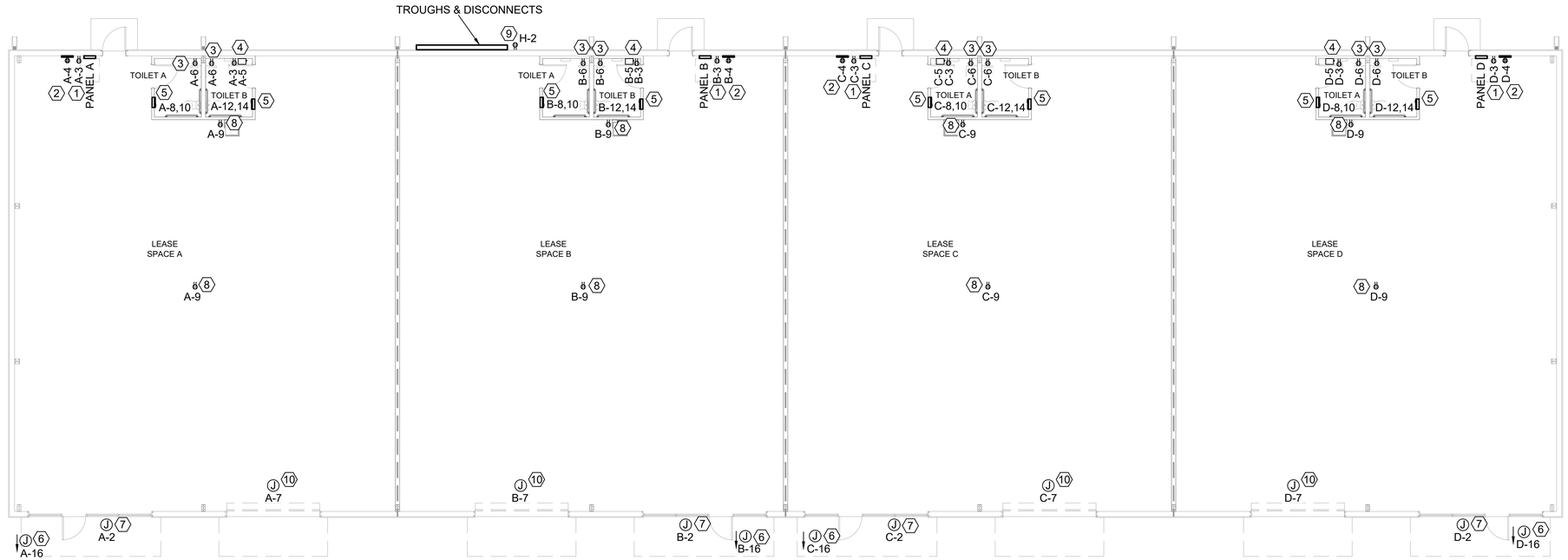
NON-RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" GYPSUM BOARD EACH SIDE (PROVIDE R-11 INSULATION AROUND ALL TOILETS AND OFFICES)

1 HOUR RATED WALLS:
ALL INTERIOR WALLS SHOWN THUS SHALL BE METAL STUDS WITH 5/8" TYPE X GYPSUM BOARD EACH SIDE TO BOTTOM OF ROOF (PROVIDE R-13 BATT INSULATION)

NOTE: FIRE EXTINGUISHERS SHALL NOT BE OBSTRUCTED OR OBSCURED FROM VIEW AND MUST BE INSTALLED IN CONSPICUOUS LOCATIONS. CABINETS SHALL BE PROVIDED WITH A MEANS OF READY ACCESS AND SHALL NOT BE LOCKED

POWER PLAN HEX NOTES

1. SERVICE RECEPTACLE, GFCI RATED, MOUNTED AT 18" AFF.
2. GFCI RECEPTACLE FOR PHONE BOARD
3. GFCI RECEPTACLE, MOUNTED AT COUNTER HEIGHT
4. DISCONNECT & GFCI RECEPTACLE FOR WATER HEATER LOCATED ABOVE CEILING
5. UNIT HEATER TO HAVE BUILT IN MEANS OF DISCONNECT. EC TO VERIFY WITH MC. EC TO PROVIDE DISCONNECT IF REQUIRED.
6. POWER FOR HOTBOX, SEE SITE PLAN FOR LOCATION
7. J-BOX FOR EXTERIOR SIGN, CONFIRM LOCATION WITH OWNER PRIOR TO INSTALLATION
8. POWER FOR HEAT TAPE ON CWS NEAR CEILING, COORDINATE EXACT LOCATION AND ELECTRICAL NEEDS WITH PC.
9. GFCI-WP RECEPTACLE MOUNTED AT 18" A.F.F.
10. POWER FOR GARAGE DOOR. VERIFY LOCATION AND EXACT REQUIREMENTS WITH MANUFACTURER.



1 POWER PLAN
Scale: 1/8" = 1'-0"

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Drawing Title
POWER PLAN

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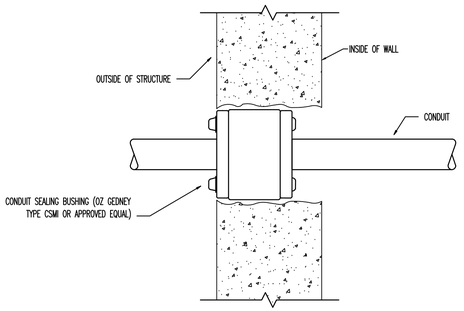
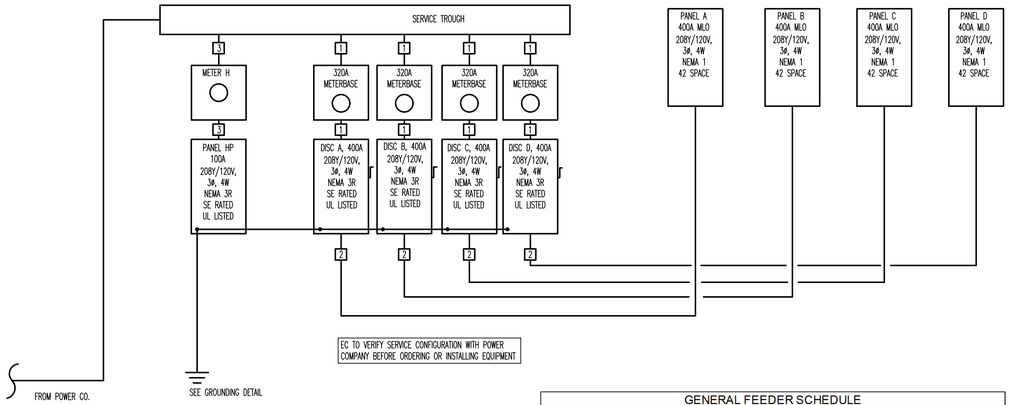


1 EXTERIOR WALL PENETRATION

BREAKER FEEDER SCHEDULE			
AMPS	Wire Size	Ground Size	Conduit Size
15A	#12	#12	1/2"
20A	#12	#12	1/2"
25A	#10	#10	3/4"
30A	#10	#10	3/4"
35A	#8	#10	1"
40A	#8	#10	1"
50A	#8	#10	1"
60A	#6	#10	1 1/4"
70A	#4	#8	1 1/4"
80A	#4	#8	1 1/4"
90A	#3	#8	1 1/2"
100A	#3	#8	1 1/2"
110A	#2	#6	2"
125A	#1	#6	2"
150A	1/0	#6	2 1/2"
175A	2/0	#6	2 1/2"
200A	3/0	#6	2 1/2"
225A	4/0	#4	2 1/2"
250A	250 MCM	#4	3"
300A	350 MCM	#4	3 1/2"
350A	500 MCM	#3	4"
400A	2 Sets- 3/0	#3	2 1/2"
500A	2 Sets - 250 MCM	#2	3"
600A	2 Sets - 350 MCM	#1	3 1/2"
700A	3 Sets - 250 MCM	1/0	3"
800A	3 Sets - 300 MCM	1/0	3 1/2"
1000A	3 Sets - 400 MCM	2/0	3 1/2"

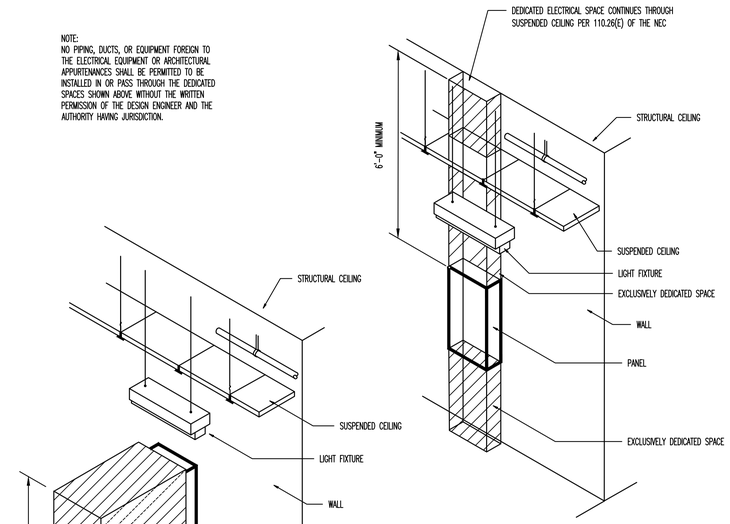
1. CONDUCTOR PER POLE PLUS NEUTRAL PER SET. E.C. TO VERIFY NECESSITY OF NEUTRAL FOR EACH CIRCUIT. NEUTRAL MAY BE DELETED IF NOT REQUIRED FOR INDIVIDUAL PIECES.



GENERAL FEEDER SCHEDULE		
MARK	WIRE AND CONDUIT	AMPS
1	2 SETS-3-3/0 CU, 1-3/0 CU NEU., 2-1/2" CO.	400A
2	2 SETS-3-3/0 CU, 1-3/0 CU NEU., 1-#3 CU GRD., 2-1/2" CO.	400A
3	3-#3 CU, 1-#3 CU NEU., 1-1/2" CO.	100A

2 ELECTRICAL RISER

NOTE:
NO PIPING, DUCTS, OR EQUIPMENT FOREIGN TO THE ELECTRICAL EQUIPMENT OR ARCHITECTURAL APPURTENANCES SHALL BE PERMITTED TO BE INSTALLED IN OR PASS THROUGH THE DEDICATED SPACES SHOWN ABOVE WITHOUT THE WRITTEN PERMISSION OF THE DESIGN ENGINEER AND THE AUTHORITY HAVING JURISDICTION.



NOTE: THIS FIGURE ILLUSTRATES THE ADDITIONAL EXCLUSIVELY DEDICATED SPACE REQUIRED OVER AND UNDER THE PANELBOARD BY 110.26(E) OF THE NATIONAL ELECTRIC CODE.

NOTE: THIS FIGURE ILLUSTRATES THE WORKING SPACE IN FRONT OF THE PANELBOARD REQUIRED BY 110.26 OF THE NATIONAL ELECTRIC CODE.

NOTE: WHERE THE CONDITIONS ARE AS FOLLOWS:

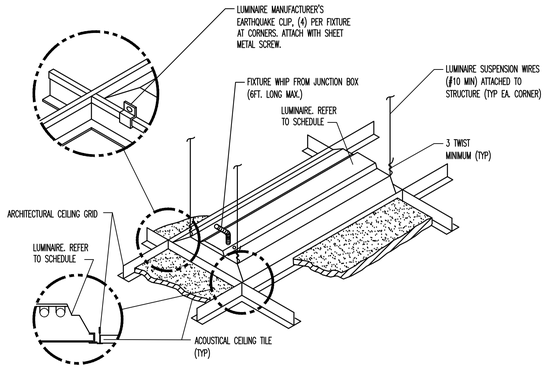
CONDITION 1 – EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE, OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.

CONDITION 2 – EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDED PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, OR TILE WALLS SHALL BE CONSIDERED AS GROUNDED.

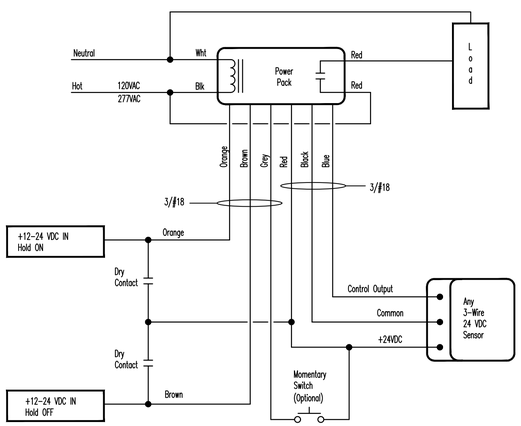
CONDITION 3 – EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

TABLE 110.26(A)(1) WORKING SPACE			
VOLTAGE TO GROUND, NOMINAL	MINIMUM CLEAR DISTANCE (FEET)		
	CONDITION 1	2	3
0-150	3	3	3
151-600	3	3-1/2	4

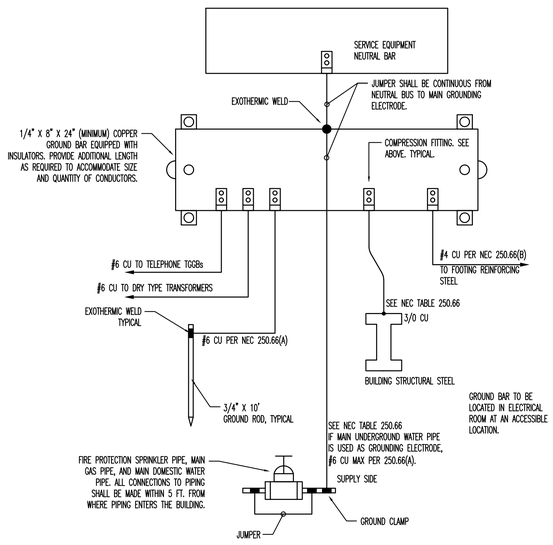
3 REQUIRED CLEARANCES



4 LAY IN FIXTURE SUPPORT



5 CEILING OCCUPANCY SENSOR WIRING



6 GROUNDING DETAIL

Kilian Engineering, Inc.
PO Box 3301, Henderson, NC 27536
www.kilianengineering.com
252.438.8778

Craig A. Otto
ARCHITECT, INC.
DESIGN • PLANNING • ARCHITECTURE
105 West Main Street, Suite C
Lexington, South Carolina 29072
Phone (803) 957-9004
craig@craigottoarchitect.com

No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
HOUSE PANEL,POWER RISER & ELECTRICAL DETAILS

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E-5

PANEL A								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	INTERIOR LIGHTS	20/1	0.44	A	1.00	20/1	BUILDING SIGN	2
3	SERVICE RECEPTS	20/1	0.36	B	0.36	20/1	PHONE BOARD	4
5	WATER HEATER	20/1	1.50	C	0.36	20/1	BATHROOM RECEPTS	6
7	GARAGE DOOR	20/1	1.20	A	1.51	20/2	BATHROOM HEATER 1	8
9	HEAT TAPE RECEPTS	20/1	0.90	B	1.51			10
11	SPARE	20/1	0.00	C	1.51	20/2	BATHROOM HEATER 2	12
13	SPACE		0.00	A	1.51			14
15	SPACE		0.00	B	0.50	20/1	HOT BOX	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			PH	kVA	AMPS			
			A	5.66	47.167			
			B	3.63	30.25			
			C	3.37	28.083			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		400A
MAIN CIRCUIT BREAKER RATING		MLO
AIC RATING		22K
SERVICE ENTRANCE RATED		NO
ENCLOSURE		NEMA 1
MOUNTING		SURFACE

PANEL B								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	INTERIOR LIGHTS	20/1	0.44	A	1.00	20/1	BUILDING SIGN	2
3	SERVICE RECEPTS	20/1	0.36	B	0.36	20/1	PHONE BOARD	4
5	WATER HEATER	20/1	1.50	C	0.36	20/1	BATHROOM RECEPTS	6
7	GARAGE DOOR	20/1	1.20	A	1.51	20/2	BATHROOM HEATER 1	8
9	HEAT TAPE RECEPTS	20/1	0.90	B	1.51			10
11	SPARE	20/1	0.00	C	1.51	20/2	BATHROOM HEATER 2	12
13	SPARE	20/1	0.00	A	1.51			14
15	SPACE		0.00	B	0.50	20/1	HOT BOX	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			PH	kVA	AMPS			
			A	5.66	47.167			
			B	3.63	30.25			
			C	3.37	28.083			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		400A
MAIN CIRCUIT BREAKER RATING		MLO
AIC RATING		22K
SERVICE ENTRANCE RATED		NO
ENCLOSURE		NEMA 1
MOUNTING		SURFACE

PANEL C								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	INTERIOR LIGHTS	20/1	0.44	A	1.00	20/1	BUILDING SIGN	2
3	SERVICE RECEPTS	20/1	0.36	B	0.36	20/1	PHONE BOARD	4
5	WATER HEATER	20/1	1.50	C	0.36	20/1	BATHROOM RECEPTS	6
7	GARAGE DOOR	20/1	1.20	A	1.51	20/2	BATHROOM HEATER 1	8
9	HEAT TAPE RECEPTS	20/1	0.90	B	1.51			10
11	SPARE	20/1	0.00	C	1.51	20/2	BATHROOM HEATER 2	12
13	SPARE	20/1	0.00	A	1.51			14
15	SPACE		0.00	B	0.50	20/1	HOT BOX	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			PH	kVA	AMPS			
			A	5.66	47.167			
			B	3.63	30.25			
			C	3.37	28.083			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		400A
MAIN CIRCUIT BREAKER RATING		MLO
AIC RATING		22K
SERVICE ENTRANCE RATED		NO
ENCLOSURE		NEMA 1
MOUNTING		SURFACE

PANEL D								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	INTERIOR LIGHTS	20/1	0.44	A	1.00	20/1	BUILDING SIGN	2
3	SERVICE RECEPTS	20/1	0.36	B	0.36	20/1	PHONE BOARD	4
5	WATER HEATER	20/1	1.50	C	0.36	20/1	BATHROOM RECEPTS	6
7	GARAGE DOOR	20/1	1.20	A	1.51	20/2	BATHROOM HEATER 1	8
9	HEAT TAPE RECEPTS	20/1	0.90	B	1.51			10
11	SPARE	20/1	0.00	C	1.51	20/2	BATHROOM HEATER 2	12
13	SPARE	20/1	0.00	A	1.51			14
15	SPACE		0.00	B	0.50	20/1	HOT BOX	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
31	SPACE		0.00	A	0.00		SPACE	32
33	SPACE		0.00	B	0.00		SPACE	34
35	SPACE		0.00	C	0.00		SPACE	36
37	SPACE		0.00	A	0.00		SPACE	38
39	SPACE		0.00	B	0.00		SPACE	40
41	SPACE		0.00	C	0.00		SPACE	42
			PH	kVA	AMPS			
			A	5.66	47.167			
			B	3.63	30.25			
			C	3.37	28.083			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		400A
MAIN CIRCUIT BREAKER RATING		MLO
AIC RATING		22K
SERVICE ENTRANCE RATED		NO
ENCLOSURE		NEMA 1
MOUNTING		SURFACE

PANEL H								
CKT	LOAD	BKR	LOAD kVA	PH	LOAD kVA	BKR	LOAD	CKT
1	EXTERIOR LIGHTS	20/1	0.72	A	0.18	20/1	SERVICE RECEPTACLE	2
3	SPARE	20/1	0.00	B	0.00	20/1	SPARE	4
5	SPARE	20/1	0.00	C	0.00	20/1	SPARE	6
7	SPARE		0.00	A	0.00		SPACE	8
9	SPACE		0.00	B	0.00		SPACE	10
11	SPACE		0.00	C	0.00		SPACE	12
13	SPACE		0.00	A	0.00		SPACE	14
15	SPACE		0.00	B	0.00		SPACE	16
17	SPACE		0.00	C	0.00		SPACE	18
19	SPACE		0.00	A	0.00		SPACE	20
21	SPACE		0.00	B	0.00		SPACE	22
23	SPACE		0.00	C	0.00		SPACE	24
25	SPACE		0.00	A	0.00		SPACE	26
27	SPACE		0.00	B	0.00		SPACE	28
29	SPACE		0.00	C	0.00		SPACE	30
			PH	kVA	AMPS			
			A	0.90	7.5			
			B	0.00	0			
			C	0.00	0			

VOLTAGE/PHASE		208Y/120V, 3P, 4W
BUS RATING		100A
MAIN CIRCUIT BREAKER RATING		100A
AIC RATING		22K
SERVICE ENTRANCE RATED		YES
ENCLOSURE		NEMA 3R
MOUNTING		SURFACE

PANEL A - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	100%	1.82	1.82	1.82	5.46	220.12	2880 SF X 1.9 VA/SF
RECEPTACLES < 10 kVA	100%	0.00	0.72	0.36	1.08	220.44	
HVAC	100%	3.02	1.51	1.51	6.04	--	BASED ON MCA
SIGN	100%	1.00	0.00	0.00	1.00	220.14(F)	
EQUIPMENT	100%	1.20	1.40	0.00	2.60	--	
WATER HEATER	125%	0.00	0.00	1.50	1.50	422.13	STORAGE TANK < 120 GAL @ 125%
DEMAND kVA PER PHASE		7.04	5.45	5.19			
DEMAND AMPS PER PHASE		58.64	45.40	43.23			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL B - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	100%	1.82	1.82	1.82	5.46	220.12	2880 SF X 1.9 VA/SF
RECEPTACLES < 10 kVA	100%	0.00	0.72	0.36	1.08	220.44	
HVAC	100%	3.02	1.51	1.51	6.04	--	BASED ON MCA
SIGN	100%	1.00	0.00	0.00	1.00	220.14(F)	
EQUIPMENT	100%	1.20	1.40	0.00	2.60	--	
WATER HEATER	125%	0.00	0.00	1.50	1.50	422.13	STORAGE TANK < 120 GAL @ 125%
DEMAND kVA PER PHASE		7.04	5.45	5.19			
DEMAND AMPS PER PHASE		58.64	45.40	43.23			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL H - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
EXTERIOR LIGHTING	100%	0.72	0.00	0.00	0.72	220.12	
RECEPTACLES < 10 kVA	100%	0.18	0.00	0.00	0.18	220.44	
DEMAND kVA PER PHASE		0.90	0.00	0.00			
DEMAND AMPS PER PHASE		7.50	0.00	0.00			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL C - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	100%	1.82	1.82	1.82	5.46	220.12	2880 SF X 1.9 VA/SF
RECEPTACLES < 10 kVA	100%	0.00	0.72	0.36	1.08	220.44	
HVAC	100%	3.02	1.51	1.51	6.04	--	BASED ON MCA
SIGN	100%	1.00	0.00	0.00	1.00	220.14(F)	
EQUIPMENT	100%	1.20	1.40	0.00	2.60	--	
WATER HEATER	125%	0.00	0.00	1.50	1.50	422.13	STORAGE TANK < 120 GAL @ 125%
DEMAND kVA PER PHASE		7.04	5.45	5.19			
DEMAND AMPS PER PHASE		58.64	45.40	43.23			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

PANEL D - NEC ELECTRIC DEMAND SUMMARY 208Y/120V, 3P, 4W

EQUIPMENT	DEMAND FACTOR	kVA A	kVA B	kVA C	LOAD kVA	NEC REFERENCE	NOTES/CALCULATIONS
LIGHTING	100%	1.82	1.82	1.82	5.46	220.12	2880 SF X 1.9 VA/SF
RECEPTACLES < 10 kVA	100%	0.00	0.72	0.36	1.08	220.44	
HVAC	100%	3.02	1.51	1.51	6.04	--	BASED ON MCA
SIGN	100%	1.00	0.00	0.00	1.00	220.14(F)	
EQUIPMENT	100%	1.20	1.40	0.00	2.60	--	
WATER HEATER	125%	0.00	0.00	1.50	1.50	422.13	STORAGE TANK < 120 GAL @ 125%
DEMAND kVA PER PHASE		7.04	5.45	5.19			
DEMAND AMPS PER PHASE		58.64	45.40	43.23			

*THE CALCULATED LIGHTING LOAD EXCEEDS THE CONNECTED LIGHTING LOAD.

Kilian Engineering, Inc.
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DESIGN • PLANNING • ARCHITECTURE
105 West Main Street, Suite C
Lexington, South Carolina 29072
Phone (803) 957-9004
craig@craigottoarchitect.com

No.	Revisions	Date

Project Title
ASSOCIATED CONTRACT SERVICES
JARCO DR., FUQUAY VARINA, NC

Drawing Title
BREAKER SCHEDULES & POWER RISER

Project No.
250077

Consultant

Seal
NORTH CAROLINA PROFESSIONAL SEAL 17304 ENGINEER MICHAEL W. KILIAN 03/07/2025
KILIAN ENGINEERING, INC. CORPORATE SEAL NORTH CAROLINA

Date 03/07/2025
Drawn By JDD/EMB
Drawing No. E-6

Construction Drawings

Issued for	**Review**
Date Issued	**March 28, 2025**
Latest Issue	**April 6, 2026**

Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

SITE2504-0001

vhb.com

VHB Engineering NC, P.C.
940 Main Campus Drive
Suite 500
Raleigh, NC 27606
919.829.0328
Corp. # C-3705

Developer

Associated Contract Services, Inc.
141 Country Haven Lane
Fuquay-Varina, NC 27526
Contact: Jonathon Tucker, C/O
Telephone: 919.601.9034
Email: john@associatedcontractservices.com

Engineer

VHB Engineering NC, P.C.
940 Main Campus Drive Suite 500
Raleigh, NC 27606
Contact: Charles Townsend, PE
Telephone: 919.741.5567
Email: ctownsend@vhb.com

Sheet Index

Reference Drawings

No.	Drawing Title	Latest Issue
1 of 1	RECOMBINATION PLAT	July 16, 2025

STATISTICAL DATA

PROJECT SITE ADDRESS	65 JARCO DRIVE FUQUAY VARINA, NC, 27526
HARNETT COUNTY PIN.	0654-68-0039
ZONING	IND
DEED BOOK AND PAGE	3442 : 0264
TOTAL PARCEL AREA	6.95 ACRES
DISTURBED AREA	184,169 SF / 4.23 ACRES
PRE-DEVELOPMENT IMPERVIOUS AREA	0 SF / 0 ACRES
POST-DEVELOPMENT IMPERVIOUS AREA	73,805 SF / 1.69 ACRES
POST-DEVELOPMENT IMPERVIOUS PERCENTAGE	24.3%
HYDROLOGIC UNIT CODE (HUC)	0303000405
WATERSHED	BUIES CREEK - CAPE FEAR RIVER
FLOODPLAIN ZONE	X
FLOOD INSURANCE RATE MAP NUMBER	3720065400J
BUILDING INFORMATION	
BUILDING USE(S):	WAREHOUSE
BUILDING MAX HEIGHT:	35'-0"
TOTAL AREA BUILDINGS 1 & 2	24,000 SF
MINIMUM BUILDING SETBACKS	
FRONT:	50'
SIDE:	0'
SIDE (CORNER LOT):	25
REAR:	25'
LANDSCAPE BUFFERS	
NORTH	30' (TYPE B)
SOUTH	10' (TYPE C)
WEST	30' (TYPE B)

HARNETT COUNTY SITE PLAN NOTES

1. ALL SIGNS SHALL BE LOCATED AT LEAST 10 FT FROM PUBLIC RIGHT OF WAY AND REQUIRE A SEPARATE PERMIT AND REVIEW. ANY SIGNAGE SHOWN ON THESE PLANS IS FOR REFERENCE ONLY.
2. SITE AND BUILDING MOUNTED LIGHTING SHALL BE LOCATED IN SUCH A MANNER AS TO PREVENT DIRECT GLARE AND LIGHTING ONTO ADJACENT PROPERTY OR INTO PUBLIC RIGHTS OF WAY. ALL FLOOD LIGHTS SHALL BE INSTALLED SUCH THAT THE FIXTURE SHALL BE AIMED DOWNWARD AT LEAST 45 DEGREES FROM VERTICAL.
3. ALL MECHANICAL UNITS LOCATED ON, BESIDE OR ADJACENT TO ANY BUILDING OR DEVELOPMENTS SHALL BE SCREENED FROM VIEWS FROM PUBLIC STREETS AND ADJACENT PROPERTIES IN ACCORDANCE WITH THE HARNETT COUNTY UDO.
4. THIS DEVELOPMENT IS LOCATED WITHIN ONE MILE OF VOLUNTARY AGRICULTURAL DISTRICT.
5. AN APPROVED SEDIMENTATION AND EROSION CONTROL PERMIT SHALL BE OBTAINED FROM NCDEQ-DEMLR PRIOR TO COMMENCING CONSTRUCTION. A COPY OF THIS PERMIT SHALL BE PROVIDED TO HARNETT COUNTY PRIOR TO CONSTRUCTION.
6. PROPERTY OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE OF ALL PARKING, GRAVEL AREAS, AND LANDSCAPE AREAS OUTSIDE OF THE PUBLIC RIGHT OF WAY.
7. THIS SITE IS LOCATED WITHIN THE WS-IV-P PROTECTED WATERSHED.
8. THIS PROJECT IS LOCATED WITHIN THE HARNETT COUNTY WATER SUPPLY WATERSHED IV DISTRICT, AND A MAXIMUM OF 36% IMPERVIOUS IS ALLOWED.

Harnett COUNTY NORTH CAROLINA

I hereby certify that the Harnett County Development Review Board has approved this Site Plan pursuant to the regulations set forth by E-911 Addressing, Environmental Health, Fire Marshal, Planning, and Harnett Regional Water. This project is subject to all federal, state, and local government regulations and applicable expiration periods.

&[Date]

As the owner of record, I hereby formally consent to the proposed development shown on this site plan and all regulations and requirements of the Harnett County ordinances.

TFD, Inc. - Johnathan Tucker
Owner's Name

Owner's Signature

7-31-2025
Date

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

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

VHB Project : 39563.00 Harnett Co. Jarco Dr Industrial Site
Issued for : Review 3/25/2025

\\VHB.COM\GBL\PROJ\RALEIGH\39563.00 ACS_HARNETT CO JARCO DR\CAD\LD\PLANSET\39563.00 - CV 6 April 2026

General Legend

Exist.	Prop.	
		PROPERTY LINE
		PROJECT LIMIT LINE
		RIGHT-OF-WAY/PROPERTY LINE
		EASEMENT
		BUILDING SETBACK
		PARKING SETBACK
10+00	10+00	BASELINE
		CONSTRUCTION LAYOUT
		ZONING LINE
		TOWN LINE
		LIMIT OF DISTURBANCE
W	W	WETLAND LINE WITH FLAG
		FLOODPLAIN
BLSF	BLSF	BORDERING LAND SUBJECT TO FLOODING
BZ	BZ	WETLAND BUFFER ZONE
NDZ	NDZ	NO DISTURB ZONE
200'RA	200'RA	200' RIVERFRONT AREA
		GRAVEL ROAD
EOP	EOP	EDGE OF PAVEMENT
BC	BC	BITUMINOUS CURB
VCG	VCG	VALLEY CURB AND GUTTER
CG	CG	CURB AND GUTTER
ECC	ECC	EXTRUDED CONCRETE CURB
CC	MCC	MONOLITHIC CONCRETE CURB
		SAWCUT
		BUILDING
	EN	BUILDING ENTRANCE
LD	LD	LOADING DOCK
		BOLLARD
D	D	DUMPSTER PAD
		SIGN
		DOUBLE SIGN
		STEEL GUARDRAIL
		WOOD GUARDRAIL
		PATH
		TREE LINE
		WIRE FENCE
		4' IRON FENCE
		8' FENCE
		RETAINING WALL
		STREAM / POND / WATER COURSE
		DETENTION BASIN
CSF	CSF	COMB. TREE PROTECTION/SILT FENCE
		SILT FENCE OUTLET
		SILT FENCE
		SILT SOCK / STRAW WATTLE
4	4	MINOR CONTOUR
20	20	MAJOR CONTOUR
10	10	PARKING COUNT
	C10	COMPACT PARKING STALLS
DYL	DYL	DOUBLE YELLOW LINE
SL	SL	STOP LINE
		CROSSWALK
		ACCESSIBLE CURB RAMP
		ACCESSIBLE PARKING
VAN	VAN	VAN-ACCESSIBLE PARKING

Exist.	Prop.	
		CONCRETE
		RIPRAP
		CONSTRUCTION EXIT
27.35 TC ×	27.35 TC ×	TOP OF CURB ELEVATION
26.85 BC ×	26.85 BC ×	BOTTOM OF CURB ELEVATION
132.75 ×	132.75 ×	SPOT ELEVATION
45.0 TW 38.5 BW ×	45.0 TW 38.5 BW ×	TOP & BOTTOM OF WALL ELEVATION
		BORING LOCATION
TP	TP	TEST PIT LOCATION
MW	MW	MONITORING WELL
UD	UD	UNDERDRAIN
12"D	12"D	DRAIN
6"RD	6"RD	ROOF DRAIN
12"S	12"S	SEWER
FM	FM	FORCE MAIN
OHW	OHW	OVERHEAD WIRE
6"W	6"W	WATER
4"FP	4"FP	FIRE PROTECTION
	2"DW	DOMESTIC WATER
3"G	G	GAS
E	E	ELECTRIC
STM	STM	STEAM
T	T	TELEPHONE
FA	FA	FIRE ALARM
CATV	CATV	CABLE TV
		CATCH BASIN
		DOUBLE CATCH BASIN
		YARD INLET
		DRAIN MANHOLE
		TRENCH DRAIN
		PLUG OR CAP
CO	CO	CLEANOUT
		FLARED END SECTION
		HEADWALL
S		SEWER MANHOLE
CS	CS	CURB STOP & BOX
WV	WV	WATER VALVE & BOX
TSV	TSV	TAPPING SLEEVE, VALVE & BOX
		FIRE DEPARTMENT CONNECTION
HYD	HYD	FIRE HYDRANT
WM	WM	WATER METER
PIV	PIV	POST INDICATOR VALVE
W	W	WATER WELL
		BACK FLOW PREVENTER
GG	GG	GAS GATE
GM	GM	GAS METER
	MH	ELECTRIC MANHOLE
EM	EM	ELECTRIC METER
		LIGHT POLE
	TMH	TELEPHONE MANHOLE
T	T	TRANSFORMER PAD
		UTILITY POLE
		GUY POLE
		GUY WIRE & ANCHOR
HH	HH	HAND HOLE
PB	PB	PULL BOX
Match Line See Sheet C1.01		MATCHLINE
1		RETAINING WALL NUMBER
2		KEY NOTE NUMBER
3		STORM DRAINAGE STRUCTURE NUMBER
4		SOIL BORING NUMBER
5		SANITARY SEWER STRUCTURE NUMBER

Abbreviations

General

ABAN	ABANDON
ACR	ACCESSIBLE CURB RAMP
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJUST
APPROX	APPROXIMATE
BIT	BITUMINOUS
BS	BOTTOM OF SLOPE
BWLL	BROKEN WHITE LANE LINE
CONC	CONCRETE
CSF	COMBINATION TREE PROTECTION/SILT FENCE
DYCL	DOUBLE YELLOW CENTER LINE
EL	ELEVATION
ELEV	ELEVATION
EXIST	EXISTING
FDN	FOUNDATION
FFE	FINISHED FLOOR ELEVATION
GRAN	GRANITE
GTD	GRADE TO DRAIN
HCP	HANDICAP PARKING
LA	LANDSCAPE AREA
LOD	LIMIT OF DISTURBANCE
MAX	MAXIMUM
MIN	MINIMUM
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
PERF	PERFORATED
PROP	PROPOSED
RCA	RESOURCE CONSERVATION AREA
REM	REMOVE
RET	RETAIN
R&D	REMOVE AND DISPOSE
R&R	REMOVE AND RESET
SDE	STORM DRAINAGE EASEMENT
SWEL	SOLID WHITE EDGE LINE
SWLL	SOLID WHITE LANE LINE
TPF	TREE PROTECTION FENCE
TS	TOP OF SLOPE
TYP	TYPICAL

Utility

CB	CATCH BASIN
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CU	TYPE "K" COPPER
DCB	DOUBLE CATCH BASIN
DMH	DRAIN MANHOLE
CIP	CAST IRON PIPE
COND	CONDUIT
DIP	DUCTILE IRON PIPE
FES	FLARED END SECTION
FM	FORCE MAIN
F&G	FRAME AND GRATE
F&C	FRAME AND COVER
GI	GUTTER INLET
GT	GREASE TRAP
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HH	HANDHOLE
HW	HEADWALL
HYD	HYDRANT
INV	INVERT ELEVATION
I=	INVERT ELEVATION
LP	LIGHT POLE
MES	METAL END SECTION
MH	SANITARY SEWER MANHOLE
PWW	PAVED WATER WAY
PVC	POLYVINYLCHLORIDE PIPE
PIV	POST INDICATOR VALVE
RCP	REINFORCED CONCRETE PIPE
R=	RIM ELEVATION
SMH	STORM DRAIN MANHOLE
SCM	STORMWATER CONTROL MEASURE
TSV	TAPPING SLEEVE, VALVE AND BOX
UG	UNDERGROUND
UP	UTILITY POLE
YDI	YARD DROP INLET

Notes

General

1. THE "NORTH CAROLINA 811 LAW" REQUIRES FOR THE CONTRACTOR TO CALL 811 AT LEAST 3 WORKING DAYS IN ADVANCE OF THE PLANNED WORK TO ALLOW TIME FOR MARKING, THAT THE MARKS BE RESPECTED AND PROTECTED, AND THAT EXCAVATION BE COMPLETED CAREFULLY.
2. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SECURITY AND JOB SAFETY. CONSTRUCTION ACTIVITIES SHALL BE IN ACCORDANCE WITH OSHA STANDARDS AND LOCAL REQUIREMENTS.
3. ACCESSIBLE ROUTES, PARKING SPACES, RAMPS, SIDEWALKS AND WALKWAYS SHALL BE CONSTRUCTED IN CONFORMANCE WITH THE FEDERAL AMERICANS WITH DISABILITIES ACT AND WITH STATE AND LOCAL LAWS AND REGULATIONS (WHICHEVER ARE MORE STRINGENT).
4. AREAS DISTURBED DURING CONSTRUCTION AND NOT RESTORED WITH IMPERVIOUS SURFACES (BUILDINGS, PAVEMENTS, WALKS, ETC.) SHALL FOLLOW THE NPDES SPECIFICATIONS FOR SITE SPECIFIC SEEDING MIXTURES.
5. WITHIN THE LIMITS OF THE BUILDING FOOTPRINT, THE SITE CONTRACTOR SHALL PERFORM EARTHWORK OPERATIONS REQUIRED UP TO SUBGRADE ELEVATIONS.
6. WORK WITHIN THE LOCAL RIGHTS-OF-WAY SHALL CONFORM TO LOCAL MUNICIPAL STANDARDS. WORK WITHIN STATE RIGHTS-OF-WAY SHALL CONFORM TO THE LATEST EDITION OF THE STATE HIGHWAY DEPARTMENTS STANDARD SPECIFICATIONS FOR HIGHWAYS AND BRIDGES.
7. UPON AWARD OF CONTRACT, CONTRACTOR SHALL MAKE NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN NECESSARY PERMITS, PAY FEES, AND POST BONDS ASSOCIATED WITH THE WORK INDICATED ON THE DRAWINGS, IN THE SPECIFICATIONS, AND IN THE CONTRACT DOCUMENTS. DO NOT CLOSE OR OBSTRUCT ROADWAYS, SIDEWALKS, AND FIRE HYDRANTS, WITHOUT APPROPRIATE PERMITS.
8. TRAFFIC SIGNAGE AND PAVEMENT MARKINGS SHALL CONFORM TO THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.
9. AREAS OUTSIDE THE LIMITS OF PROPOSED WORK DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE RESTORED BY THE CONTRACTOR TO THEIR ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
10. IN THE EVENT THAT SUSPECTED CONTAMINATED SOIL, GROUNDWATER, AND OTHER MEDIA ARE ENCOUNTERED DURING EXCAVATION AND CONSTRUCTION ACTIVITIES BASED ON VISUAL, OLFACTORY, OR OTHER EVIDENCE, THE CONTRACTOR SHALL STOP WORK IN THE VICINITY OF THE SUSPECT MATERIAL TO AVOID FURTHER SPREADING OF THE MATERIAL, AND SHALL NOTIFY THE OWNER IMMEDIATELY SO THAT THE APPROPRIATE TESTING AND SUBSEQUENT ACTION CAN BE TAKEN.
11. CONTRACTOR SHALL PREVENT DUST, SEDIMENT, AND DEBRIS FROM EXITING THE SITE AND SHALL BE RESPONSIBLE FOR CLEANUP, REPAIRS AND CORRECTIVE ACTION IF SUCH OCCURS.
12. DAMAGE RESULTING FROM CONSTRUCTION LOADS SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO OWNER.
13. CONTRACTOR SHALL CONTROL STORMWATER RUNOFF DURING CONSTRUCTION TO PREVENT ADVERSE IMPACTS TO OFF SITE AREAS, AND SHALL BE RESPONSIBLE TO REPAIR RESULTING DAMAGES, IF ANY, AT NO COST TO OWNER.

Utilities

1. THE LOCATIONS, SIZES, AND TYPES OF EXISTING UTILITIES ARE SHOWN AS AN APPROXIMATE REPRESENTATION ONLY. THE OWNER OR IT'S REPRESENTATIVE(S) HAVE NOT INDEPENDENTLY VERIFIED THIS INFORMATION AS SHOWN ON THE PLANS. THE UTILITY INFORMATION SHOWN DOES NOT GUARANTEE THE ACTUAL EXISTENCE, SERVICEABILITY, OR OTHER DATA CONCERNING THE UTILITIES, NOR DOES IT GUARANTEE AGAINST THE POSSIBILITY THAT ADDITIONAL UTILITIES MAY BE PRESENT THAT ARE NOT SHOWN ON THE PLANS. PRIOR TO ORDERING MATERIALS AND BEGINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY AND DETERMINE THE EXACT LOCATIONS, SIZES, AND ELEVATIONS OF THE POINTS OF CONNECTIONS TO EXISTING UTILITIES AND, SHALL CONFIRM THAT THERE ARE NO INTERFERENCES WITH EXISTING UTILITIES AND THE PROPOSED UTILITY ROUTES, INCLUDING ROUTES WITHIN THE PUBLIC RIGHTS OF WAY.
2. WHERE AN EXISTING UTILITY IS FOUND TO CONFLICT WITH THE PROPOSED WORK, OR EXISTING CONDITIONS DIFFER FROM THOSE SHOWN SUCH THAT THE WORK CANNOT BE COMPLETED AS INTENDED, THE LOCATION, ELEVATION, AND SIZE OF THE UTILITY SHALL BE ACCURATELY DETERMINED WITHOUT DELAY BY THE CONTRACTOR, AND THE INFORMATION FURNISHED IN WRITING TO THE OWNER'S REPRESENTATIVE FOR THE RESOLUTION OF THE CONFLICT AND CONTRACTOR'S FAILURE TO NOTIFY PRIOR TO PERFORMING ADDITIONAL WORK RELEASES OWNER FROM OBLIGATIONS FOR ADDITIONAL PAYMENTS WHICH OTHERWISE MAY BE WARRANTED TO RESOLVE THE CONFLICT.
3. SET CATCH BASIN RIMS, AND INVERTS OF SEWERS, DRAINS, AND DITCHES IN ACCORDANCE WITH ELEVATIONS ON THE GRADING AND UTILITY PLANS.
4. RIM ELEVATIONS FOR DRAIN AND SEWER MANHOLES, WATER VALVE COVERS, GAS GATES, ELECTRIC AND TELEPHONE PULL BOXES, AND MANHOLES, AND OTHER SUCH ITEMS, ARE APPROXIMATE AND SHALL BE SET/RESET AS FOLLOWS:
   A. PAVEMENTS AND CONCRETE SURFACES: FLUSH
   B. ALL SURFACES ALONG ACCESSIBLE ROUTES: FLUSH
   C. LANDSCAPE, TOPSOIL AND SEED, AND OTHER EARTH SURFACE AREAS: ONE INCH ABOVE SURROUNDING AREA AND TAPER EARTH TO THE RIM ELEVATION.
5. THE LOCATION, SIZE, DEPTH, AND SPECIFICATIONS FOR CONSTRUCTION OF PROPOSED PRIVATE UTILITY SERVICES SHALL BE INSTALLED ACCORDING TO THE REQUIREMENTS PROVIDED BY, AND APPROVED BY, THE RESPECTIVE UTILITY COMPANY (GAS, TELEPHONE, ELECTRIC, FIRE ALARM, ETC.). FINAL DESIGN LOADS AND LOCATIONS TO BE COORDINATED WITH OWNER AND ARCHITECT.
6. CONTRACTOR SHALL MAKE ARRANGEMENTS FOR AND SHALL BE RESPONSIBLE FOR PAYING FEES FOR POLE RELOCATION AND FOR THE ALTERATION AND ADJUSTMENT OF GAS, ELECTRIC, TELEPHONE, FIRE ALARM, AND ANY OTHER PRIVATE UTILITIES, WHETHER WORK IS PERFORMED BY CONTRACTOR OR BY THE UTILITIES COMPANY.
7. UTILITY PIPE MATERIALS SHALL BE AS FOLLOWS, UNLESS OTHERWISE NOTED ON THE PLAN:
   A. WATER PIPES SHALL BE NSF # 61 CERTIFIED, PRESSURE CLASS 350 DUCTILE IRON PIPE (DIP) IN ACCORDANCE WITH HARNETT REGIONAL WATER SPECIFICATIONS.
   B. SANITARY SEWER PIPES SHALL BE DUCTILE IRON PIPE (DIP) OR POLYVINYL CHLORIDE (PVC) SEWER PIPE.
   C. STORM DRAINAGE PIPES SHALL BE REINFORCED CONCRETE PIPE (RCP).
8. CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND SHALL FURNISH EXCAVATION, INSTALLATION, AND BACKFILL OF ELECTRICAL FURNISHED SITEWORK RELATED ITEMS SUCH AS PULL BOXES, CONDUITS, DUCT BANKS, LIGHT POLE BASES, AND CONCRETE PADS. CONTRACTOR SHALL FURNISH CONCRETE ENCASEMENT OF DUCT BANKS IF REQUIRED BY THE UTILITY COMPANY AND AS INDICATED ON THE DRAWINGS.
9. CONTRACTOR SHALL EXCAVATE AND BACKFILL TRENCHES FOR GAS IN ACCORDANCE WITH GAS COMPANY'S REQUIREMENTS.
10. ALL DRAINAGE AND SANITARY STRUCTURE INTERIOR DIAMETERS (4' MIN.) SHALL BE DETERMINED BY THE MANUFACTURER BASED ON THE PIPE CONFIGURATIONS SHOWN ON THESE PLANS AND LOCAL MUNICIPAL STANDARDS. FOR MANHOLES THAT ARE 20 FEET IN DEPTH AND GREATER, THE MINIMUM DIAMETER SHALL BE 5 FEET.
11. LOCATION OF FITTINGS SHOWN HEREON ARE APPROXIMATE ONLY. CONTRACTOR SHALL DETERMINE ALL FITTING REQUIREMENTS AND LOCATIONS FROM ACTUAL FIELD CONDITIONS.
12. PIPE LENGTHS SHOWN HEREON ARE FROM CENTERLINE TO CENTERLINE OF STRUCTURE AND ARE APPROXIMATE. CONTRACTOR SHALL DETERMINE ACTUAL PIPE LENGTHS FROM FIELD CONDITIONS.
13. INVERTS CONTROL ELEVATIONS AT ALL STRUCTURES, SLOPES AND LENGTHS ARE APPROXIMATE ONLY.
14. BACKFLOW PREVENTER MAKE AND MODEL SHALL COMPLY WITH HARNETT REGIONAL WATER'S APPROVED LIST.

Layout and Materials

1. DIMENSIONS ARE FROM THE FACE OF CURB, FACE OF BUILDING, FACE OF WALL, AND CENTER LINE OF PAVEMENT MARKINGS, UNLESS OTHERWISE NOTED.
2. SEE ARCHITECTURAL DRAWINGS FOR EXACT BUILDING DIMENSIONS AND DETAILS CONTIGUOUS TO THE BUILDING, INCLUDING SIDEWALKS, RAMPS, BUILDING ENTRANCES, STAIRWAYS, UTILITY PENETRATIONS, CONCRETE DOOR PADS, COMPACTOR PAD, LOADING DOCKS, BOLLARDS, ETC.
3. PROPOSED BOUNDS AND ANY EXISTING PROPERTY LINE MONUMENTATION DISTURBED DURING CONSTRUCTION SHALL BE SET OR RESET BY A PROFESSIONAL LAND SURVEYOR.
4. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL VERIFY EXISTING PAVEMENT ELEVATIONS AT INTERFACE WITH PROPOSED PAVEMENTS, AND EXISTING GROUND ELEVATIONS ADJACENT TO DRAINAGE OUTLETS TO ASSURE PROPER TRANSITIONS BETWEEN EXISTING AND PROPOSED FACILITIES.
5. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.
6. CONTRACTOR SHALL NOT RELY SOLELY ON ELECTRONIC VERSIONS OF PLANS, SPECIFICATIONS, AND DATA FILES THAT ARE OBTAINED FROM THE DESIGNERS, BUT SHALL VERIFY LOCATION OF PROJECT FEATURES IN ACCORDANCE WITH THE PAPER COPIES OF THE PLANS AND SPECIFICATIONS THAT ARE SUPPLIED AS PART OF THE CONTRACT DOCUMENTS.

Demolition

1. CONTRACTOR SHALL REMOVE AND DISPOSE OF EXISTING MANMADE SURFACE FEATURES WITHIN THE LIMIT OF WORK INCLUDING BUILDINGS, STRUCTURES, PAVEMENTS, SLABS, CURBING, FENCES, UTILITY POLES, SIGNS, ETC. UNLESS INDICATED OTHERWISE ON THE DRAWINGS. REMOVE AND DISPOSE OF EXISTING UTILITIES, FOUNDATIONS AND UNSUITABLE MATERIAL BENEATH AND FOR A DISTANCE OF 10 FEET BEYOND THE PROPOSED BUILDING FOOTPRINT INCLUDING EXTERIOR COLUMNS.
2. EXISTING UTILITIES SHALL BE TERMINATED, UNLESS OTHERWISE NOTED, IN CONFORMANCE WITH LOCAL, STATE AND INDIVIDUAL UTILITY COMPANY STANDARD SPECIFICATIONS AND DETAILS. THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE DISCONNECTS WITH THE UTILITY REPRESENTATIVES.
3. CONTRACTOR SHALL DISPOSE OF DEMOLITION DEBRIS IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS, ORDINANCES AND STATUTES.
4. THE DEMOLITION LIMITS DEPICTED IN THE PLANS IS INTENDED TO AID THE CONTRACTOR DURING THE BIDDING AND CONSTRUCTION PROCESS AND IS NOT INTENDED TO DEPICT EACH AND EVERY ELEMENT OF DEMOLITION. THE CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING THE DETAILED SCOPE OF DEMOLITION BEFORE SUBMITTING ITS BID/PROPOSAL TO PERFORM THE WORK AND SHALL MAKE NO CLAIMS AND SEEK NO ADDITIONAL COMPENSATION FOR CHANGED CONDITIONS OR UNFORESEEN OR LATENT SITE CONDITIONS RELATED TO ANY CONDITIONS DISCOVERED DURING EXECUTION OF THE WORK.
5. UNLESS OTHERWISE SPECIFICALLY PROVIDED ON THE PLANS OR IN THE SPECIFICATIONS, THE ENGINEER HAS NOT PREPARED DESIGNS FOR AND SHALL HAVE NO RESPONSIBILITY FOR THE PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF HAZARDOUS MATERIALS, TOXIC WASTES OR POLLUTANTS AT THE PROJECT SITE. THE ENGINEER SHALL NOT BE RESPONSIBLE FOR ANY CLAIMS OF LOSS, DAMAGE, EXPENSE, DELAY, INJURY OR DEATH ARISING FROM THE PRESENCE OF HAZARDOUS MATERIAL AND CONTRACTOR SHALL INDEMNIFY AND HOLD HARMLESS THE ENGINEER FROM ANY CLAIMS MADE IN CONNECTION THEREWITH, MOREOVER, THE ENGINEER SHALL HAVE NO ADMINISTRATIVE OBLIGATIONS OF ANY TYPE WITH REGARD TO ANY CONTRACTOR AMENDMENT INVOLVING THE ISSUES OF PRESENCE, DISCOVERY, REMOVAL, ABATEMENT OR DISPOSAL OF ASBESTOS OR OTHER HAZARDOUS MATERIALS.

Erosion Control

1. PRIOR TO STARTING ANY OTHER WORK ON THE SITE, THE CONTRACTOR SHALL NOTIFY APPROPRIATE AGENCIES AND SHALL INSTALL EROSION CONTROL MEASURES AS SHOWN ON THE PLANS AND AS IDENTIFIED IN FEDERAL, STATE AND LOCAL APPROVAL DOCUMENTS PERTAINING TO THIS PROJECT.
2. CONTRACTOR SHALL INSPECT AND MAINTAIN EROSION CONTROL MEASURES, AND REMOVE SEDIMENT THEREFROM ON A WEEKLY BASIS AND WITHIN TWELVE HOURS AFTER EACH STORM EVENT AND DISPOSE OF SEDIMENTS IN AN UPLAND AREA SUCH THAT THEY DO NOT ENCUMBER OTHER DRAINAGE STRUCTURES AND PROTECTED AREAS.
3. CONTRACTOR SHALL BE FULLY RESPONSIBLE TO CONTROL CONSTRUCTION SUCH THAT SEDIMENTATION SHALL NOT AFFECT REGULATORY PROTECTED AREAS, WHETHER SUCH SEDIMENTATION IS CAUSED BY WATER, WIND OR DIRECT DEPOSIT.
4. CONTRACTOR SHALL PERFORM CONSTRUCTION SEQUENCING SUCH THAT EARTH MATERIALS ARE EXPOSED FOR A MINIMUM OF TIME BEFORE THEY ARE COVERED, SEEDED OR OTHERWISE STABILIZED TO PREVENT EROSION.
5. UPON COMPLETION OF CONSTRUCTION AND ESTABLISHMENT OF PERMANENT GROUND COVER, CONTRACTOR SHALL REMOVE AND DISPOSE OF EROSION CONTROL MEASURES AND CLEAN SEDIMENT AND DEBRIS FROM ENTIRE DRAINAGE AND SEWER SYSTEMS.

Existing Conditions Information

1. THIS SURVEY MAP IS INTENDED TO REPRESENT THE EXISTING CONDITIONS/TOPOGRAPHY ON A PORTION OF THE PROPERTY AND ALL ENCUMBRANCES UPON THE PROPERTY MAY NOT BE SHOWN.
2. HORIZONTAL DATUM IS NAD 83-2011 AND VERTICAL DATUM IS NAVD88.
3. THIS DRAWING DOES NOT CONFORM TO N.C. GS47-30 AND THEREFORE IS NOT FOR RECORDATION.
4. SURVEY INFORMATION BASED ON ALTA/NSPS SURVEY COMPLETED ON 1/23/2024 BY JOHN A. EDWARDS & COMPANY.
5. TREES SHOWN HEREON MAY NOT REPRESENT ALL VEGETATION ON THE SUBJECT PROPERTY.
6. THE SUBJECT PROPERTY LIES IN ZONES X (AREA DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE AND FUTURE CONDITIONS 1% ANNUAL CHANCE FLOODPLAIN). BASED ON THE FLOOD INSURANCE RATE MAP COMMUNITY MAP NUMBER 3720065400J DATED OCTOBER 3, 2006.

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3. SYMBOLS AND LEGENDS OF PROJECT FEATURES ARE GRAPHIC REPRESENTATIONS AND ARE NOT NECESSARILY SCALED TO THEIR ACTUAL DIMENSIONS OR LOCATIONS ON THE DRAWINGS. THE CONTRACTOR SHALL REFER TO THE DETAIL SHEET DIMENSIONS, MANUFACTURERS' LITERATURE, SHOP DRAWINGS AND FIELD MEASUREMENTS OF SUPPLIED PRODUCTS FOR LAYOUT OF THE PROJECT FEATURES.

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1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by | Checked by

Issued for: Review
Date: March 25, 2025

Not Approved for Construction

Drawing Title: Legend and General Notes

Drawing Number: C0.01

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 2 of 19

Project Number: 39563.00

2022 HRW REQUIRED UTILITY NOTES
(Revision 10- April 19, 2022)

The following utility notes should be added to the coversheet of utility plans for projects located in Harnett County:

WATER

A. The Fire Marshal's Office shall approve all hydrant types and locations in new subdivisions. However, Harnett Regional Water (HRW) prefers the contractors to install one of the following fire hydrants:

1. **Mueller - Super Centurion 250 A-423 model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle).**
2. **American Darling - Mark B-84-B model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle).**
3. **Waterous - Pacer B-67-250 model with a 5¼" main valve opening three way (two hose nozzles and one pumper nozzle) or approved equal for standardization.**

***All fire hydrants listed above must have "American National Fire Hose Connection Screw Threads" NST/NH hose threads.**

B. Fire hydrants are installed at certain elevations. Any grade change near any fire hydrant, which impedes its operation, shall become the responsibility of the Utility Contractor for correction. Corrections will be monitored by the HRW Utility Construction Inspector and the Harnett County Fire Marshal.

C. The Professional Engineer (PE) shall obtain and provide the NCDEQ "Authorization to Construct" permit to the Utility Contractor before the construction of the water line shall begin. The Utility Contractor must post a copy of the NCDEQ "Authorization to Construct" permit issued by the North Carolina Department of Environmental Quality (NCDEQ) on site prior to the start of construction. The permit must be maintained on site throughout the entire construction process of the proposed water lines that will serve this project.

D. The Utility Contractor shall notify Harnett Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre-construction conference with Mr. Chad Everette, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the water system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am – 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.

E. The Professional Engineer (PE) shall provide HRW and the Utility Contractor with a set of NCDEQ approved plans marked "Released for Construction" at least two days prior to construction commencing. The Registered Land Surveyor (RLS) should stake out all lot corners and the grade stakes for the proposed finish grade for each street before the Utility Contractor begins construction of the water line(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading and utility construction.

F. The Utility Contractor shall provide the HRW Utility Construction Inspector with material submittals and shop drawings for all project materials prior to the construction of any water line extension(s), and associated water services in Harnett County. The materials to be used on the project must meet the established specifications of HRW and be approved by the Engineer of Record prior to construction. All substandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HRW Utility Construction Inspector.

G. The water main(s), fire hydrants, service lines, meter setters and all associated appurtenances shall be constructed in strict in accordance with the standard specifications of the Harnett Regional Water (HRW). The Utility Contractor shall be responsible to locate the newly installed water main(s), water service lines and all associated meter setters and meter boxes for other utility companies and their contractors until the new water main(s) have been approved by the North Carolina Department of Environmental Quality, Division of Environmental Health, Public Water Supply Section (NCDEQ, DEH, PWS) and accepted by HRW.

H. Prior to acceptance, all services will be inspected to ensure that they are installed at the proper depth. All meter boxes must be flush with the ground level at finish grade and the meter setters must be a minimum of 8" below the meter box lid. Meter setters shall be centered in the meter box and supported by brick, block or stone.

I. The Utility Contractor shall provide the Professional Engineer (PE) and HRW Utility Construction Inspector with a set of red line drawings identifying the complete water system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the water lines as well as the gate valves, fire hydrants, meter setters, blow off assemblies and all associated appurtenances for all water line(s) constructed in Harnett County. The red line drawings should clearly identify any deviations from the NCDEQ approved plans. All change orders must be approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

J. Potable water mains crossing other utilities and non-potable water lines (sanitary sewer, storm sewer, RCP, etc.) shall be laid to provide a minimum vertical distance of twenty-four (24") inches between the potable water main and all other utilities. NCDOT requires the new water mains to be installed under the storm water lines. The potable water main shall be installed with twenty-four (24") inches of vertical separation and with ductile iron pipe when designed to be placed under a non-potable water line such as sanitary sewer or storm sewer lines. If these separations cannot be maintained then the water main shall be installed with ductile iron pipe. Both the potable water main and the non-potable water line must be cast iron or ductile iron pipe (DIP) if the state minimum separations cannot be maintained. The ductile iron pipe must be laid so the mechanical joints are at least (10') feet from the point where the potable water main crosses the non-potable water line.

K. Potable water mains installed parallel to non-potable water lines (sanitary sewer, storm sewer, RCP, etc.) shall be laid to provide a minimum horizontal distance of ten (10') feet between the potable water main and sanitary sewer mains, sewer laterals and services. The horizontal separation between the potable water main and any other utility or storm sewer shall not be less than five (5') feet. The potable water main must be ductile iron pipe if this horizontal separation of ten (10') feet cannot be maintained. The ductile iron pipe shall extend at least ten (10') feet beyond the point where the minimum required horizontal separation of ten (10') feet can be re-established.

L. Meter setters shall be installed in pairs on every other lot line where possible to leave adequate space for other utilities to be installed at a later time. The meter setters shall be installed at least one (1') foot inside the right-of-way and at least three (3') to five (5') feet from the property line between the lots.

M. HRW requires that meter boxes for ¾" services shall be 12" wide x 17" long ABS plastic boxes at least 18" in height with cast iron lids/covers. Meter boxes for 1" services shall be 17" wide x 21" long ABS plastic boxes at least 18" in height with plastic lids and cast iron flip covers in the center of the lids. Meter boxes for 2" services shall be 20" wide x 32" long ABS plastic boxes at least 20" in height with plastic lids and cast iron flip covers in the center of the lids.

N. Master meters must be installed in concrete vaults sized for the meter assembly and associated appurtenances so as to provide at least eighteen (18") inches of clearance between the bottom of the concrete vault and the bottom of the meter setter. The master meter must be provided test ports if the meter is not equipped with test ports from the manufacturer in accordance with the HRW established standard specifications and details. Ductile iron pipe must be used for the master meter vault piping and valve vault piping. The Utility Contractor must provide shop drawings for the meter vaults to HRW prior to ordering the concrete vaults.

O. The Utility Contractor will install polyethylene SDR-9 water service lines that cross under the pavement inside a schedule 40 PVC conduit to allow for removal and replacement in the future. Two (2) independent ¾" water service lines may be installed inside one (1) – two (2") inch schedule 40 PVC conduit or two (2) independent 1" water service lines may be installed inside one (1) – three (3") inch schedule 40 PVC conduit, but each water service shall be tapped directly to the water main. Split services are not allowed by HRW. If sidewalks are proposed, the conduit must extend past the sidewalk.

P. The water main(s), fire hydrants, gate valves, service lines, meter setters and associated appurtenances must be rated for 200 psi and hydrostatically pressure tested to 200 psi. The hydrostatic pressure test(s) must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor must notify HRW when they are ready to begin filling in lines and coordinate with Harnett Regional Water to witness all pressure testing.

Q. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve(s) prior to making the tap on the existing water main. This pneumatic pressure test must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor shall use Romac brand stainless steel tapping sleeve(s) or approved equal for all taps made in Harnett County. All new water line extensions must begin with a resilient wedge type gate valve sized equal to the diameter of the new water line extension in order to provide a means of isolation between Harnett Regional Water's existing water mains and the new water line extensions under construction.

R. All water mains will be constructed with SDR-21 PVC Pipe or Class 50 Ductile Iron Pipe rated for at least 200 psi or greater. All pipes must be protected during loading, transport, unloading, staging, and installation. PVC pipe must be protected from extended exposure to sunlight prior to installation.

S. All water mains will be flushed and disinfected in strict accordance with the standard specifications of the Harnett Regional Water. All water samples collected for bacteria testing will be collected by the HRW Utility Construction Inspector and tested in the HRW Laboratory.

T. All fittings larger than two (2") inches diameter shall be ductile iron. HRW requires that mechanical joints be assembled with grip rings as "Megalug" fittings are not approved by Harnett Regional Water for pipe sizes smaller than twelve inches (12") diameter. PVC pipe used for water mains shall be connected by slip joint or mechanical joint with grip rings. Glued pipe joints are not allowed on PVC pipe used for water mains in Harnett County.

U. HRW requires that the Utility Contractor install tracer wire in the trench with all water lines. The tracer wire shall be 12 ga. insulated, solid copper conductor and it shall be terminated at the top of the valve boxes or manholes. No spliced wire connections shall be made underground on tracer wire installed in Harnett County. The tracer wire may be secured with duct tape to the top of the pipe before backfilling.

V. The Utility Contractor will provide Professional Engineer (PE) and the HRW Utility Construction Inspector with a set of red line field drawings to identify the installed locations of the water line(s) and all associated services. All change orders must be pre-approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

W. The Utility Contractor shall spot dig to expose each utility pipe or line which may conflict with construction of proposed water line extensions well in advance to verify locations of the existing utilities. The Utility Contractor shall provide both horizontal and vertical clearances to the Professional Engineer (PE) to allow the PE to adjust the water line design in order to avoid conflicts with existing underground utilities. The Utility Contractor shall coordinate with the utility owner and be responsible for temporary relocation and/or securing existing utility poles, pipes, wires, cables, signs and/or utilities including services in accordance with the utility owner requirements during water line installation, grading and street construction.

X. Prior to the commencement of any work within established utility easements or NCDOT right-of-ways the Utility Contractor is required to have a signed NCDOT encroachment agreement posted on site and notify all concerned utility companies in accordance with G.S. 87-102. The Utility Contractor must call the NC One Call Center at 811 or (800) 632-4949 to verify the location of existing utilities prior to the beginning of construction. Existing utilities shown in these plans are taken from maps furnished by various utility companies and have not been physically located or verified by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.). The Utility Contractor will be responsible to repair any and all damages to the satisfaction of the related utility company.

Y. The Utility Contractor shall provide HRW with at least one (1) fire hydrant wrench and one (1) break-away flange kit for every subdivision with fire hydrants developed in Harnett County. These items must be provided to HRW before the final inspection will be scheduled by the HRW Utility Construction Inspector. In addition, the Utility Contractor shall install a 4" x 4" concrete valve marker at the edge of the right-of-way to identify the location of each gate valve installed in the new water system with the exception of the fire hydrant isolation valves. The contractor shall measure the distance from the center of the concrete marker to the center of the valve box. This distance (in linear feet) shall be stamped on the brass plate located on the top of the concrete valve marker. In lieu of installing the concrete valve markers, the Utility Contractor may provide at least two measurements from two independent permanent above ground structures to the Professional Engineer (PE) in the red line drawings to identify the valve locations. The Professional Engineer (PE) must include these measurements in the As-Built Record Drawings submitted to HRW.

Z. The Utility Contractor will be responsible for any and all repairs due to leakage damage from poor workmanship during the one (1) year warranty period once the water system improvements have been accepted by Harnett Regional Water. Harnett Regional Water will provide maintenance and repairs when requested and bill the Developer and/or Utility Contractor if necessary due to lack of response within 48 hours of notification of warranty work. The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new water lines and associated appurtenances for other utilities and their contractors until the water lines have been approved by NCDEQ and accepted by HRW. The final inspection of water system improvements cannot be scheduled with HRW until the streets have been paved; the rights-of-way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.

AA The Engineer of Record is responsible to ensure that construction is, at all times, in compliance with accepted sanitary engineering practices and approved plans and specifications. No field changes to the approved plans are allowed without prior written approval by HRW. A copy of each engineer's field report is to be submitted to HRW as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HRW specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HRW Inspector must be present during testing and all test results shall be submitted to HRW. All tests must be satisfied before the final inspection will be scheduled with the HRW Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HRW Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HRW exceeds two, additional fees may be assessed to the Developer.

SANITARY SEWER

A. The Professional Engineer (PE) shall obtain and supply a copy of the sewer permit for the construction and operation of the wastewater collection system to the Utility Contractor before the construction of the sanitary sewer line, sewer lift station and associated force main shall begin. The Utility Contractor must post a copy of the sewer permit issued by the North Carolina Department of Environmental Quality (NCDEQ) on site prior to the start of construction. The permit must be maintained on site during the construction of the sewer system improvements.

B. The Utility Contractor shall notify Harnett Regional Water (HRW) and the Professional Engineer (PE) at least two days prior to construction commencing. The Utility Contractor must schedule a pre-construction conference with Mr. Chad Everette, HRW Utility Construction Inspector at least two (2) days before construction will begin and the Utility Contractor must coordinate with HRW for regular inspection visitations and acceptance of the wastewater system(s). Construction work shall be performed only during the normal working hours of HRW which is 8:00 am – 5:00 pm Monday through Friday. Holiday and weekend work is not permitted by HRW.

C. The Professional Engineer (PE) shall provide HRW with a set of NCDEQ approved plans marked "Released for Construction" at least two days prior to construction commencing. HRW will stamp the approved plans as "Released for Construction" and provide copies to the utility contractor. The Registered Land Surveyor (RLS) shall stake out all lot corners and establish grade stakes for the proposed finish grade for each street and sewer line before the Utility Contractor begins construction or installation of the manholes, sanitary sewer gravity line(s), sewer lift stations and/or sanitary sewer force main(s). The grade stakes should be set with a consistent offset from the street centerline so as not to interfere with the street grading or utility construction.

D. The Utility Contractor shall provide the HRW Utility Construction Inspector with material submittals and shop drawings for all project materials prior to the construction of any gravity sewer line(s), manhole(s), sewer lift station(s) and associated force main(s) in Harnett County. The materials to be used on the project must meet the established specifications of HRW and be approved by the Engineer of Record prior to construction. All substandard materials or materials not approved for use in Harnett County found on the project site must be removed immediately when notified by the HRW Utility Construction Inspector.

E. The sanitary sewer lateral connections should be installed 90° (perpendicular) to the sanitary sewer gravity lines with schedule 40 PVC pipe. HRW requires the Utility Contractor to provide the Professional Engineer (PE) with accurate measurements for locating sanitary sewer service lateral and associated each sanitary sewer clean-out. These measurements should be taken from the nearest downstream manhole up along the sanitary sewer main to the in-line wye fitting (or tapping saddle) and then another measurement from the in-line wye fitting (or tapping saddle) to the 4" x 4" long sweep combination wye fitting at the bottom of the sewer clean-out stack. These field measurements must be provided to the Professional Engineer (PE) in the red line drawings from the Utility Contractor for proper documentation in the As-Built Record Drawings submitted to HRW.

F. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer gravity line(s), sanitary sewer force main(s), sanitary sewer service lateral(s) and all associated sewer clean-out(s) in the proposed sanitary sewer system for other utility companies and their contractors until the new sanitary sewer line(s) and associated appurtenances have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW. All new sanitary sewer lines must have at least three (3 ft.) feet of cover and extend under all existing water main and storm water lines with a least 24" of vertical clearance below the bottom of the existing water main and storm water lines. ALL ductile iron sewer piping must be 401 epoxy coated or approved equal.

G. The sanitary sewer gravity line(s), manhole(s), sanitary sewer service lateral(s) and associated clean-out(s) shall be

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Jarco Dr Industrial
65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by | Checked by

Issued for: Review
Date: March 25, 2025

Not Approved for Construction

Drawing Title
Harnett Regional Water Utility Notes (1 of 2)

Drawing Number
C0.02

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 3 of 19

Project Number
39563.00

constructed in strict accordance with the standard specifications of the Harnett Regional Water. The sanitary sewer gravity line(s) must pneumatically pressure tested with compressed air at 5 psi and the sanitary sewer force main(s) must hydrostatically pressure tested with water or air at 200 psi. Sanitary sewer manholes must be vacuum tested to 10 inches of mercury and cannot drop below 9 inches in 60 seconds for 4 ft. diameter manholes, 75 seconds for 5 ft. diameter manholes. The test must be in accordance with the following standards: For ductile iron pipelines test in accordance with the applicable requirements of ASTM C924. For PVC pipelines test in accordance with ASTM F1417-98 and UBPPA UNI-B-6. Vacuum testing shall be performed in accordance with ASTM C1244. The HRW Utility Construction Inspector and Engineer must witness all tests mentioned above.

H. Prior to acceptance, all sewer service laterals will be inspected to ensure that they are installed at the proper depth. All sewer clean-outs must be installed so the 4" x 4" long sweep combination wye is at least three (3') feet but no more than four (4') feet below the finish grade unless otherwise approved in writing by HRW. The sewer cleanouts shall have a four (4") schedule 40 PVC pipe stubbed up from both ends of the 4" x 4" long sweep combination wye to be at least two (2') feet above the finish grade and cover each end with a four (4") inch temporary cap to keep out dirt, sand, rocks, water and construction debris. The vertical stack on each clean-out must be provided with a concrete donut for protection.

I. Once the sanitary sewer gravity line(s) have been installed, pneumatically pressure tested and in place for at least 30 days, the Utility Contractor must contact the HRW Utility Construction Inspector to witness the mandrel test on each PVC sanitary sewer gravity line. The Utility Contractor will notify HRW to schedule the mandrel testing. The mandrel and proving ring must be supplied by the Utility Contractor. Closed circuit video camera inspections (at the Utility Contractor's expense) may be required by the HRW Utility Construction Inspector if the mandrel and mirror tamping testing cannot be completed with satisfactory results. The sanitary sewer lines should be flushed clean using a sewer ball of the proper diameter before any mandrel testing can be performed. The Utility Contractor is responsible to remove all dirt, sand, silt, gravel, mud and debris from the newly constructed sewer lines exercising care to keep the Harnett Regional Water's existing sanitary sewer systems clean. Sanitary sewer force main(s) shall be pressure tested to 200 psi for at least 2 hours like water lines.

as possible once the new sanitary sewer lines have been inspected, pressure tested, mandrel tested, approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW to allow the sewer to flow as designed in Harnett Regional Water's existing sanitary sewer lines or when so ordered by the HRW Collections Supervisor to limit interruptions to the normal flow of the sanitary sewer collection system(s). The Utility Contractor must provide the pumps hoses and necessary connectors for a temporary pump around setup if required by the HRW Collections Supervisor. Mr. Randolph Clegg, HRW Collections Supervisor may be contacted between 8:00 am and 5:00 pm Monday through Friday at (910) 893-7575 extension 3241.

Y. The Utility Contractor will be responsible for any and all repairs due to leakage or damage resulting from poor workmanship during the one (1) year warranty period once the sewer system improvements have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW. The Utility Contractor will be responsible for any and all repairs due to damages resulting from failure to locate the new sanitary sewer lines and associated appurtenances for other utilities and their contractors until the sanitary sewer lines have been approved by NCDEQ and accepted by HRW. HRW will provide maintenance and warranty repairs if necessary due to lack of response within 48 hours of notification of warranty work. HRW will invoice the Developer and/or Utility Contractor for materials and labor in such cases.

Z. In developments and projects that require utility easements to be established for future HRW right-of-way, the Registered Land Surveyor (RLS) must provide the HRW Right-of-Way Agent with an official copy of the recorded plat and legal description of the said easement as recorded with the Harnett County Register of Deeds. The recorded documents must be provided to the HRW Right-of-Way Agent before the utility improvements within the said easement can be placed into operation. Any and all easements that must be obtained from adjoining property owners must be provided to HRW by the Developer at no cost to Harnett County. The final inspection of all sanitary sewer system improvements cannot be scheduled with HRW until the streets have been paved; the rights-of-way and utility easements have been seeded and stabilized with an adequate stand of grass in place to prevent erosion issues on site.

AA. The Engineer of Record is responsible to ensure that construction is, at all times, in compliance with accepted sanitary engineering practices and approved plans and specifications. No field changes to the approved plans are allowed without prior written approval

J. The Utility Contractor shall be responsible to locate the newly installed sanitary sewer system(s) for other utility companies and their contractors until the new sanitary sewer system(s) have been approved by the North Carolina Department of Environmental Quality (NCDEQ) and accepted by HRW.

K. HRW requires that the Utility Contractor install tracer wire in the trench with all sanitary sewer force mains. The tracer wire shall be 12 ga. insulated, solid copper conductor and it shall be terminated at the top of the valve boxes or manholes. No spliced wire connections shall be made underground on tracer wire installed in Harnett County. The tracer wire may be secured with duct tape to the top of the pipe before backfilling. The tracer wire is not required for the gravity sewer line(s) between manholes.

L. The Utility Contractor shall provide the Professional Engineer (PE) and HRW Utility Construction Inspector with a set of red line drawings identifying the complete sewer system installed for each project. The red line drawings should identify the materials, pipe sizes and approximate depths of the sewer lines as well as the installed locations of the manhole(s), sanitary sewer gravity line(s), sanitary sewer service laterals, clean-outs, sewer lift station(s) and associated force main(s). The red line drawings should clearly identify any deviations from the NCDEQ approved plans. All change orders must be approved by HRW and the Professional Engineer (PE) in writing and properly documented in the red line field drawings.

M. Prior to the commencement of any work within established utility easements or NCDOT right-of-ways the Utility Contractor is required to notify all concerned utility companies in accordance with G.S. 87-102. The Utility Contractor must call the NC One Call Center at 811 or (800) 632-4949 to verify the location of existing utilities prior to the beginning of construction. Existing utilities shown in these plans are taken from maps furnished by various utility companies and have not been physically located by the P.E. (i.e. TELEPHONE, CABLE, WATER, SEWER, ELECTRICAL POWER, FIBER OPTIC, NATURAL GAS, ETC.).

N. The Utility Contractor shall spot dig to expose each existing utility pipe or line which may conflict with construction of proposed sanitary sewer line extensions well in advance to verify locations of the existing utilities. The Utility Contractor shall provide both horizontal and vertical clearances to the Professional Engineer (PE) to allow the PE to adjust the sanitary sewer line design in order to avoid conflicts with existing underground utilities. The Utility Contractor shall coordinate with the utility owner and be responsible for temporary

by HRW. A copy of each engineer's field report is to be submitted to HRW as each such inspection is made on system improvements or testing is performed by the contractor. Water and sewer infrastructure must pass all tests required by HRW specifications and those of all applicable regulatory agencies. These tests include, but are not limited to: air test, vacuum test, mandrel test, visual test, pressure test, bacteriological test, etc. A HRW Inspector must be present during testing and all test results shall be submitted to HRW. All tests must be satisfied before the final inspection will be scheduled with the HRW Inspector. The Engineer of Record must request in writing to schedule the final inspection once all construction is complete. The Developer's Engineer of Record and the HRW Utility Construction Inspector shall prepare a written punch list of any defects or deficiencies noted during the final inspection, should any exist. Upon completion of the punch list, the Developer's Engineer of Record will schedule another inspection. In the event the number of inspections performed by the HRW exceeds two, additional fees may be assessed to the Developer.

relocation of existing utilities and/or securing existing utility poles, pipes, wires, cables, signs and/or utilities including services in accordance with the utility owner's requirements during sanitary sewer line installation, grading and street construction.

O. When making a tap on an existing sewer force main, the Utility Contractor must have a permit from the North Carolina Department of Environmental Quality (NCDEQ) prior to begin the tap work. The Utility Contractor shall conduct a pneumatic pressure test using compressed air or other inert gas on the stainless steel tapping sleeve and gate valve prior to making the tap on an existing sanitary sewer force main. This pneumatic pressure test must be witnessed by the HRW Utility Construction Inspector. The Utility Contractor shall use Romac brand stainless steel tapping sleeve(s) or approved equal for all taps made on sanitary sewer force mains in Harnett County. The Utility Contractor shall use Romac brand Style "CB" sewer saddles with stainless steel bands or approved equal for all taps made on existing sanitary sewer gravity lines in Harnett County.

P. The Utility Contractor shall provide a grease trap for each sanitary sewer service lateral that will be connected to a restaurant, food processing facility and any other commercial or industrial facility as required by the Harnett County Fat, Oil & Grease Ordinance. The grease trap must be rated for a minimum capacity of at least 1,000 gallons unless otherwise approved in writing by the HRW Pre-Treatment Coordinator. Garbage disposals should not be installed in homes and businesses that discharge wastewater to the Harnett Regional Water's Sanitary Sewer System as they are not approved by HRW.

Q. Each sewer lift station must be provided with three phase power (at least 480 volts) and constructed to meet the minimum requirements of the latest version of the National Electrical Code (NEC) and Harnett Regional Water standard specifications and details. If three phase power is not available from the power company other arrangements must be approved by HRW Engineering prior to the start of construction.

R. Where a new sanitary sewer force main is connected to an existing manhole in the Harnett Regional Water sewer collections system, the Utility Contractor must provide a protective coating (epoxy) for the interior surfaces of the manhole to protect it against corrosion, erosion and deterioration from the release of sewer gases such as methane and hydrogen sulfide.

S. The sewer lift station design and associated equipment must meet or exceed the MINIMUM REQUIREMENTS FOR HARNETT COUNTY SEWER LIFT STATIONS. Each sanitary sewer lift station must be constructed with an all-weather access road that is at least 20 feet wide. The lift station site must be covered with weed blocking material and at least six (6") inches of ABC stone (crush and run).

T. Once a sewer lift station has been installed, the Utility Contractor is responsible to schedule a draw down test with HRW Engineering and Collections staff, the Professional Engineer (PE), the Electrician, the original equipment manufacturers (OEM) representatives [For both the Pumps and the Generator]. This draw down test must be completed with power supplied from the electrical utility company and with power supplied by the emergency generator with satisfactory results before final inspections are conducted by the HRW Utility Construction Inspector.

U. Once the Utility Contractor completes the installation of a sewer lift station, the Professional Engineer (PE) must submit the sewer permit certification and As-Built Record Drawings to the North Carolina Department of Environmental Quality (NCDEQ) and HRW for final approval. The Utility Contractor must supply HRW Engineering staff with three original Operation & Maintenance (O&M) Manuals along with the associated pump curves and electrical schematics for the associated sewer lift station equipment including all warranty information and documentation.

V. Once the Utility Contractor completes the installation of a sewer lift station, the Developer must pay HRW the established System Control and Data Acquisition (SCADA) fees before the SCADA system will be installed at the new sewer lift station. The SCADA system must be installed and operational before the utilities may be accepted by HRW and placed into operation.

W. HRW requires the Utility Contractor to provide all necessary equipment and devices for the testing and inspection of the sanitary sewer system. The equipment and devices may include but not limited to lamping with mirrors, mandrels, sewer balls, plugs, air compressors and associated compressed air lines. If the HRW Utility Construction Inspector deems that a closed circuit video camera inspection of the newly constructed sewer system is necessary, then all costs for the closed circuit camera inspection will be the responsibility of the Utility Contractor. All closed circuit video camera inspections must be recorded on VHS tapes that will released to HRW for record keeping, review and approval of the sewer system.

X. Any use of sewer plugs to temporarily block Harnett Regional Water's existing sanitary sewer lines must be coordinated with the HRW Collections Supervisor at least two (2) days in advance of installing the plugs. The sewer plugs must be removed as soon

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Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by | Checked by

Issued for: Review
Date: March 25, 2025

Not Approved for Construction

Drawing Title
Harnett Regional Water Utility Notes (2 of 2)

Drawing Number
C0.03

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 4 of 19

Project Number
39563.00

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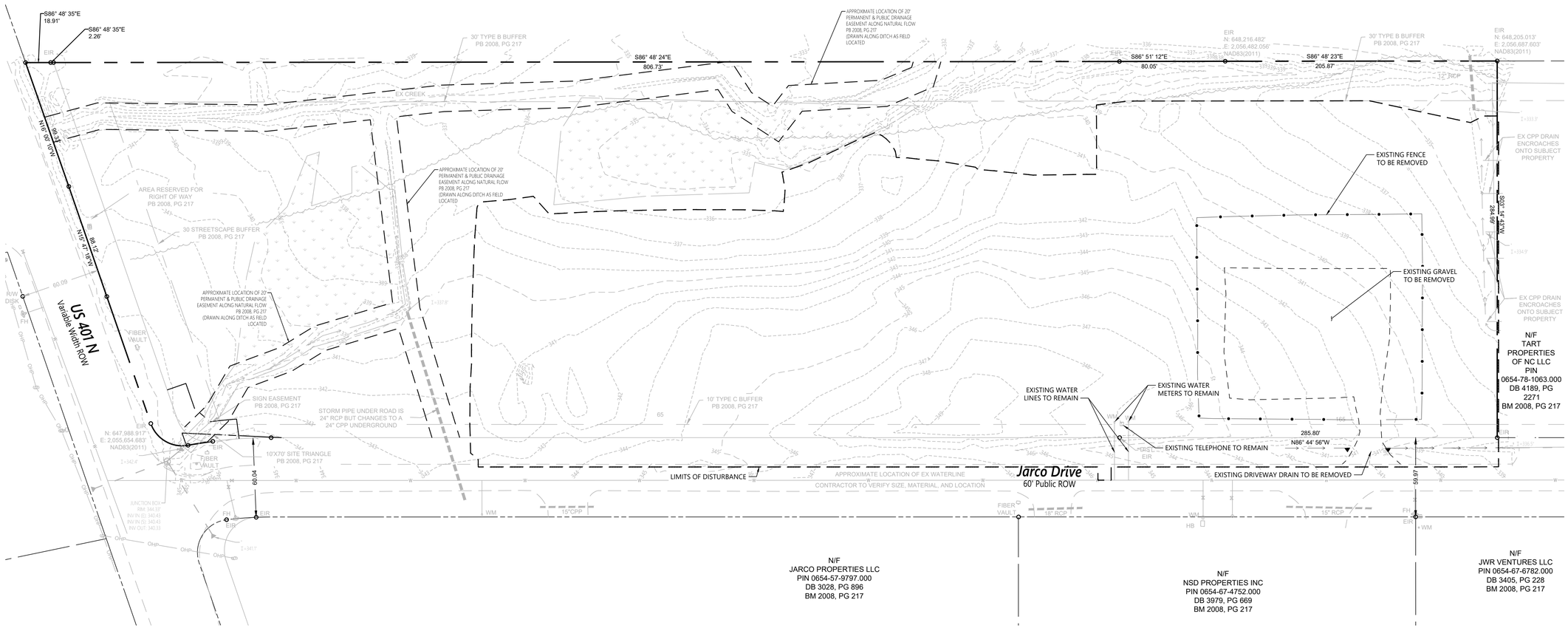

DEMOLITION NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH HARNETT COUNTY STANDARDS AND SPECIFICATIONS.
2. THE CONTRACTOR SHALL COORDINATE ALL REMOVAL EFFORTS WITH THE OWNER PRIOR TO COMMENCING WORK.
3. SPECIAL CARE SHALL BE TAKEN TO PROTECT AND MAINTAIN ALL EXISTING FEATURES, INCLUDING BELOW GROUND, NOT MARKED FOR REMOVAL. IN THE EVENT OF ANY IMPACT TO SUCH FEATURES, INCLUDING BELOW GROUND, PERFORM REPAIR AND/OR RESTORE TO ORIGINAL CONDITION AS OF START OF WORK.
4. NO DEMOLITION DEBRIS IS TO BE STORED ON SITE. ALL DEMOLITION MATERIAL TO BE PROMPTLY REMOVED FROM THE SITE OR PLACED IN APPROPRIATE CONTAINERS.
5. TRAFFIC CONTROL IS CONTRACTOR'S RESPONSIBILITY.
6. SAWCUT EXISTING ASPHALT AT LOCATION SHOWN ON PLANS
7. SITE DEMOLITION SEQUENCE TO BE PROVIDED BY THE CONTRACTOR.
8. ALL SIDEWALKS MUST BE ACCESSIBLE TO PERSONS WHO ARE BLIND, HAVE LOW VISION AND PEOPLE WITH MOBILITY DISABILITIES. PEDESTRIAN EXISTING ROUTES AND ALTERNATE PEDESTRIAN ROUTES DURING CONSTRUCTION WILL BE REQUIRED TO BE COMPLIANT WITH THE PUBLIC RIGHT OF WAY ACCESSIBILITY GUIDELINES (PPOWAG), 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
9. THE CONTRACTOR SHALL CONDUCT THE WORK IN A SAFE MANNER AND WITH A MINIMUM AMOUNT OF INCONVENIENCE TO TRAFFIC.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SHALL ADHERE TO THE PROVISIONS OF THE MUTCD (MOST CURRENT EDITION).
11. PRIOR TO CONSTRUCTION BEGINNING. ALL SIGNAGE AND TRAFFIC CONTROL SHALL BE IN PLACE.
12. CONTRACTOR IS EXPLICITLY ADVISED TO FIELD LOCATE AND VERIFY LOCATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. LOCATION OF EXISTING UNDERGROUND UTILITIES SHOWN ON PLANS IS APPROXIMATE BASED ON BEST AVAILABLE INFORMATION AND SHOULD BE CONSIDERED APPROXIMATE.
13. CONTRACTOR TO REPORT ANY DISCREPANCIES TO LANDSCAPE ARCHITECT/CIVIL ENGINEER PRIOR TO ANY CONSTRUCTION ACTIVITIES. CONTACT NC ONE AT 811 FOR FIELD LOCATION OF UNDERGROUND UTILITIES.
14. PROPERTY LINES , TOPOGRAPHY, AND PHYSICAL FEATURES ARE BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BY JOHN A. EDWARDS & COMPANY, ON JANUARY 23, 2024.

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Legend

WETLAND

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

0 20 40 80 Feet

Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by: DH, WS
Checked by: CT
Issued for: Review
Date: March 25, 2025

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Drawing Title: Demolition Plan

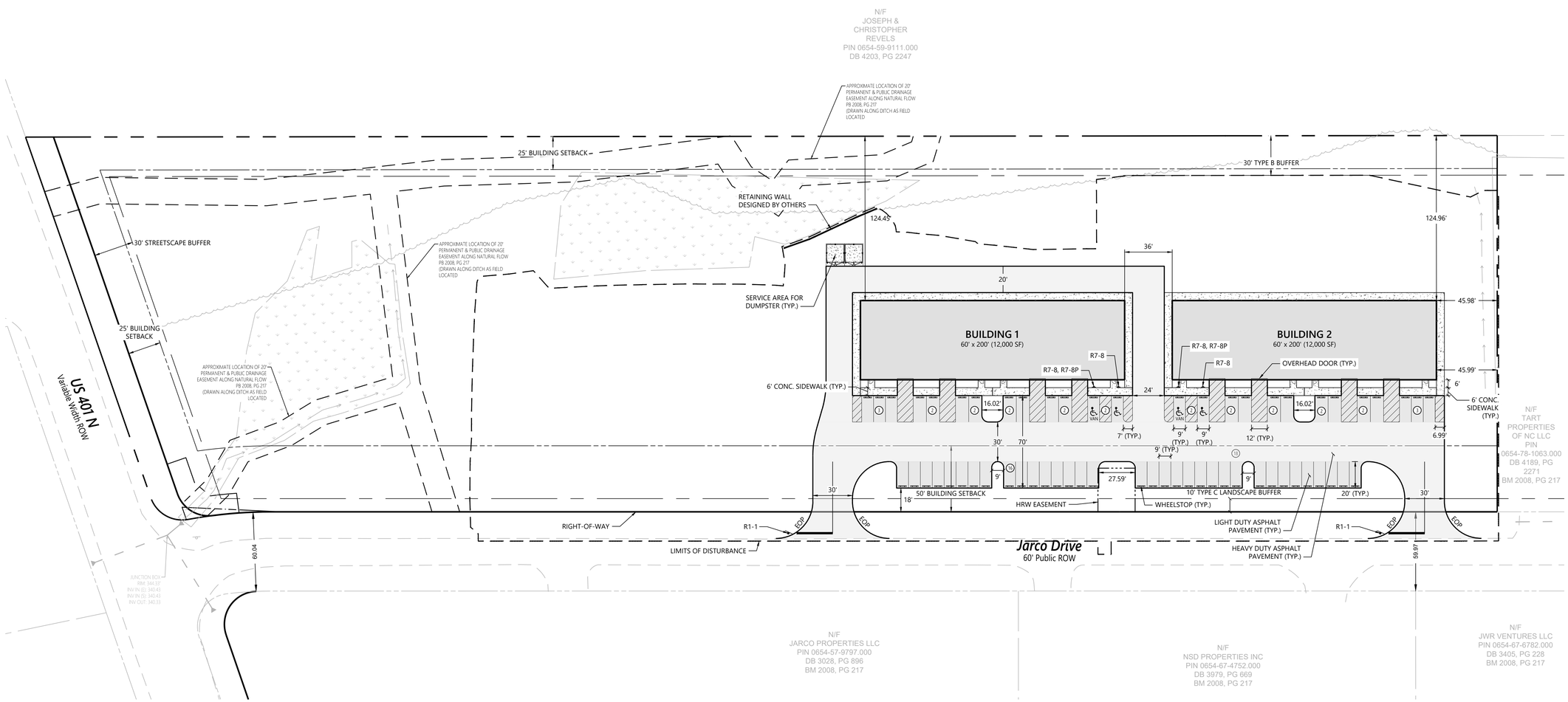
Drawing Number: C1.00

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 5 of 19

Project Number: 39563.00

Saved Monday, January 19, 2026 9:41:33 AM WSHERRILL Plotted Monday, April 6, 2026 4:20:53 PM Will Sherrill



Legend

- CONCRETE SIDEWALK
- BUILDING
- LIGHT DUTY ASPHALT
- HEAVY DUTY ASPHALT MAX. LOAD: 75,000 LBS
- WETLAND

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

0 20 40 80 Feet

General Notes

1. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH HARNETT COUNTY AND NCDOT STANDARDS AND SPECIFICATIONS IF APPLICABLE.
2. PROPERTY LINES., TOPOGRAPHY, AND PHYSICAL FEATURES ARE BASED ON AN ACTUAL FIELD SURVEY PERFORMED ON THE GROUND BY JOHN A. EDWARDS & COMPANY, ON JANUARY 23, 2024.
3. ALL DIMENSIONS SHOWN ARE TO EDGE OF PAVEMENT UNLESS OTHERWISE STATED ON PLANS.
4. UNLESS NOTED, ACCESS ROUTE FOR EMERGENCY VEHICLES SHALL PROVIDE AN INSIDE TURNING RADIUS OF 28' MINIMUM.
5. ALL HVAC UNITS SHALL BE SCREENED FROM VIEW OF THE PUBLIC RIGHT OF WAY.
6. CONTRACTOR TO FIELD LOCATE AND VERIFY ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION AND REPORT ANY DISCREPANCIES TO LANDSCAPE ARCHITECT PRIOR TO ANY CONSTRUCTION ACTIVITIES. CONTACT NC ONE AT 811 FOR FIELD LOCATION OF UNDERGROUND UTILITIES.
7. HANDICAP PARKING SPACE(S) AND HC ACCESS AISLE(S) SHALL BE NO GREATER THAN TWO PERCENT (2%) PITCH IN ANY DIRECTION(S) AS PER ADA STANDARDS.
8. PROVIDE SIGNAGE AND STRIPING OF HANDICAP SPACES AS PER ADA STANDARDS.
9. ALL RETAINING WALLS GREATER THAN 30" IN HEIGHT TO INCLUDE SAFETY RAIL OR FENCE. NO RETAINING WALLS ARE PERMITTED IN THE RIGHT-OF-WAY UNLESS APPROVED BY ENCROACHMENT.
10. THE MINIMUM CORNER CLEARANCE FORM THE CURB LINE OF INTERSECTING STREETS SHALL BE AT LEAST 20 FEET FROM THE POINT OF TANGENCY OF THE CURB FOR RESIDENTIAL DRIVEWAYS. NO DRIVEWAYS SHALL ENCROACH ON THIS MINIMUM CORNER CLEARANCE.
11. ALL RAMPS AND HANDRAILS SHALL CONFORM TO ANSI STANDARDS.
12. ALL ABOVE GROUND UTILITY DEVICES (TO INCLUDE BUT NOT LIMITED TO TELEPHONE AND CABLE PEDESTALS, ELECTRICAL TRANSFORMERS, BACKFLOW DEVICE HOTBOX, ETC) SHALL BE SCREENED FROM OFF-SITE VIEW BY EVERGREEN SHRUBS, FENCE, OR WALL.
13. ALL SIDEWALKS MUST BE ACCESSIBLE TO PERSONS WHO ARE BLIND, HAVE LOW VISION AND PEOPLE WITH MOBILITY DISABILITIES. PEDESTRIAN EXISTING ROUTES AND ALTERNATE PEDESTRIAN ROUTES DURING CONSTRUCTION WILL BE REQUIRED TO BE COMPLIANT WITH THE PUBLIC RIGHTS OF WAY ACCESSIBILITY GUIDELINES (PROWAG), 2010 ADA STANDARDS FOR ACCESSIBLE DESIGN AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD).
14. THE CONTRACTOR SHALL CONDUCT THE WORK IN A SAFE MANNER AND WITH MINIMAL IMPACT TO TRAFFIC.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SHALL ADHERE TO THE PROVISIONS OF THE MUTCD (MOST CURRENT EDITION).
16. PRIOR TO CONSTRUCTION BEGINNING, ALL SIGNAGE AND TRAFFIC CONTROL SHALL BE IN PLACE.

Sign Summary

M.U.T.C.D. Number	Specification Width	Height	Desc.
R1-1	30"	30"	STOP
R7-8	12"	18"	RESERVED PARKING
R7-8P	12"	6"	VAN ACCESSIBLE

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65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by: DH, WS
Checked by: CT

Issued for: **Review**
Date: **March 25, 2025**

Not Approved for Construction

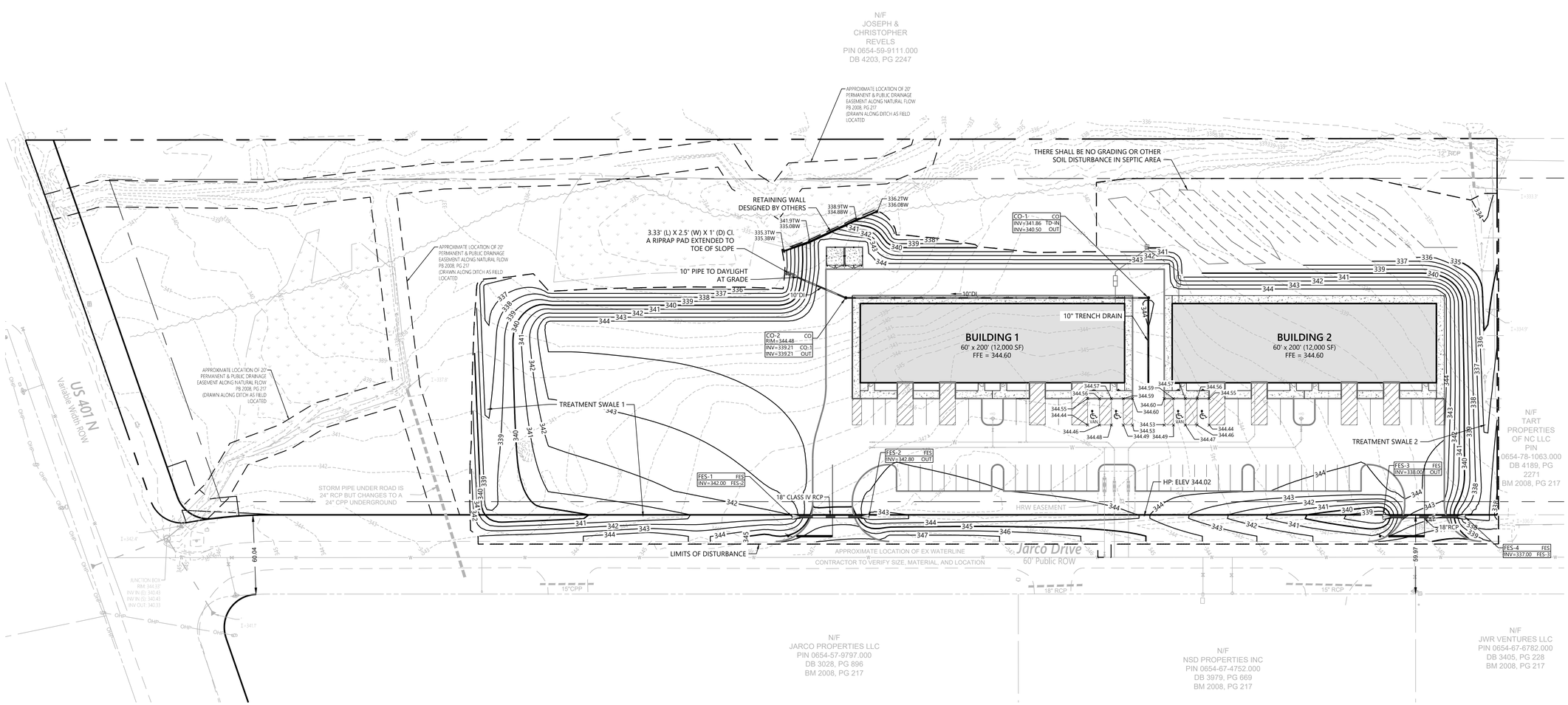
Drawing Title: **Site Plan**
SITE2504-0001

Drawing Number: **C2.00**

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 6 of 19

Project Number: **39563.00**



GRADING NOTES

1. ALL SPOT ELEVATIONS ALONG PAVEMENT REPRESENT FINISHED GRADE ELEVATION UNLESS OTHERWISE NOTED.
2. ALL PROPOSED STORM PIPE TO BE CLASS III RCP UNLESS OTHERWISE NOTED.
3. CONTRACTOR SHALL COORDINATE PAVING IMPROVEMENTS TO AVOID TIRE MARKS FROM CONSTRUCTION ACTIVITY. FINAL PAVING SHALL BE AS SMOOTH AS POSSIBLE AND FREE FROM ANY MARKS, SCRAPES, GOUGES, TIRE MARKS, ETC. CAUSED DURING CONSTRUCTION.
4. DURING CONSTRUCTION AND AFTER FINAL GRADING, NO SURFACE WATER RUNOFF MAY BE DIRECTED TO ADJACENT PROPERTIES, AND ALL SURFACE WATER RUNOFF MUST BE ROUTED TO APPROVED DRAINAGE FACILITIES OR BE RETAINED ON SITE. ALL RUNOFF FROM THE SITE, BOTH DURING AND AFTER CONSTRUCTION, MUST BE FREE OF POLLUTANTS, INCLUDING SEDIMENT, PRIOR TO DISCHARGE.
5. TOTAL DISTURBED AREA IS 184,169SF (4.23 AC).

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1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by: DH, WS
Checked by: CT

Issued for: Review
Date: March 25, 2025

Not Approved for Construction

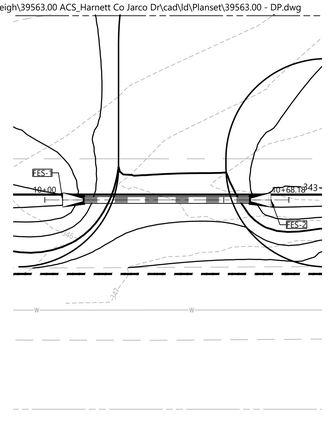
Drawing Title: Grading and Drainage Plan

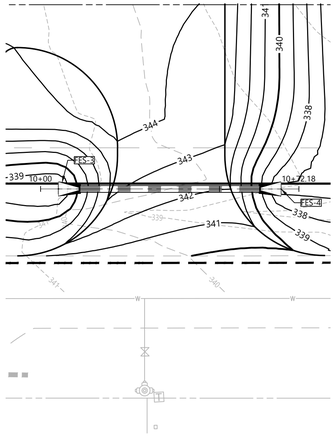
Drawing Number: C3.00

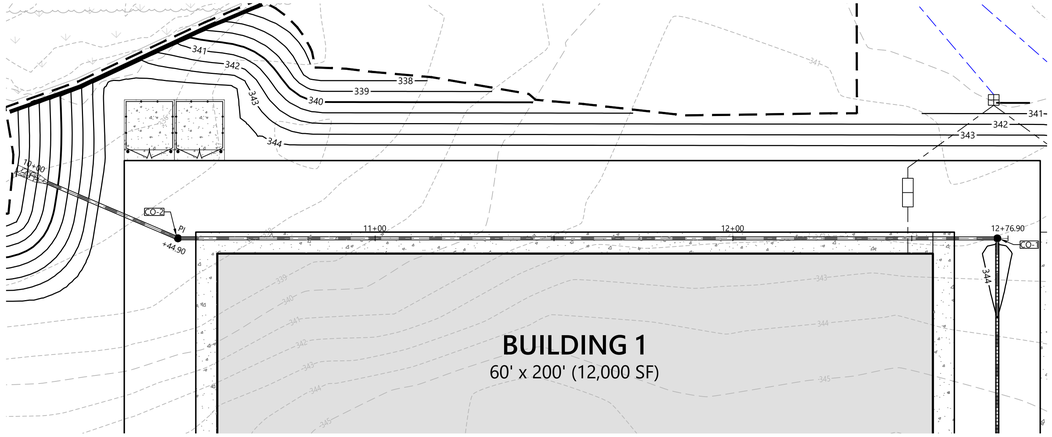
NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

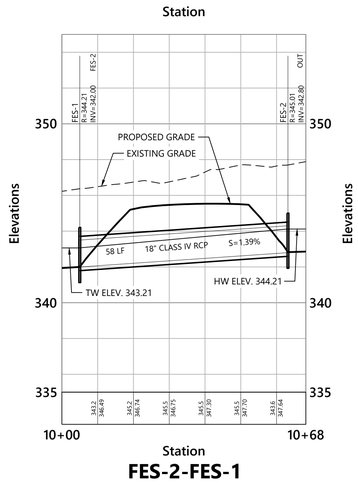
Sheet 7 of 19

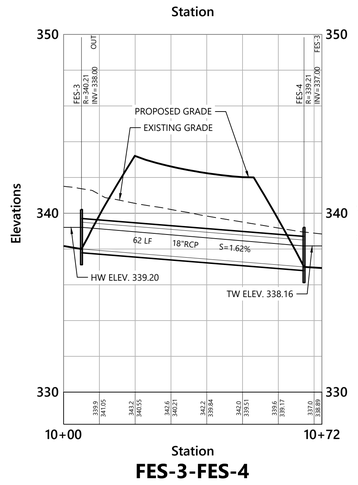
Project Number: 39563.00

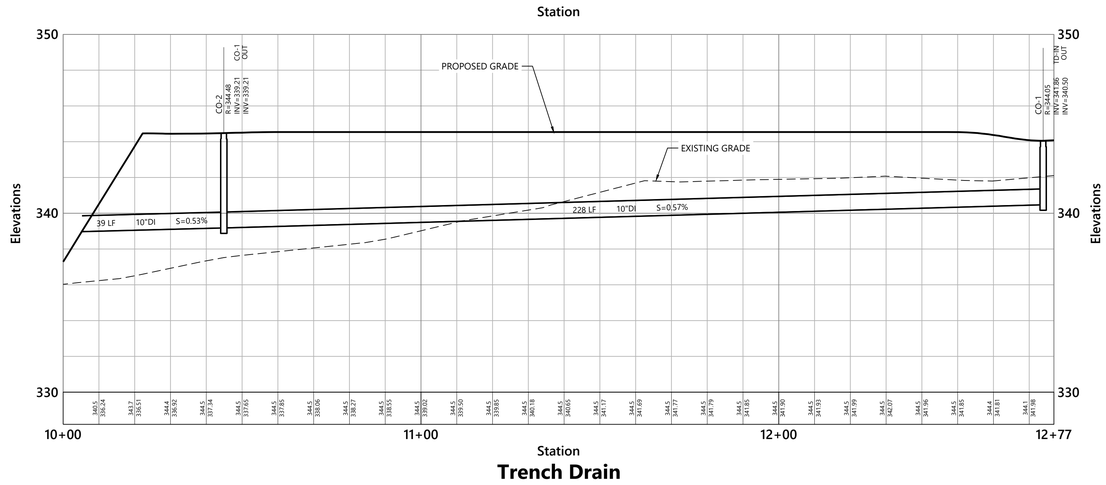












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Vert. 0 2.5 5 10 Feet
Horiz. 0 20 40 80 Feet

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No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by: DH, WS
Checked by: CT
Issued for: Review
Date: March 25, 2025

Not Approved for Construction

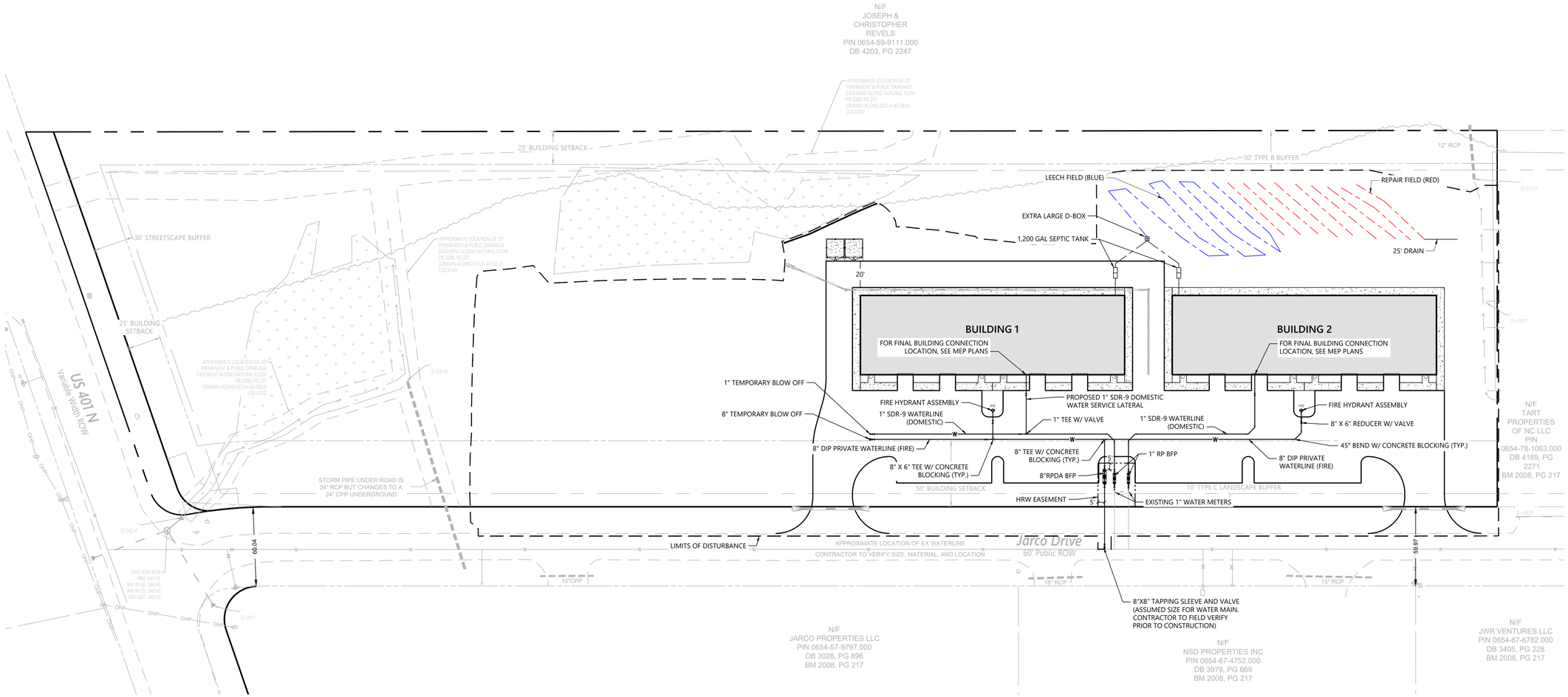
Drawing Title: **Drainage Profiles**

Drawing Number: **C3.01**

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 8 of 19

Project Number: 39563.00



Standard Utility Notes:

1. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS VIA SOFT DIG PRIOR TO CONSTRUCTION
2. ALL MATERIALS & CONSTRUCTION METHODS SHALL BE IN ACCORDANCE WITH HARNETT REGIONAL WATER
3. UTILITY SEPARATION REQUIREMENTS:
4. A DISTANCE OF 100' SHALL BE MAINTAINED BETWEEN SANITARY SEWER & ANY PRIVATE OR PUBLIC WATER SUPPLY SOURCE SUCH AS AN IMPOUNDED RESERVOIR USED AS A SOURCE OF DRINKING WATER. IF ADEQUATE LATERAL SEPARATION CANNOT BE ACHIEVED, FERROUS SANITARY SEWER PIPE SHALL BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS. HOWEVER, THE MINIMUM SEPARATION SHALL NOT BE LESS THAN 25' FROM A PRIVATE WELL OR 50' FROM A PUBLIC WELL
5. WHEN INSTALLING WATER &/OR SEWER MAINS, THE HORIZONTAL SEPARATION BETWEEN UTILITIES SHALL BE 10'. IF THIS SEPARATION CANNOT BE MAINTAINED DUE TO EXISTING CONDITIONS, THE VARIATION ALLOWED IS THE WATER MAIN IN A SEPARATE TRENCH WITH THE ELEVATION OF THE WATER MAIN AT LEAST 18" ABOVE THE TOP OF THE SEWER & MUST BE APPROVED BY THE PUBLIC UTILITIES DIRECTOR. ALL DISTANCES ARE MEASURED FROM OUTSIDE DIAMETER TO OUTSIDE DIAMETER
6. WHERE IT IS IMPOSSIBLE TO OBTAIN PROPER SEPARATION, OR ANYTIME A SANITARY SEWER PASSES OVER A WATERMAIN, DIP MATERIALS OR STEEL ENCASEMENT EXTENDED 10' ON EACH SIDE OF CROSSING MUST BE SPECIFIED & INSTALLED TO WATERLINE SPECIFICATIONS
7. 5.0' MINIMUM HORIZONTAL SEPARATION IS REQUIRED BETWEEN ALL SANITARY SEWER & STORM SEWER FACILITIES, UNLESS DIP MATERIAL IS SPECIFIED FOR SANITARY SEWER
8. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL WATERMAIN & RCP STORM DRAIN CROSSINGS. MAINTAIN 18" MIN. VERTICAL SEPARATION AT ALL SANITARY SEWER & RCP STORM DRAIN CROSSINGS. WHERE ADEQUATE SEPARATIONS CANNOT BE ACHIEVED, SPECIFY DIP MATERIALS & A CONCRETE CRADLE HAVING 6" MIN. CLEARANCE
9. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
10. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
11. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
12. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION
13. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION

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No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by: DH, WS
Checked by: CT

Issued for: Review
Date: March 25, 2025

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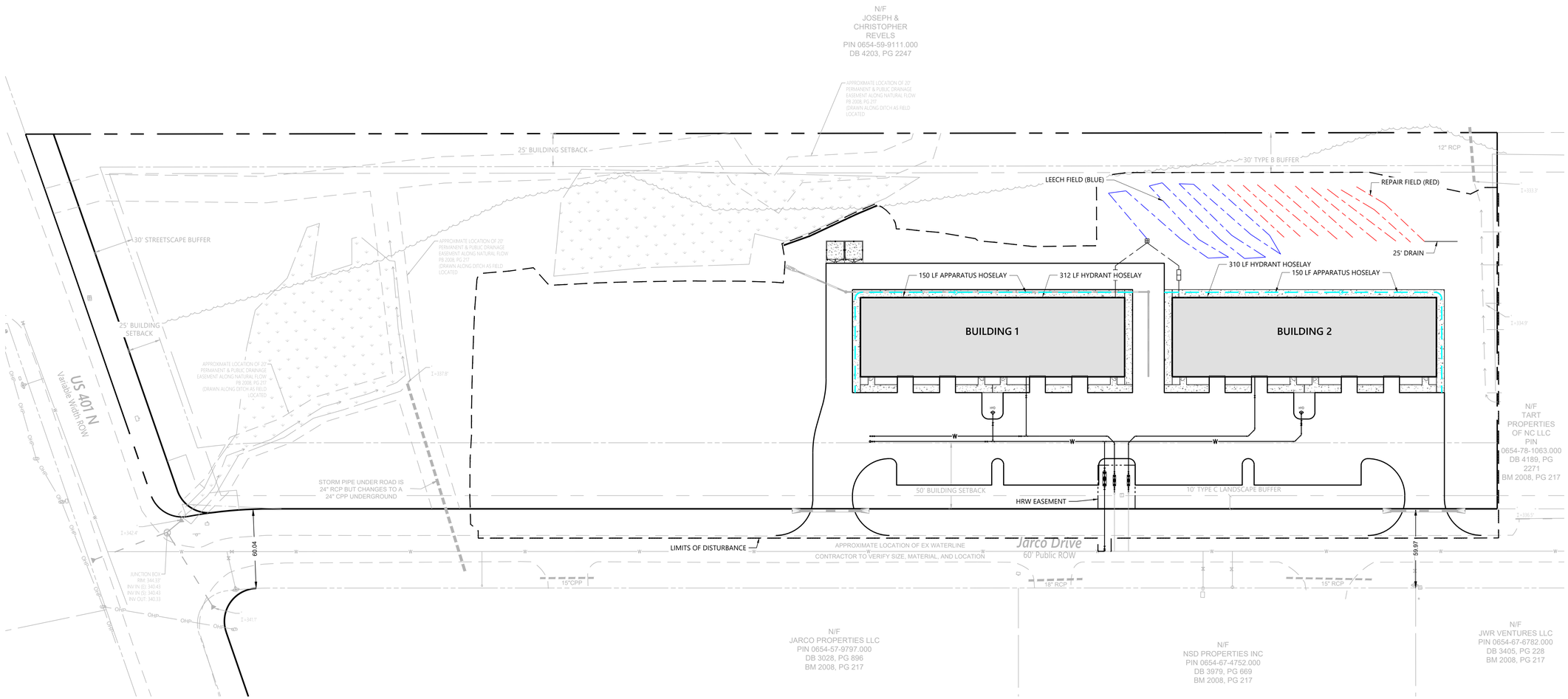
Drawing Title: Utility Plan

Drawing Number: C4.00

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 9 of 19

Project Number: 39563.00



Standard Utility Notes (As Applicable):

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2. UTILITY SEPARATION REQUIREMENTS:
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8. ALL OTHER UNDERGROUND UTILITIES SHALL CROSS WATER & SEWER FACILITIES WITH 18" MIN. VERTICAL SEPARATION REQUIRED
9. 3.0' MINIMUM COVER IS REQUIRED ON ALL WATER MAINS & SEWER FORCEMAINS. 4.0' MINIMUM COVER IS REQUIRED ON ALL REUSE MAINS
10. INSTALL ¾" COPPER* WATER SERVICES WITH METERS LOCATED AT ROW OR WITHIN A 2'X2' WATERLINE EASEMENT IMMEDIATELY ADJACENT. NOTE: IT IS THE APPLICANT'S RESPONSIBILITY TO PROPERLY SIZE THE WATER SERVICE FOR EACH CONNECTION TO PROVIDE ADEQUATE FLOW & PRESSURE
11. PRESSURE REDUCING VALVES ARE REQUIRED ON ALL WATER SERVICES EXCEEDING 80 PSI; BACKWATER VALVES ARE REQUIRED ON ALL SANITARY SEWER SERVICES HAVING BUILDING DRAINS LOWER THAN 1.0' ABOVE THE NEXT UPSTREAM MANHOLE
12. ALL ENVIRONMENTAL PERMITS APPLICABLE TO THE PROJECT MUST BE OBTAINED FROM NCDWQ, USACE &/OR FEMA FOR ANY RIPARIAN BUFFER, WETLAND &/OR FLOODPLAIN IMPACTS (RESPECTIVELY) PRIOR TO CONSTRUCTION
13. NCDOT / RAILROAD ENCROACHMENT AGREEMENTS ARE REQUIRED FOR ANY UTILITY WORK (INCLUDING MAIN EXTENSIONS & SERVICE TAPS) WITHIN STATE OR RAILROAD ROW PRIOR TO CONSTRUCTION

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Legend

APPARATUS HOSELAY

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1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by MAE | Checked by CT

Issued for: Review | Date: March 25, 2025

Not Approved for Construction

Drawing Title: Apparatus Plan

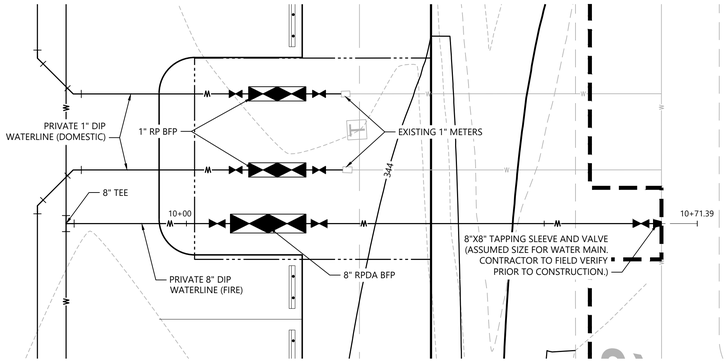
Drawing Number: C4.01

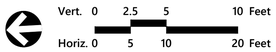
NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

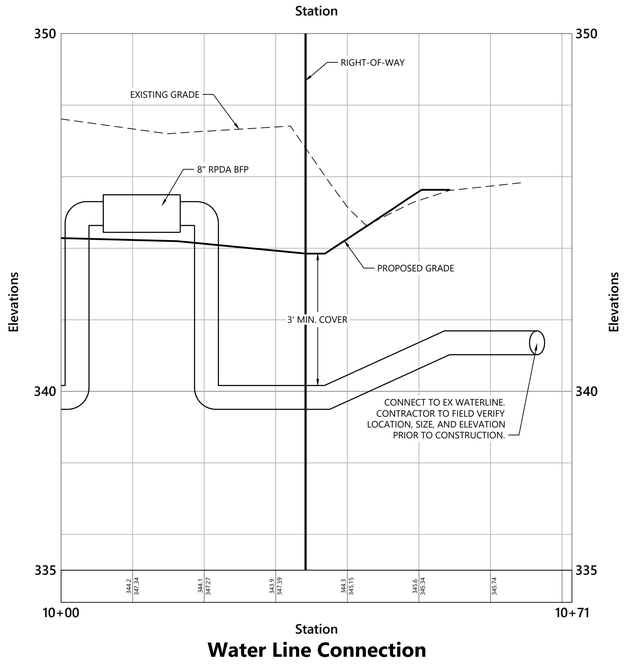
Sheet 10 of 19

Project Number 39563.00

Saved Tuesday, January 27, 2026 5:21:43 PM WSHERRILL Plotted Monday, April 6, 2026 4:21:51 PM Will Sherrill







Water Line Connection

Utility Notes

1. CONTRACTOR TO FIELD VERIFY EXISTING UTILITY LOCATIONS VIA SOFT DIG PRIOR TO CONSTRUCTION

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Designed by: DH, WS
Checked by: CT

Issued for: Review
Date: March 25, 2025

Not Approved for Construction

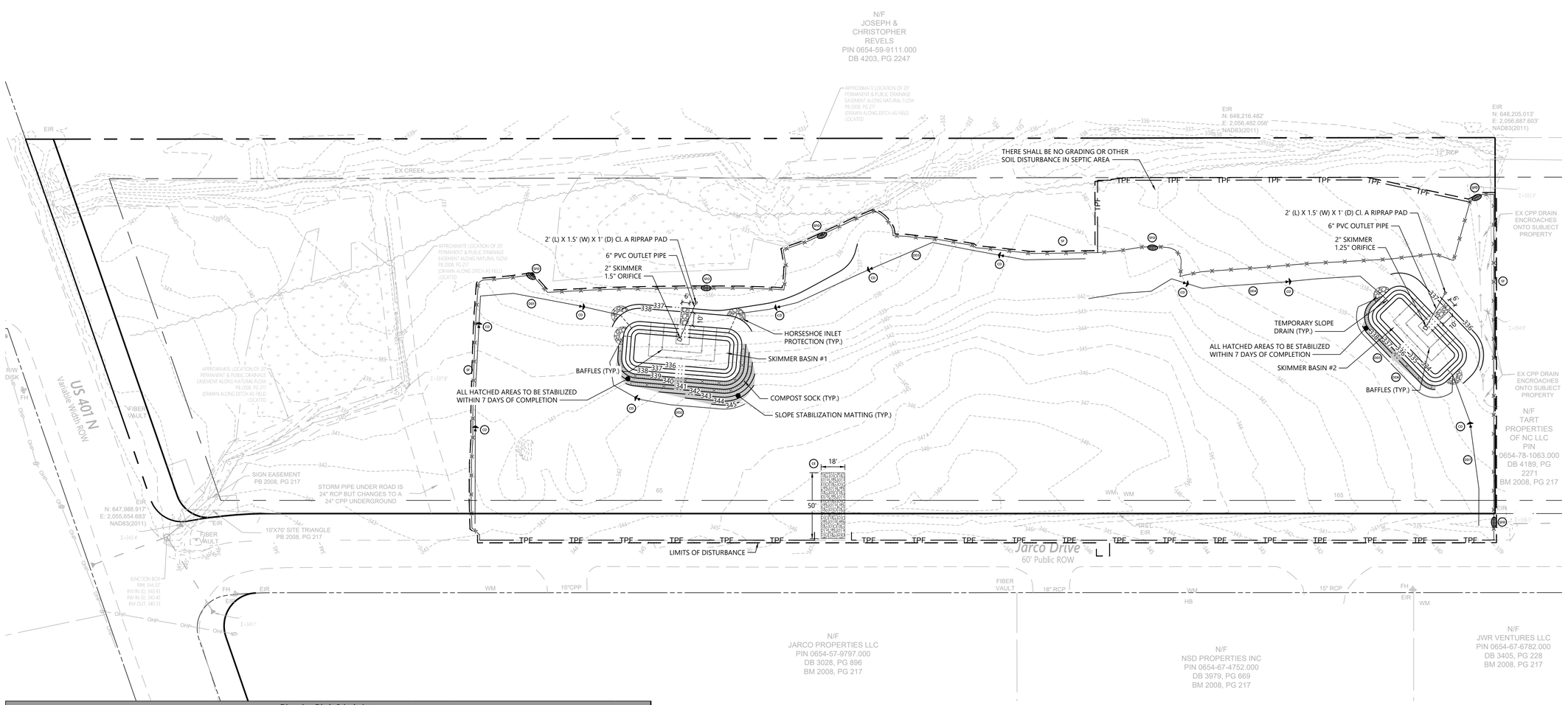
Drawing Title
Waterline Profile

Drawing Number
C4.02

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 11 of 19

Project Number
39563.00



Diversion Ditch Calculations

ID	Type	Drainage Area	Intensity	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
DD1	S75 Unvegetated	0.67 Acres	7.6 in/hr	2.546 cfs	2.29 ft/s	0.36 ft	0.035	1.6 lbs/ft²	0.40 lbs/ft²	3.99	Stable	D
DD2	S75 Unvegetated	0.1 Acres	7.6 in/hr	0.38 cfs	1.62 ft/s	0.1 ft	0.037	1.6 lbs/ft²	0.25 lbs/ft²	6.29	Stable	D
DD3	S75 Unvegetated	1.05 Acres	7.6 in/hr	3.99 cfs	2.78 ft/s	0.44 ft	0.034	1.6 lbs/ft²	0.54 lbs/ft²	2.95	Stable	D
DD4	S75 Unvegetated	0.54 Acres	7.6 in/hr	2.052 cfs	2.57 ft/s	0.28 ft	0.034	1.6 lbs/ft²	0.49 lbs/ft²	3.27	Stable	D
DD5	S75 Unvegetated	0.13 Acres	7.6 in/hr	0.494 cfs	1.78 ft/s	0.12 ft	0.036	1.6 lbs/ft²	0.29 lbs/ft²	5.49	Stable	D
DD6	Straight Vegetation	0.14 Acres	7.6 in/hr	0.532 cfs	1 ft/s	0.06 ft	0.04	0.37 lbs/ft²	0.12 lbs/ft²	3.21	Stable	D
DD7	S75 Unvegetated	0.42 Acres	7.6 in/hr	1.596 cfs	1.97 ft/s	0.28 ft	0.036	1.6 lbs/ft²	0.32 lbs/ft²	5.01	Stable	D

Phase 1 Erosion Control Sequence

1. SCHEDULE A PRECONSTRUCTION CONFERENCE WITH THE ENVIRONMENTAL CONSULTANT. OBTAIN A LAND-DISTURBING PERMIT.

2. INSTALL CONSTRUCTION ENTRANCE, GRAVEL CONSTRUCTION PADS, TEMPORARY DIVERSION DITCHES, SILT FENCE, SEDIMENT BASINS, AND OTHER MEASURES AS SHOWN ON THE APPROVED PLAN. CLEAR ONLY AS NECESSARY TO INSTALL THESE DEVICES. SEED TEMPORARY DIVERSIONS, BERMS, AND BASINS IMMEDIATELY AFTER CONSTRUCTION.

3. GROUND COVER SHALL BE PROVIDED AS FOLLOWS:
   - 3.A. STABILIZE BASINS WITH GROUND COVER IMMEDIATELY AFTER INSTALLATION.
   - 3.B. STABILIZE DIVERSION DITCHES INTENDED TO BE IN SERVICE FOR 20 DAYS OR MORE WITH TEMPORARY SEEDING AND EROSION CONTROL NETTING.
   - 3.C. FOR ALL AREAS OF MODERATE AND/OR STEEP SLOPES, PROVIDE TEMPORARY GROUND COVER IF THE SLOPE HAS NOT BEEN DISTURBED FOR A PERIOD OF FOURTEEN (14) DAYS.
   - 3.D. PROVIDE GROUND COVER SUFFICIENT TO RESTRAIN EROSION ON ANY PORTION OF THE SITE UPON WHICH FURTHER LAND-DISTURBING ACTIVITY IS NOT NOT BEING UNDERTAKEN WITHIN FOURTEEN (14) DAYS CALENDAR DAYS OF TEMPORARILY OR PERMANENTLY SUSPENDING LAND DISTURBING ACTIVITY.
   - 3.E. ESTABLISH PERMANENT GROUND COVER SUFFICIENT TO RESTRAIN EROSION WITHIN FOURTEEN (14) CALENDAR DAYS FOLLOWING COMPLETION OF CONSTRUCTION OF DEVELOPMENT AND/OR PRIOR TO FINAL INSPECTION.

4. CALL ENVIRONMENTAL CONSULTANT FOR AN ONSITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT TO OBTAIN A CERTIFICATE OF COMPLIANCE.

5. BEGIN CLEARING AND GRUBBING.

6. CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES.

7. PROCEED TO PH. 2 EROSION CONTROL PLAN.

STABILIZATION TIMEFRAMES
(Effective Aug. 3, 2011)

Site Area Description	Stabilization	Timeframe Exceptions
Perimeter dikes, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 50' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.

Legend

- SF — SILT FENCE
- LOD — LIMITS OF DISTRIBUTION
- TPF — TREE PROTECTION FENCE
- TPF/SF — TPF/SILT COMBO FENCE
- DD — DIVERSION DITCH
- SFO — SILT FENCE OUTLET
- CE — CONSTRUCTION ENTRANCE
- CD — ROCK CHECK DAM
- SLOPE STABILIZATION MATTING
- COMPOST SOCK

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Designed by: DH, WS
Checked by: CT
Issued for: Review
Date: March 25, 2025

Not Approved for Construction

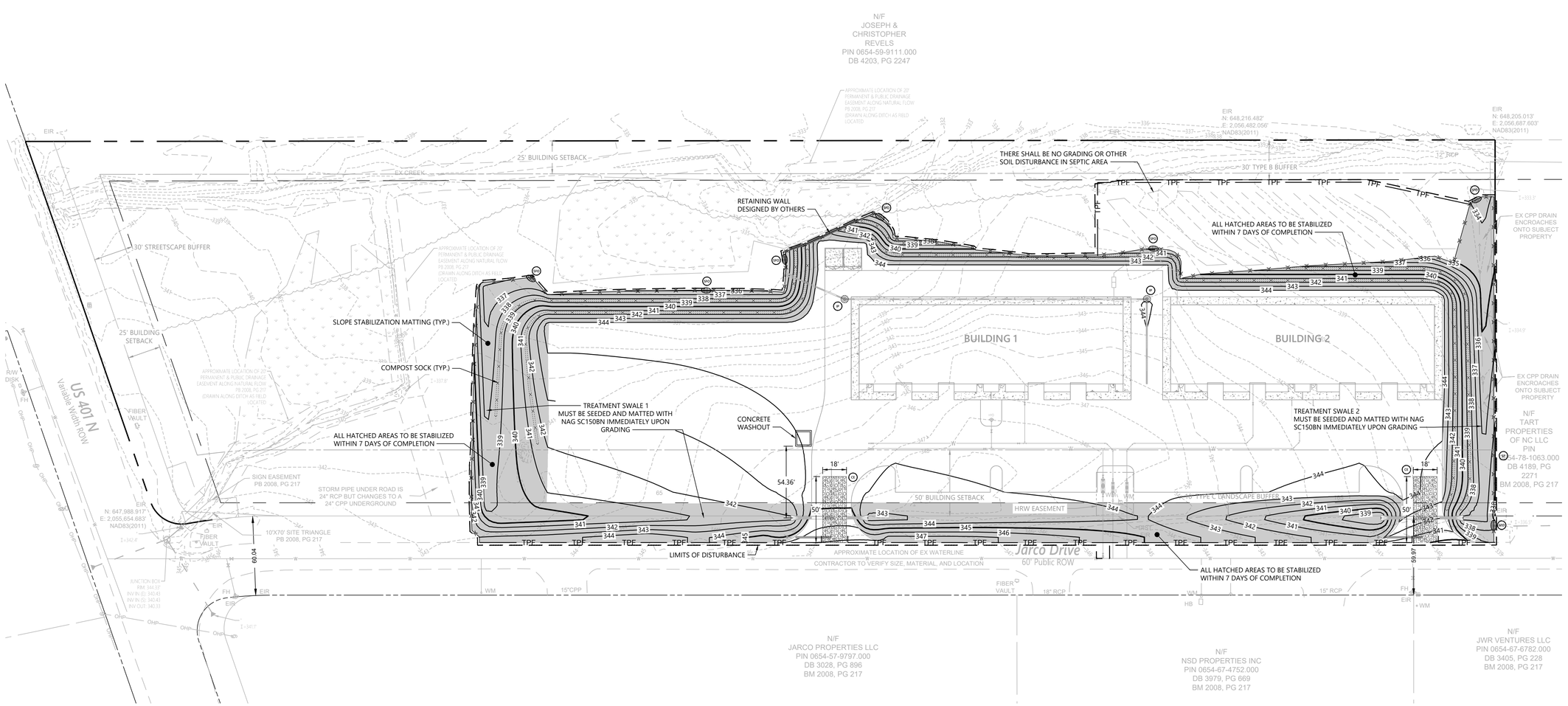
Drawing Title: Erosion Control Plan Phase 1

Drawing Number: C5.00

NORTH CAROLINA PROFESSIONAL SEAL 046995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 12 of 19

Project Number: 39563.00



Phase 2 Erosion Control Sequence

1. INSTALL ADDITIONAL SILT FENCE OUTLETS, AND INLET PROTECTION ON EXISTING CATCH BASINS AS SHOWN. ADJUST EXISTING EROSION CONTROL MEASURES AS NEEDED.
2. CLEAN SEDIMENT BASINS WHEN ONE-HALF FULL.
3. INSTALL STORM SEWER, WHERE SHOWN IN THIS PHASE, AND PROTECT INLETS WITH BLOCK AND GRAVEL INLET CONTROLS. SEDIMENT, SEDIMENT TRAPS OR OTHER APPROVED MEASURES SHOWN ON THE PLAN, BEGIN CONSTRUCTION, BUILDING, ETC.
4. WHEN ALL CONTRIBUTORY AREAS ARE STABILIZED, OBTAIN APPROVAL FROM THE ENVIRONMENTAL CONSULTANT TO CLOSE EACH SEDIMENT BASIN.
5. CLEAN SEDIMENT FROM SEDIMENT BASIN WHICH IS TO BE CONVERTED TO A WET POND AND REMOVE THE SKIMMER. INSTALL PLANTINGS AS REQUIRED. CLOSE DRAIN VALVE.
6. INSTALL ADDITIONAL UTILITIES AND INFRASTRUCTURE AS SHOWN WITHIN LIMITS OF DISTURBANCE AS SHOWN ON THIS PLAN.
7. COMPLETE FINAL GRADING FOR ROADS AND STABILIZE WITH GRAVEL.
8. CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES.
9. MAINTAIN EXISTING DEVICES AS NEEDED.
10. STABILIZE SITE AS AREAS ARE BROUGHT UP TO FINISHED GRADE WITH VEGETATION, PAVING, DITCH LININGS, ETC. SEED AND MULCH DENUDED AREAS PER GROUND STABILIZATION TIME FRAMES.
11. WHEN CONSTRUCTION IS COMPLETE AND ALL AREAS ARE STABILIZED COMPLETELY, CALL ENVIRONMENTAL CONSULTANT FOR AN INSPECTION.
12. IF SITE IS APPROVED, REMOVE TEMPORARY DIVERSION DITCHES, SILT FENCE, SEDIMENT BASINS, ETC. AND SEED OUT OR STABILIZE ANY RESULTING BARE AREAS. ALL REMAINING PERMANENT EROSION CONTROL DEVICES, SUCH AS VELOCITY DISSIPATERS, SHOULD NOW BE INSTALLED.
13. WHEN VEGETATION HAS BECOME ESTABLISHED, CALL FOR A FINAL SITE INSPECTION BY THE ENVIRONMENTAL CONSULTANT. OBTAIN A CERTIFICATE OF COMPLETION.

Treatment Swale Calculations

ID	Type	Drainage Area	Intensity	Discharge	Velocity	Normal Depth	Mannings N	Permissible Shear Stress	Calculated Shear Stress	Safety Factor	Remarks	Staple Pattern
Treatment Swale 1	SC150BN Unvegetated	1.835 Acres	7.6 in/hr	11.05 cfs	2.16 ft/s	0.67 ft	0.045	2 lbs/ft²	0.57 lbs/ft²	3.5	Stable	D
Treatment Swale 2	SC150BN Unvegetated	0.851 Acres	7.6 in/hr	5.57 cfs	1.67 ft/s	0.51 ft	0.048	2 lbs/ft²	0.41 lbs/ft²	4.86	Stable	D

STABILIZATION TIMEFRAMES
(Effective Aug. 3, 2011)

Site Area Description	Stabilization	Timeframe Exceptions
Perimeter dikes, swales, ditches, slopes	7 days	None
High Quality Water (HQW) Zones	7 days	None
Slopes steeper than 3:1	7 days	If slopes are 10' or less in length and are not steeper than 2:1, 14 days are allowed.
Slopes 3:1 or flatter	14 days	7 days for slopes greater than 50' in length.
All other areas with slopes flatter than 4:1	14 days	None, except for perimeters and HQW Zones.

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Legend

- SF — SILT FENCE
- LOD — LIMITS OF DISTURBANCE
- TPF — TREE PROTECTION FENCE
- TPF/SF — TPF/SILT COMBO FENCE
- DD — DIVERSION DITCH
- SFO — SILT FENCE OUTLET
- CE — CONSTRUCTION ENTRANCE
- CD — ROCK CHECK DAM
- IP — INLET PROTECTION
- SLOPE STABILIZATION MATTING
- COMPOST SOCK

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

0 20 40 80 Feet

Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by DH, WS — Checked by CT

Issued for: Review — Date: March 25, 2025

Not Approved for Construction

Drawing Title: Erosion Control Plan Phase 2

Drawing Number: C5.01

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 13 of 19

Project Number: 39563.00

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

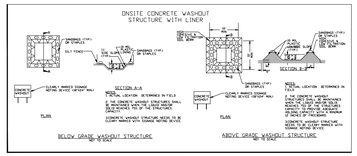
1. Do not dump paint and other liquid waste into storm drains, streams or wetlands.
2. Locate paint washouts at least 50 feet away from storm drain inlets and surface waters unless no other alternatives are reasonably available.
3. Contain liquid wastes in a controlled area.
4. Containment must be labeled, 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 site 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.
(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 kept on site and available for inspection at all times during normal business hours.

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 to be Kept on Site

In addition to the E&SC plan documents above, the following items shall be kept on the site and available for 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 twelve months. 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.

3. Documentation to be Retained for Three Years

All data used to complete the e-NOI and all 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).

(c) 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.

(d) Anticipated bypasses and unanticipated bypasses.

(e) 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 Department's Environmental Emergency Center personnel at (800) 858-0368.

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.

PART II, SECTION G, ITEM (4)
DRAW DOWN OF SEDIMENT BASINS FOR MAINTENANCE OR CLOSE OUT

Sediment basins and traps that receive runoff from drainage areas of one acre or more shall use outlet structures that withdraw water from the surface when these devices need to be drawn down for maintenance or close out unless this is infeasible. The circumstances in which it is not feasible to withdraw water from the surface shall be rare (for example, times with extended cold weather). Non-surface withdrawals from sediment basins shall be allowed only when all of the following criteria have been met:

(a) The E&SC plan authority has been provided with documentation of the non-surface withdrawal and the specific time periods or conditions in which it will occur. The non-surface withdrawal shall not commence until the E&SC plan authority has approved these items,
(b) The non-surface withdrawal has been reported as an anticipated bypass in accordance with Part III, Section C, Item (2)(c) and (d) of this permit,
(c) Dewatering discharges are treated with controls to minimize discharges of pollutants from stormwater that is removed from the sediment basin. Examples of appropriate controls include properly sited, designed and maintained dewatering tanks, weir tanks, and filtration systems,
(d) Vegetated, upland areas of the sites or a properly designed stone pad is used to the extent feasible at the outlet of the dewatering treatment devices described in Item (c) above,
(e) Velocity dissipation devices such as check dams, sediment traps, and riprap are provided at the discharge points of all dewatering devices, and
(f) Sediment removed from the dewatering treatment devices described in Item (c) above is disposed of in a manner that does not cause deposition of sediment into waters of the United States.

NCG01 SELF-INSPECTION, RECORDKEEPING AND REPORTING

EFFECTIVE: 04/01/19

Erosion Control Maintenance Plan

1. ALL EROSION AND SEDIMENTATION CONTROL PRACTICES WILL BE CHECKED FOR STABILITY AND OPERATION FOLLOWING EVERY RUNOFF-PRODUCING RAINFALL BUT IN NO CASE LESS THAN ONCE EVERY WEEK. ANY NEEDED REPAIRS WILL BE MADE IMMEDIATELY TO MAINTAIN ALL PRACTICES AS DESIGNED.
2. SEDIMENT WILL BE REMOVED FROM INLET PROTECTION DEVICES WHEN STORAGE CAPACITY HAS BEEN APPROXIMATELY 50% FILLED. GRAVEL WILL BE CLEANED OR REPLACED WHEN THE SEDIMENT POOL NO LONGER DRAINS PROPERLY.
3. SEDIMENT WILL BE REMOVED FROM BEHIND THE SILT FENCE WHEN IT BECOMES ABOUT 6-INCHES DEEP AT THE FENCE. THE SILT FENCE WILL BE REPAIRED AS NECESSARY TO MAINTAIN A BARRIER.
4. ALL SEEDED AREAS WILL BE FERTILIZED, RESEEDED AS NECESSARY, AND MULCHED ACCORDING TO THE SPECIFICATIONS IN THE VEGETATIVE PLAN TO MAINTAIN A VIGOROUS, DENSE VEGETATIVE COVER.
5. STOCKPILES, LAYDOWN OR WASTE AREAS, CONCRETE WASHOUTS, PORTABLE TOILETS, AND FUELS MUST BE LOCATED AT LEAST 50 FEET AWAY FROM ANY OPEN WATER CONVEYANCES, SUCH AS BASINS, DITCHES, STORM DRAIN INLETS, ETC. THE LOCATION OF THESE ACTIVITIES MAY BE FIELD ADJUSTED IF THE DISTANCE REQUIREMENTS ARE MET.

Erosion Control Special Notes

IT IS THE CONTRACTOR'S RESPONSIBILITY TO SEE THAT THE CONSTRUCTION ENTRANCE PADS ARE PROPERLY MAINTAINED SO THAT MUD IN NOT TRACKED ONTO ADJACENT STREETS. IN THE EVENT THAT THE GRAVEL CONSTRUCTION ENTRANCES ARE NOT PROPERLY MAINTAINED, OR OTHERWISE INEFFECTIVE, NCDEQ, NORTH CAROLINA STATE UNIVERSITY, OWNER, OR ENGINEER MAY ISSUE A STOP WORK ORDER WHICH SHALL REMAIN IN EFFECT UNTIL SUCH TIME AS THE PADS ARE RESTORED AND REPLENISHED AND UNTIL ANY RESULTING MUD AND DEBRIS HAS BEEN SATISFACTORILY REMOVED FROM THE ADJACENT STREETS BY THE CONTRACTOR.

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

Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by | Checked by

Issued for: Review

Date: March 25, 2025

Not Approved for Construction

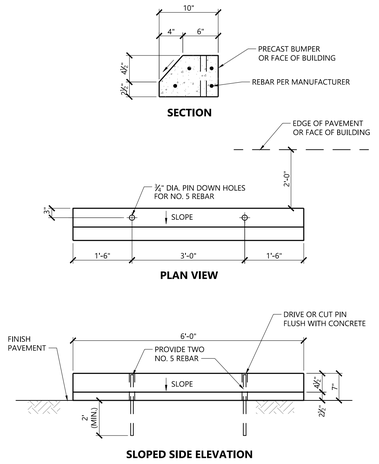
Drawing Title: NPDES Notes

Drawing Number: C5.02

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

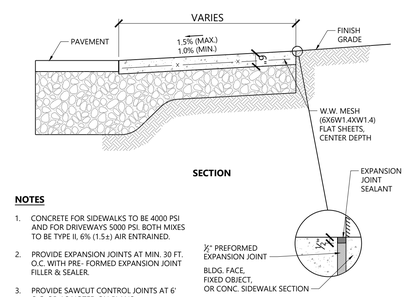
Sheet 14 of 19

Project Number: 39563.00



Concrete Bumper

N.T.S. Source: VHB 1/16 LD_417

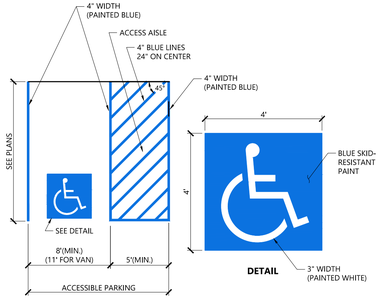


NOTES

1. CONCRETE FOR SIDEWALKS TO BE 4000 PSI AND FOR DRIVEWAYS 5000 PSI. BOTH MIXES TO BE TYPE II, 6% (1.5±) AIR ENTRAINED.
2. PROVIDE EXPANSION JOINTS AT MIN. 30 FT. O.C. WITH PRE- FORMED EXPANSION JOINT FILLER & SEALER.
3. PROVIDE SAWCUT CONTROL JOINTS AT 6' O.C. OR AS NOTED ON PLANS.
4. PROVIDE MEDIUM BROOM FINISH IN DIRECTION PERPENDICULAR TO CURB.
5. ALL EXPOSED CONCRETE SURFACES SHALL BE SEALED WITH A SILANE-SILOXANE PRODUCT.

Concrete Sidewalk

N.T.S. Source: VHB REV LD_420

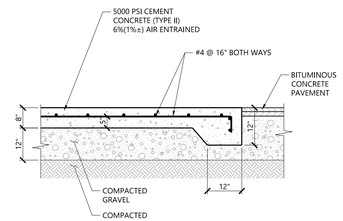


NOTES

1. ALL DIMENSIONS TO CENTER OF 4" PAVEMENT STRIPING.
2. ALL SLOPES THROUGHOUT THE ACCESSIBLE PARKING AND AISLE AREAS SHALL NOT EXCEED 1.5%.

Accessible Parking Space

N.T.S. Source: VHB 12/19 LD_552A

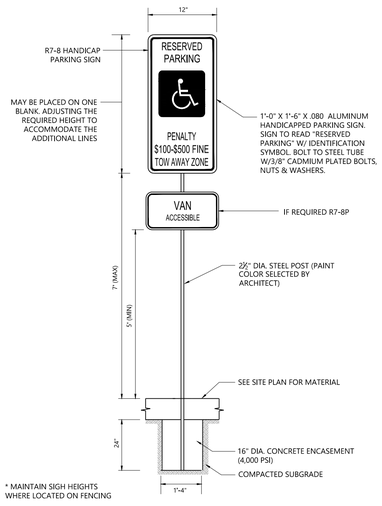


NOTES

1. SIZE OF PAD TO BE AS INDICATED ON PLANS.
2. CONSTRUCTION JOINTS SHALL BE SPACED NO MORE THAN 30 FEET ON CENTER AND SHALL BE EQUALLY SPACED OVER THE LENGTH AND WIDTH OF THE PAD.

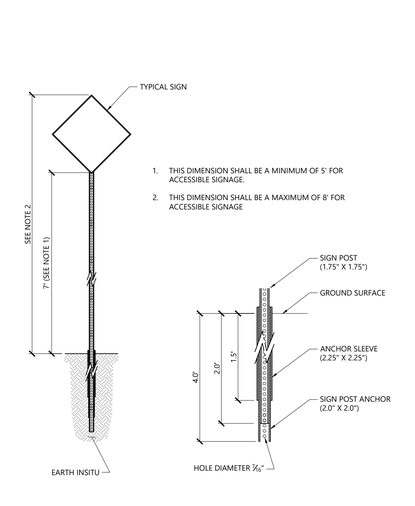
Loading Dock Pad / Compactor Pad

N.T.S. Source: VHB 1/20 LD_711



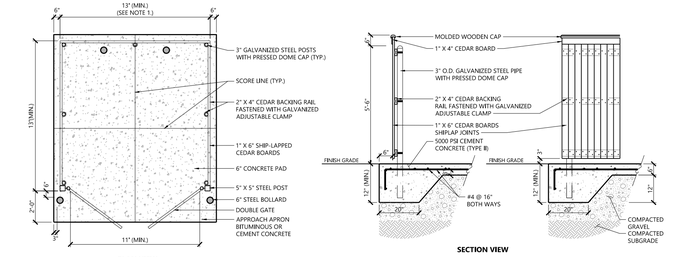
ACCESSIBLE PARKING SIGN (R7-8 & R7-8P)

N.T.S. Source: VHB



Sign Post - Type 'B'

N.T.S. Source: VHB 3/19 LD_702

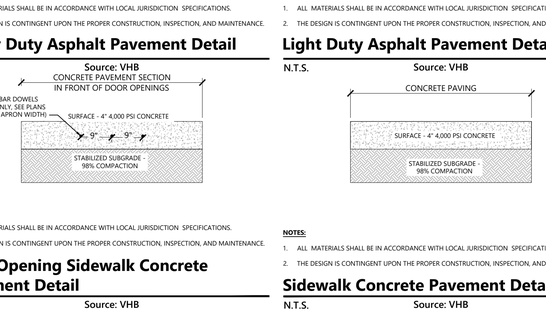


NOTES

1. DUMPSTER PAD DIMENSIONS SHOWN AS MINIMUM. REFER TO PLAN FOR ACTUAL DIMENSION.
2. PAD DESIGNED FOR 6 YARD DUMPSTER.

Dumpster Pad w/ Enclosure

N.T.S. Source: VHB 1/20 LD_713



NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL JURISDICTION SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

Heavy Duty Asphalt Pavement Detail

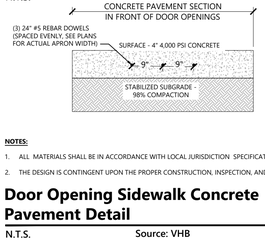
N.T.S. Source: VHB

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL JURISDICTION SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

Light Duty Asphalt Pavement Detail

N.T.S. Source: VHB



NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL JURISDICTION SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

Door Opening Sidewalk Concrete Pavement Detail

N.T.S. Source: VHB

NOTES:

1. ALL MATERIALS SHALL BE IN ACCORDANCE WITH LOCAL JURISDICTION SPECIFICATIONS.
2. THE DESIGN IS CONTINGENT UPON THE PROPER CONSTRUCTION, INSPECTION, AND MAINTENANCE.

Sidewalk Concrete Pavement Detail

N.T.S. Source: VHB

GENERAL NOTES:

1. **ALL SUBGRADES SHALL BE PROOFROLLED PRIOR TO FILLING OR AFTER EXCAVATION TO GRADE.**
2. **SLAB SUBGRADE SHALL BE PROOFROLLED PRIOR TO GRANULAR BASE PLACEMENT.**
3. **PROOFROLL SHOULD BE COMPLETED USING PNEUMATIC-TIRED VEHICLE (I.E. TANDEM AXLE, OR TRI-AXLE TRUCK), LOADED APPROPRIATELY BASED ON SOIL CHARACTERISTICS.**
4. **AREAS THAT DEFLECT EXCESSIVELY DURING PROOFROLLING SHOULD BE REMEDIATED ACCORDINGLY.**
5. **PREPARE SUBGRADES WITH A SLIGHT SLOPE TO MAINTAIN SURFACE DRAINAGE.**
6. **ROLL SUBGRADE SURFACES SMOOTH IF RAIN IS EXPECTED**
7. **ROUGH GRADE SUBGRADES HIGH TO ALLOW FOR REMOVAL OF DEGRADED SOIL.**

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Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by: DH, WS
Checked by: CT

Issued for: Review
Date: March 25, 2025

Not Approved for Construction

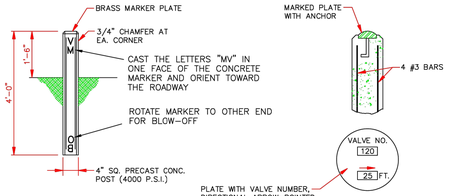
Drawing Title: Site Details

Drawing Number: C6.00

NORTH CAROLINA PROFESSIONAL SEAL 046995 ENGINEER CHARLES D. TOWNSEND
4/8/26

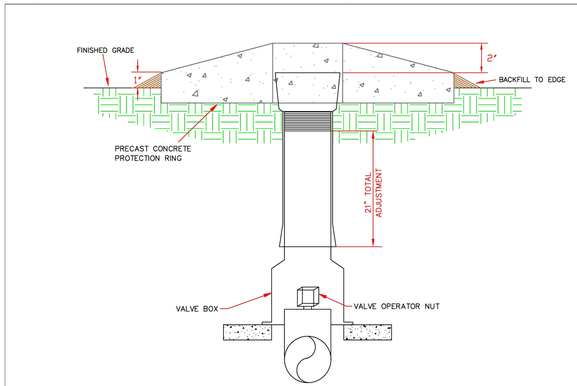
Sheet 15 of 19

Project Number: 39563.00

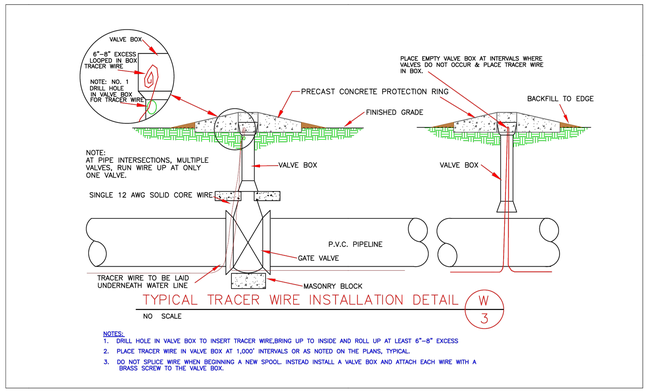


TYPICAL VALVE MARKER DETAIL W-1
NO SCALE

NOTES:
PAINT MARKER BLUE AFTER INSTALLATION

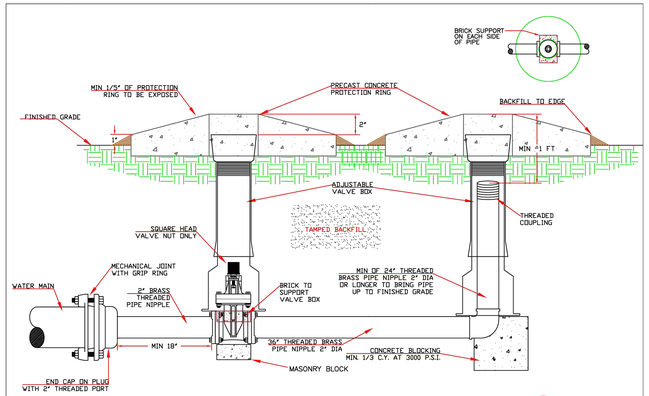


TYPICAL VALVE BOX DETAIL W-2
NO SCALE



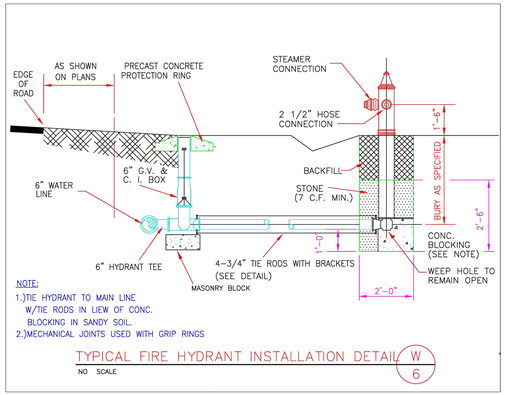
TYPICAL TRACER WIRE INSTALLATION DETAIL W-3
NO SCALE

NOTES:
1. DRILL HOLE IN VALVE BOX TO INSERT TRACER WIRE,BRING UP TO INSIDE AND ROLL UP AT LEAST 6"-8" EXCESS
2. PLACE TRACER WIRE IN VALVE BOX AT 1,000' INTERVALS OR AS NOTED ON THE PLANS, TYPICAL.
3. DO NOT SPLICE WIRE WHEN BEGINNING A NEW SPOOL. INSTEAD INSTALL A VALVE BOX AND ATTACH EACH WIRE WITH A BRASS SCREW TO THE VALVE BOX.



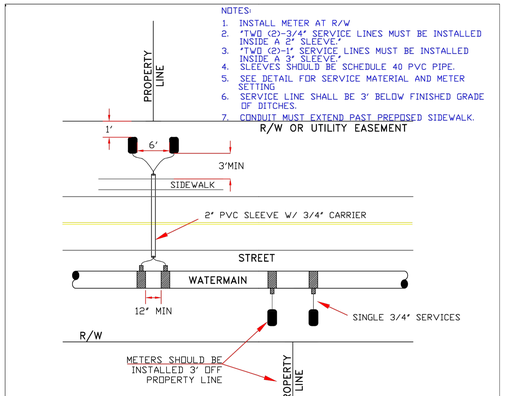
TYPICAL PERMANENT BLOW-OFF ASSEMBLY DETAIL W-4
NO SCALE

NOTE: SEE TYPICAL VALVE BOX DETAIL FOR BRICK INSTALLATION

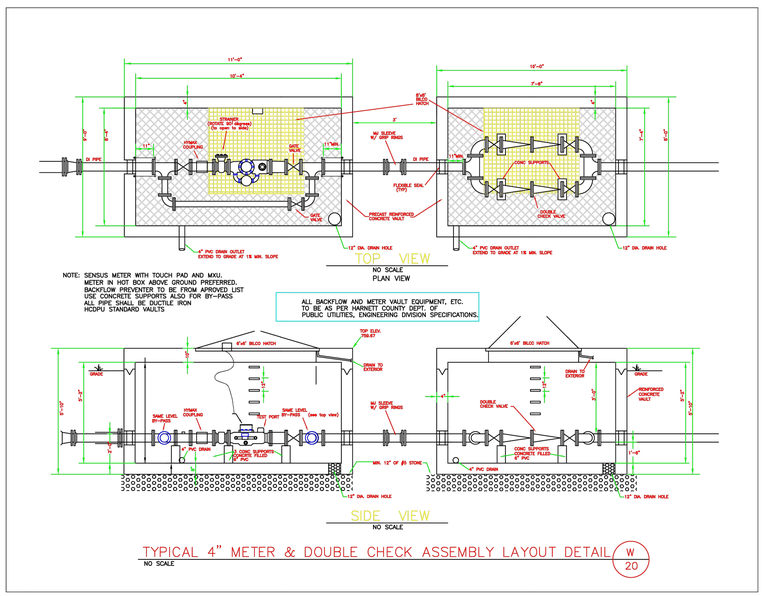


NOTE:
1.)TIE HYDRANT TO MAIN LINE W/TIE RODS IN LIEW OF CONC. BLOCKING IN SANDY SOIL.
2.)MECHANICAL JOINTS USED WITH GRIP RINGS

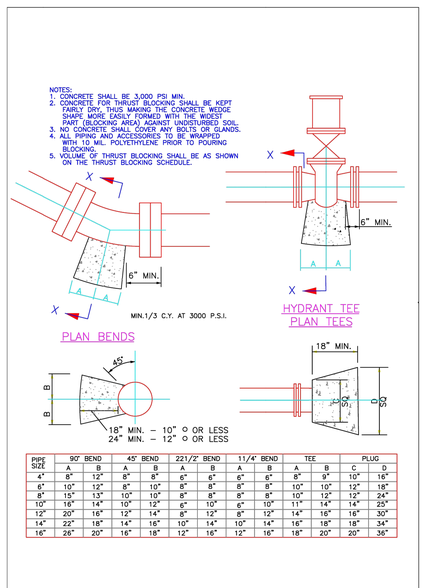
TYPICAL FIRE HYDRANT INSTALLATION DETAIL W-6
NO SCALE



TYPICAL DOMESTIC WATER SERVICE INSTALLATION DETAIL W-12
NO SCALE

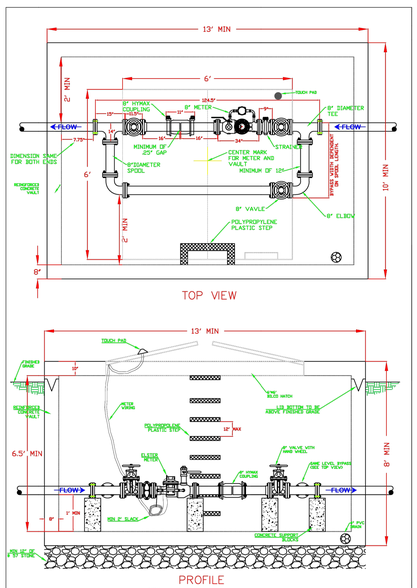


TYPICAL 4" METER & DOUBLE CHECK ASSEMBLY LAYOUT DETAIL W-20
NO SCALE

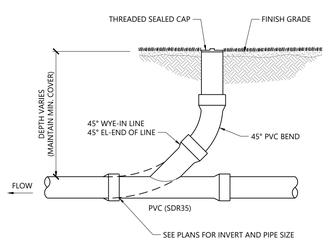


PIPE SIZE	90° BEND		45° BEND		22 1/2° BEND		11 1/4° BEND		TEE		PLUG	
	A	B	A	B	A	B	A	B	A	B	C	D
4"	8"	12"	8"	8"	6"	6"	6"	6"	6"	9"	10"	16"
6"	10"	12"	8"	10"	8"	8"	8"	8"	10"	10"	12"	18"
8"	15"	13"	10"	10"	8"	8"	8"	8"	10"	12"	12"	24"
10"	16"	14"	10"	12"	6"	10"	6"	10"	11"	14"	14"	25"
12"	20"	16"	12"	14"	8"	12"	8"	12"	14"	16"	16"	30"
14"	22"	18"	14"	16"	10"	14"	10"	14"	16"	18"	18"	34"
16"	26"	20"	16"	18"	12"	16"	12"	16"	18"	20"	20"	36"

TYPICAL THRUST BLOCK DETAIL W-7
NO SCALE



TYPICAL 8" METER & VAULT DETAIL W-22
NO SCALE



Cleanout (CO) - Landscape Area 11/19
N.T.S. Source: VHB LD_302

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940 Main Campus Drive
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919.829.0328
Corp. # C-3705

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Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by DH, WS — Checked by CT
Issued for Review — Date March 25, 2025

Not Approved for Construction

Drawing Title: Utility Details

Drawing Number: C6.01

Sheet 16 of 19

Project Number: 39563.00

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND 4/8/26

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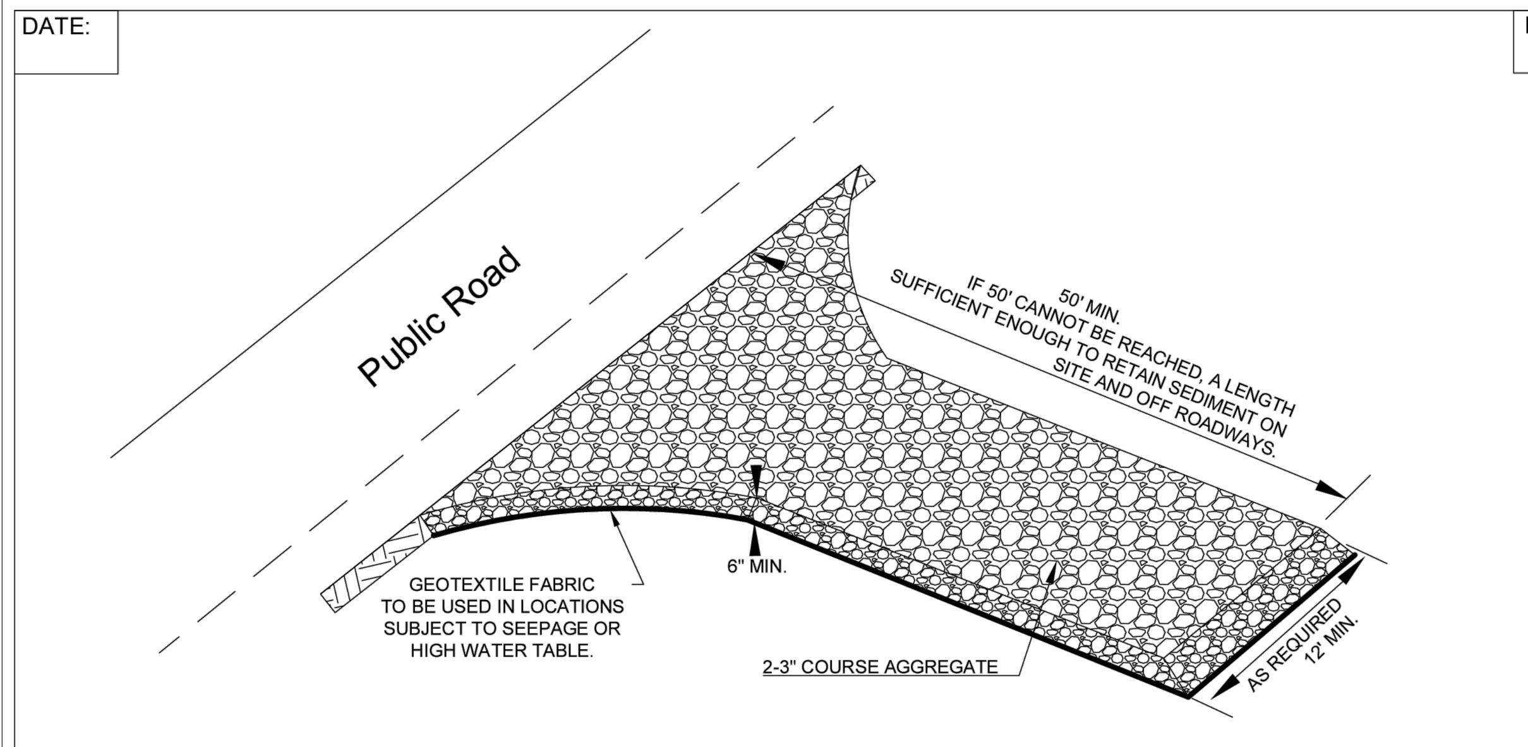


Construction:
1. Clear the entrance and exit area of all vegetation, roots, and other objectionable material and properly grade it.
2. Place the gravel to the specific grade and dimensions shown on the plans, and smooth it.
3. Provide drainage to carry water to a sediment trap or other suitable outlet.
4. Use geotextile fabrics in order to improve stability of the foundation in locations subject to seepage or high water table.

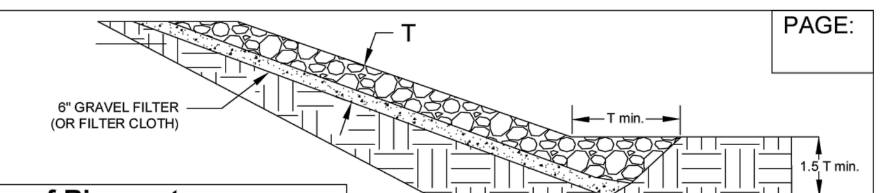
Maintenance:
1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater. Make any required repairs immediately.
2. Maintain the gravel pad in a condition to prevent mud or sediment from leaving the construction site. This may require periodic topdressing with 2-inch stone.
3. Sediment on roadways is to be removed immediately by broom and shovel, either by manual or mechanical means, and not to be washed off where it has the potential to enter a stream, drainage way or storm drain system.

NORTH CAROLINA Department of Environmental Quality DEQ

TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates

DATE: PAGE:



Subgrade Preparation:
1. Prepare the subgrade for riprap and filter to the required lines and grades shown on the plans.
2. Compact any fill required in the subgrade to a density approximating that of the surrounding undisturbed material or overfill depressions with riprap.
3. Remove brush, trees, stumps, and other objectionable material.

Sand and Gravel Filter Blanket:
1. Place the filter blanket immediately after the ground foundation is prepared.
2. When using gravel, spread filter stone in a uniform layer to the specified depth.
3. When more than one layer of filter material is used, spread the layers with minimal mixing.

Synthetic Filter Fabric:
1. Place the cloth filter directly on the prepared foundation.
2. Overlap the edges by at least 12 inches, and space anchor pins every 3 feet along the overlap.
3. Bury the upstream end of the cloth a minimum of 12 inches below ground and bury the lower end of the cloth or over lap with the next section as required.
4. If damage occurs while placing riprap, remove the riprap, and repair the sheet by adding another layer of filter material with a minimum overlap of 12 inches around the damaged area. If damage is extensive, remove and replace the entire sheet.
5. If placing large stones or machine placing is difficult, a 4 inch layer of fine gravel or sand may be needed to protect the filter cloth.

Maintenance:
In general, once a riprap installation has been properly designed and installed it requires very little maintenance. Riprap should be inspected periodically for scour or dislodged stones. Control of weed and brush growth may be needed in some locations.

Size of Riprap stones

Weight (lb)	Mean Spherical Diameter (ft)	Length (ft)	Rectangular Shape Width/Height (ft)
50	0.8	1.4	0.5
100	1.1	1.8	0.6
150	1.3	2.0	0.7
300	1.6	2.6	0.9
500	1.9	3.0	1.0
1000	2.2	3.7	1.3
1500	2.6	4.7	1.5
2000	2.8	5.4	1.8
4000	3.6	6.0	2.0
6000	4.0	6.9	2.3
8000	4.5	7.6	2.5
20,000	6.1	10.0	3.3

Sizes for Riprap and Erosion Control Stone Specified by NCDOT

Riprap		Erosion Control	
Class 1	Class 2	Class A	Class B
5-200 lb	25-250 lb	2"-6"	5"-15"
30% shall weigh a minimum of 60 lbs each	60% shall weigh a minimum of 100 lbs each		
No more than 10% shall weigh less than 15 lbs each	No more than 5% shall weigh less than 50 lbs each	10% tolerance top and bottom sizes	
		Equally distributed, no gradation specified	Equally distributed, no gradation specified

Riprap should be a well-graded mixture with 50% by weight larger than the specified design size.
Diameter of the largest stone size in the mix should be 1.5 times the d_{50} size with smaller sizes grading down to 1 inch.

Stone Placement:
1. Placement of riprap should follow immediately after placement of the filter.
2. Place so that riprap forms a dense, well-graded mass of stone with a minimum of voids.
3. Place to its full thickness in one operation.
4. Do not place by dumping through chutes or other methods that cause segregation of stone sizes.
5. Take care not to dislodge underlying base or filter when placing stone.
6. The toe of the riprap slope should be keyed to a stable foundation at its base.
7. The toe should be excavated to a depth about 1.5 times the design thickness of the riprap and extend horizontally from the slope, as shown above.
8. Hand placing may be necessary to achieve the proper distribution of stone sizes to produce a relatively smooth, uniform surface.

NORTH CAROLINA Department of Environmental Quality DEQ

RIP RAP

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates

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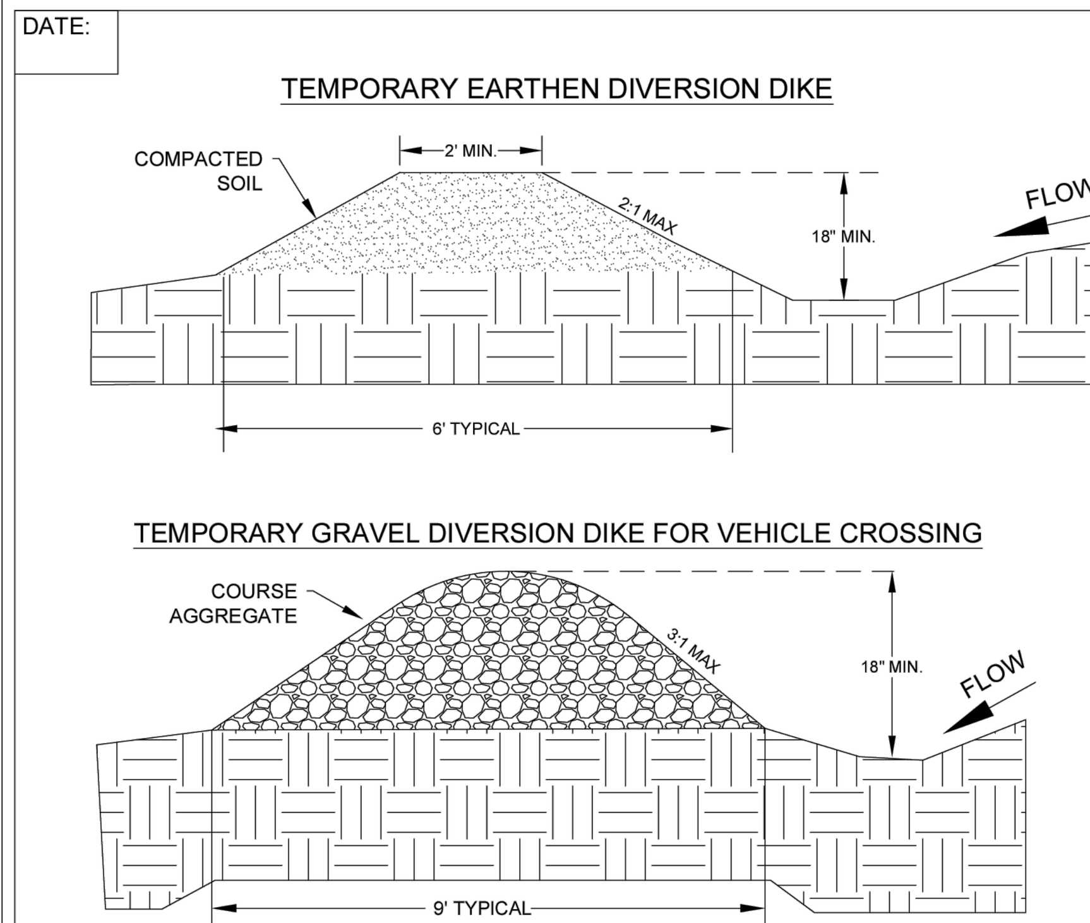


NOTES:
1. Remove and properly dispose of all tree, brush, stumps, and other objectionable material.
2. Temporary diversions are to only be used for drainage areas of 5 acres or less.
3. Ridges will have a 2 feet minimum top width, 2:1 or flatter side slopes and a minimum of 0.3 feet freeboard.
4. Channels will have a parabolic, trapezoidal, or V shape with side slopes of 2:1 or flatter.
5. Any point where vehicles will be crossing should have 3:1 or flatter side slopes.
6. Ensure the top of the dike is not lower at any point than the design elevation plus the specified settlement.
7. Provide sufficient room around diversions to permit machine re-grading and cleanout.
8. Vegetate the ridge immediately after construction unless it will remain in place less than 30 working days.

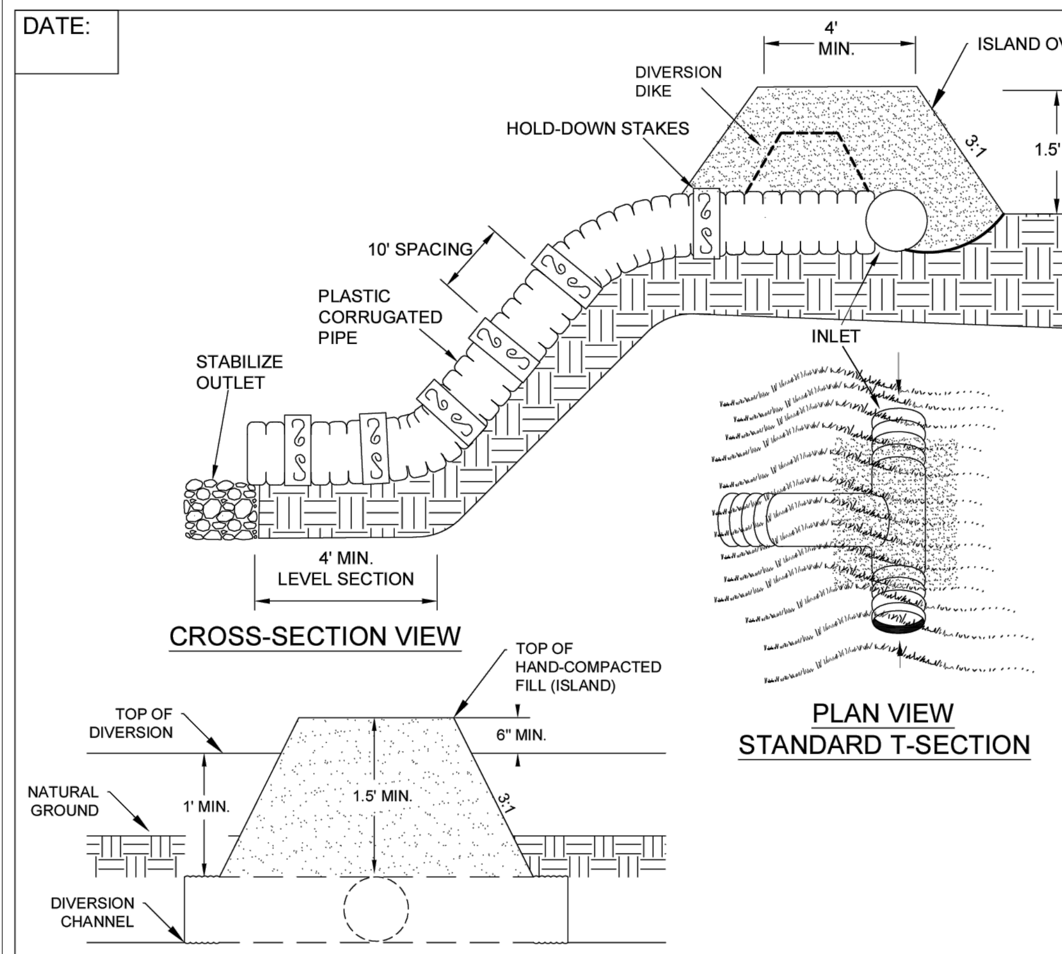
MAINTENANCE:
1. Inspect all measures at least weekly and after every rainfall of 1.0 inch or greater.
2. Make all repairs immediately.
3. Immediately remove any sediment from the flow area and repair the diversion ridge.
4. Check outlets and make timely repairs as needed.

NORTH CAROLINA Department of Environmental Quality DEQ

TEMPORARY DIVERSIONS

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates

DATE: PAGE:



Size of Slope Drain

Max. Drainage Area per Pipe (Acres)	Pipe Diameter (Inches)
0.50	12
0.75	15
1.00	18
>1.00*	as designed
* Inlet design becomes more complex beyond this size.	

NOTES:
1. Place slope drains on undisturbed soil or well compacted fill at locations and elevations shown on the plan.
2. Slightly slope the section of pipe under the dike toward its outlet.
3. Hand tamp the soil under and around the entrance section in lifts not to exceed 6 inches.
4. Fill over the drain at the top of the slope to a minimum of 1.5 feet depth, 4 feet top width and 3:1 side slopes.
2. Ensure all slope drain connections are watertight.
3. Compact fill material and securely fasten the exposed section of the drain with grommets or stakes spaced no more than 10 feet apart.
4. Extend the drain beyond the toe of the slope, and adequately protect the outlet from erosion.
5. Make the compacted, settled dike ridge no less than 1 foot above the top of the pipe at every point.
6. Immediately stabilize all disturbed areas following construction.

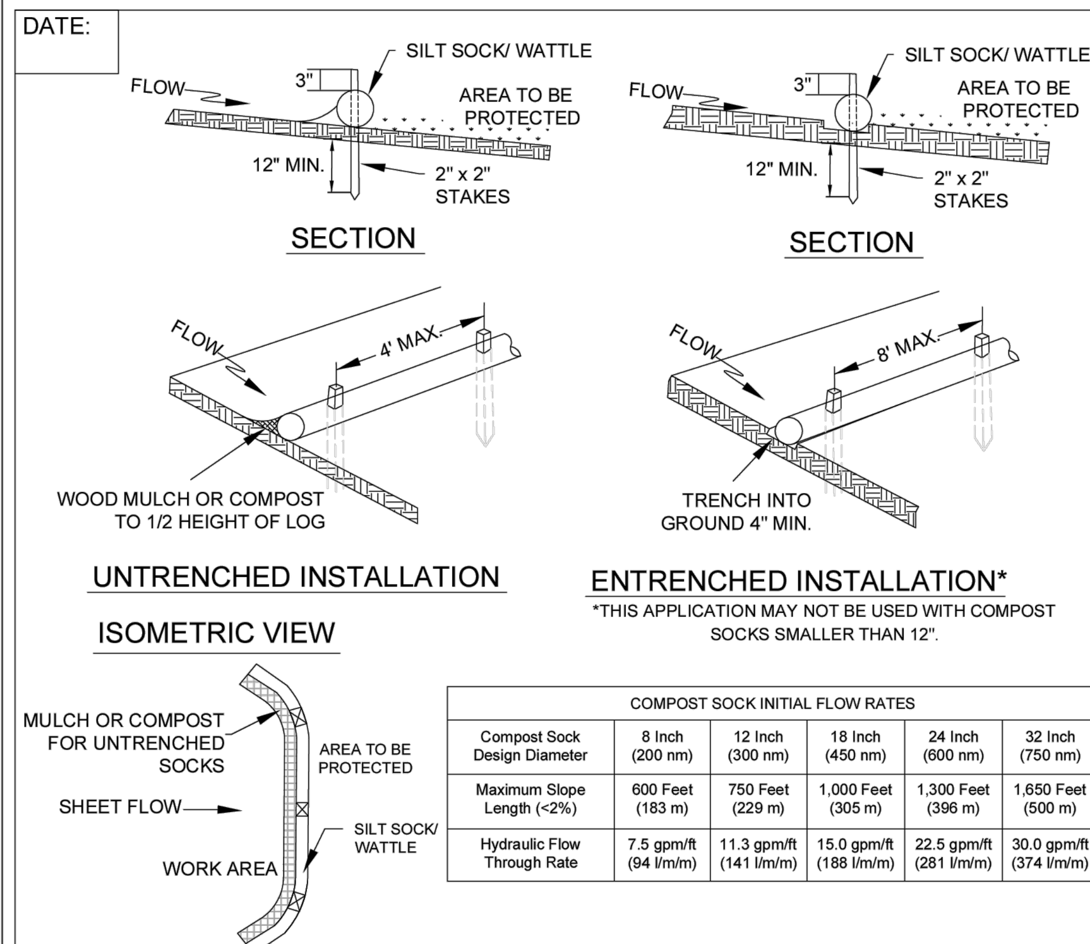
MAINTENANCE:
1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater; repair immediately.

NORTH CAROLINA Department of Environmental Quality DEQ

TEMPORARY SLOPE DRAINS

Effective Date: 9/1/2023

DATE: PAGE:



COMPOST SOCK INITIAL FLOW RATES

Compost Sock Design Diameter	8 Inch (200 nm)	12 Inch (300 nm)	18 Inch (450 nm)	24 Inch (600 nm)	32 Inch (750 nm)
Maximum Slope Length (<2%)	600 Feet (183 m)	750 Feet (229 m)	1,000 Feet (305 m)	1,300 Feet (396 m)	1,650 Feet (500 m)
Hydraulic Flow Through Rate	7.5 gpm/ft (94 l/m/m)	11.3 gpm/ft (141 l/m/m)	15.0 gpm/ft (188 l/m/m)	22.5 gpm/ft (281 l/m/m)	30.0 gpm/ft (374 l/m/m)

NOTE:
1. Other materials providing equivalent protection against erosive velocities may be substituted for compost use in silt socks or wattles.
2. Fill silt sock/wattle netting uniformly with compost to the desired length such that logs do not deform.
3. Silt sock/Wattle(s) should be installed parallel to and a minimum of 10 feet beyond the toe of a graded slope. Silt Sock/Wattle(s) located below flat areas should be located at the edge of the land disturbance. The ends of the silt sock/wattle(s) should be turned slightly upslope to prevent runoff from going around the end of the silt sock/wattle(s).
4. Oak or other durable hardwood stakes with a 2 inch x 2 inch cross section should be driven vertically plumb, through the center of the silt sock/wattle. Stakes should be placed at a maximum interval of 4 feet or a maximum interval of 8 feet if the silt sock/wattle is placed in a 4 inch trench.
5. In the event staking is not possible (ie. when socks/wattles are used on pavement) heavy concrete blocks shall be used behind the silt sock/wattle to hold it in place during runoff events.

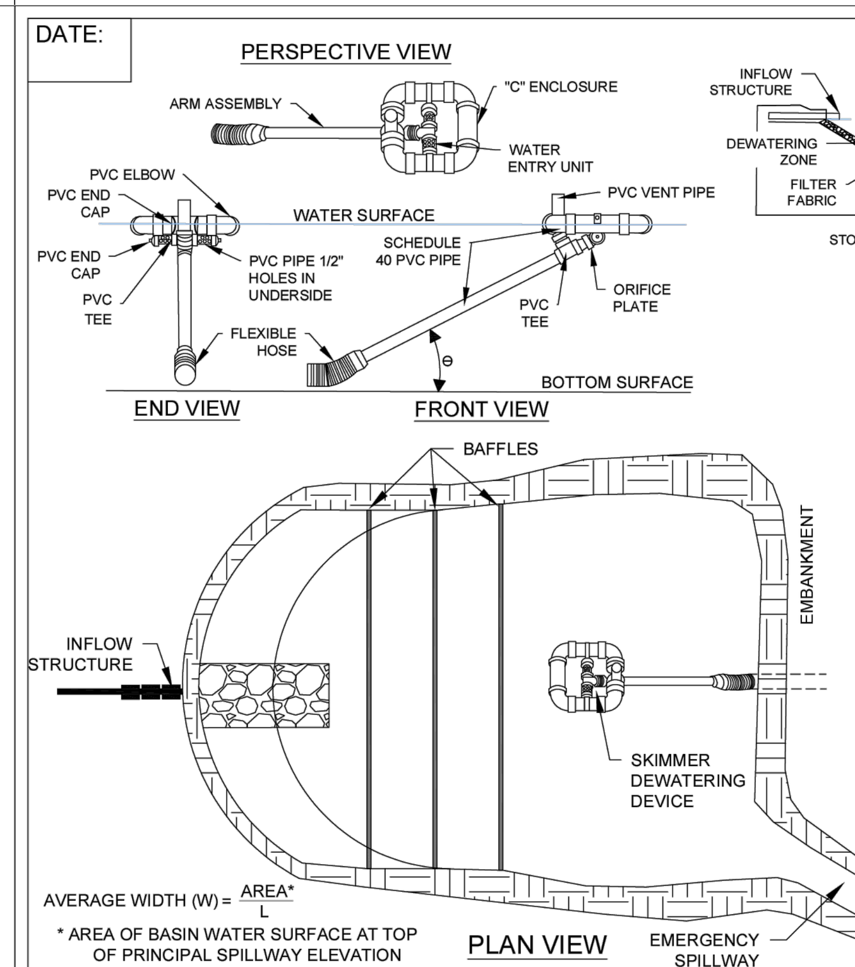
MAINTENANCE:
1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater.
2. Remove accumulated sediment and any debris as needed to allow for adequate flow.
3. Silt sock/Wattle must be replaced if clogged or torn.
4. If ponding becomes excessive, the silt sock/wattle may need to be replaced with a larger diameter or a different measure.
5. Reinstall if damaged or dislodged.
6. Silt socks/wattles shall be inspected until land disturbance is compete and the area above the measure has been permanently stabilized.

NORTH CAROLINA Department of Environmental Quality DEQ

SILT SOCK / WATTLE FOR PERIMETER AND INLET PROTECTION

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates

DATE: PAGE:



NOTES:
1. Clear, grub and strip the area under the embankment of all vegetation and root mat. Remove all surface soil containing high amounts of organic matter and stockpile or dispose of it properly. Haul all objectionable material to the designated disposal area. Place temporary sediment control measures below basin as needed.
2. Place the fill in lifts not to exceed 9 inches, and machine compact it. Over fill the embankment 6 inches to allow for settlement.
3. Place the barrel on a firm, smooth foundation of impervious soil. Do not use pervious material such as sand, gravel, or crushed stone as backfill around the pipe. Place the fill around the pipe spillway in 4-inch layers and compact it under and around the pipe to at least the same density as the adjacent embankment.
4. Place a minimum depth of 2 feet compacted backfill over the pipe spillway before crossing with construction equipment.
5. Ensure that the flow length to basin width ratio is at least 2:1 to improve trapping efficiency. Length is measured at the elevation of the principal spillway.
6. Assemble the skimmer following manufacturers instructions or as designed and lay on the bottom of the basin with the flexible joint at the inlet of the barrel pipe. Attach the flexible joint to the barrel pipe and position the skimmer over the excavated pit or support. Be sure to attach a rope and anchor it to the side of the basin.This will be used to pull the skimmer to the side for maintenance.
7. Install the spillway in undisturbed soil to the greatest extent possible. The spillway should be lined with laminated plastic or impermeable geotextile fabric. The fabric must be wide and long enough to cover the bottom and sides and extend onto the top of the dam for anchoring in a trench. The edges may be secured with 8-inch staples or pins.
8. Filter fabric must be long enough to extend down the slope and exit onto stable ground. The width of the fabric must be one piece, not joined or spliced; otherwise water can get under the fabric.
9. The upper section(s) should overlap the lower section(s) so that water cannot flow under the fabric. Secure the upper edge and sides of the fabric in a trench with staples or pins.
10. Discharge water into the basin in a manner to prevent erosion. Use temporary slope drains or diversions with outlet protection to divert sediment-laden water to the upper end of the pool area to improve basin trap efficiency.
11. Stabilize the emergency spillway embankment and all other disturbed areas above the crest of the principal spillway immediately after construction.

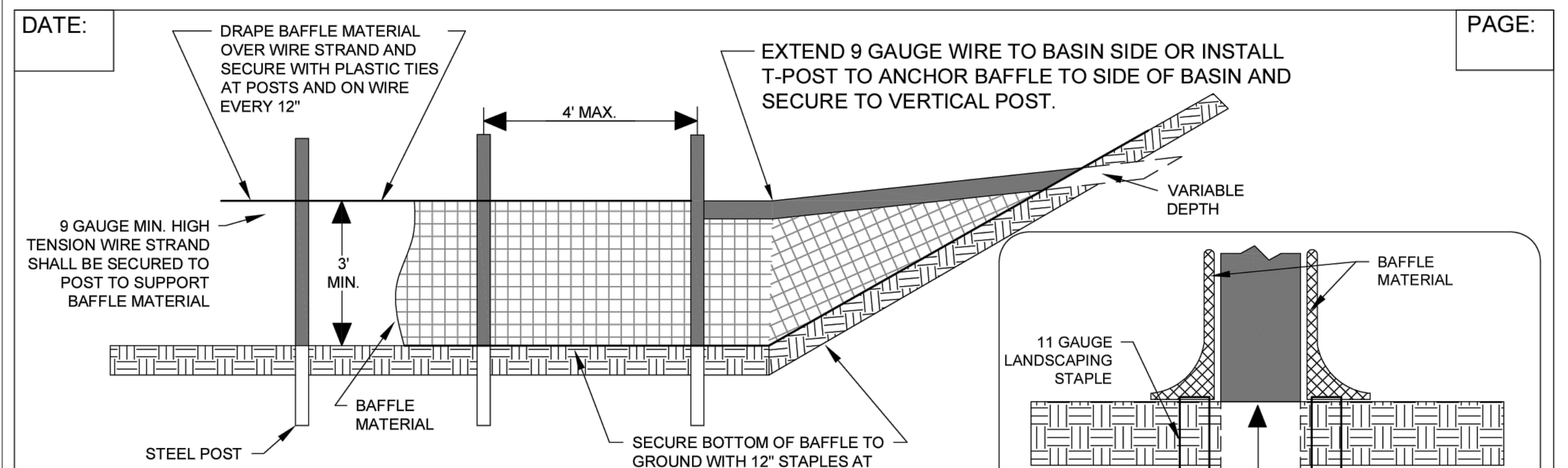
MAINTENANCE:
1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater. Make necessary repairs immediately.
2. Remove sediment and restore the basin to its original dimensions when sediment accumulates to one-half the height of the first baffle. Pull the skimmer to one side so that the sediment underneath can be excavated. Excavate the sediment from the entire basin, not just around the skimmer or within the first cell.
3. Make sure any vegetation growing in the bottom of the basin does not hold down the skimmer.
4. Repair baffles if they are damaged. Re-anchor the baffles if water is flowing underneath or around them.
5. Ensure the skimmer is not clogged with trash or debris.
6. If the skimmer arm or barrel pipe is clogged, remove orifice and clear debris with a plumber's snake or by flushing with clean water. Be sure to replace the orifice before repositioning the skimmer.
7. Check fabric lined spillway for damage and make any required repairs with fabric that spans the full width of the spillway. Check the embankment, spillways, and outlet for erosion damage, and inspect the embankment for piping and settlement.

NORTH CAROLINA Department of Environmental Quality DEQ

SKIMMER SEDIMENT BASIN

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates

DATE: PAGE:



NOTES:
1. Use matting made of 100% coconut fiber(coir) twine woven into high strength matrix.
2. Staples should be made of 0.125 inch diameter, new steel wire formed into a 'U' shape not less than 12 inches in length with a throat of 1 inch in width. The staples anchor the porous baffles into the sides and bottom of the basin.
3. Grade the basin so that the bottom is level front to back and side to side.
4. Install the coir fiber baffles immediately upon excavation of the basins.
5. Install posts across the width of the sediment trap.
6. Steel posts should be driven to a depth of 24 inches and spaced in a maximum of 4 feet apart. The top of the fabric should be a minimum of 6 inches higher than the invert of the spillway. Tops of the baffles should be a minimum of 2 inches lower than the top of the earthen embankment.
7. Install 3 coir fiber baffles in basins at drainage outlets with a spacing of 1/4 the basin length. 2 coir fiber baffles can be installed in the basins less than 20 feet in length with a spacing of 1/3 the basin length.
8. Attach a 9-gauge high tension wire strand to the steel posts at a height of 6 inches above the spillway elevation with plastic ties or wire fasteners to prevent sagging. If the temporary sediment basin will be converted to a permanent stormwater basin of a greater depth, the baffle height should be based on the pool depth during use as a temporary sediment basin.

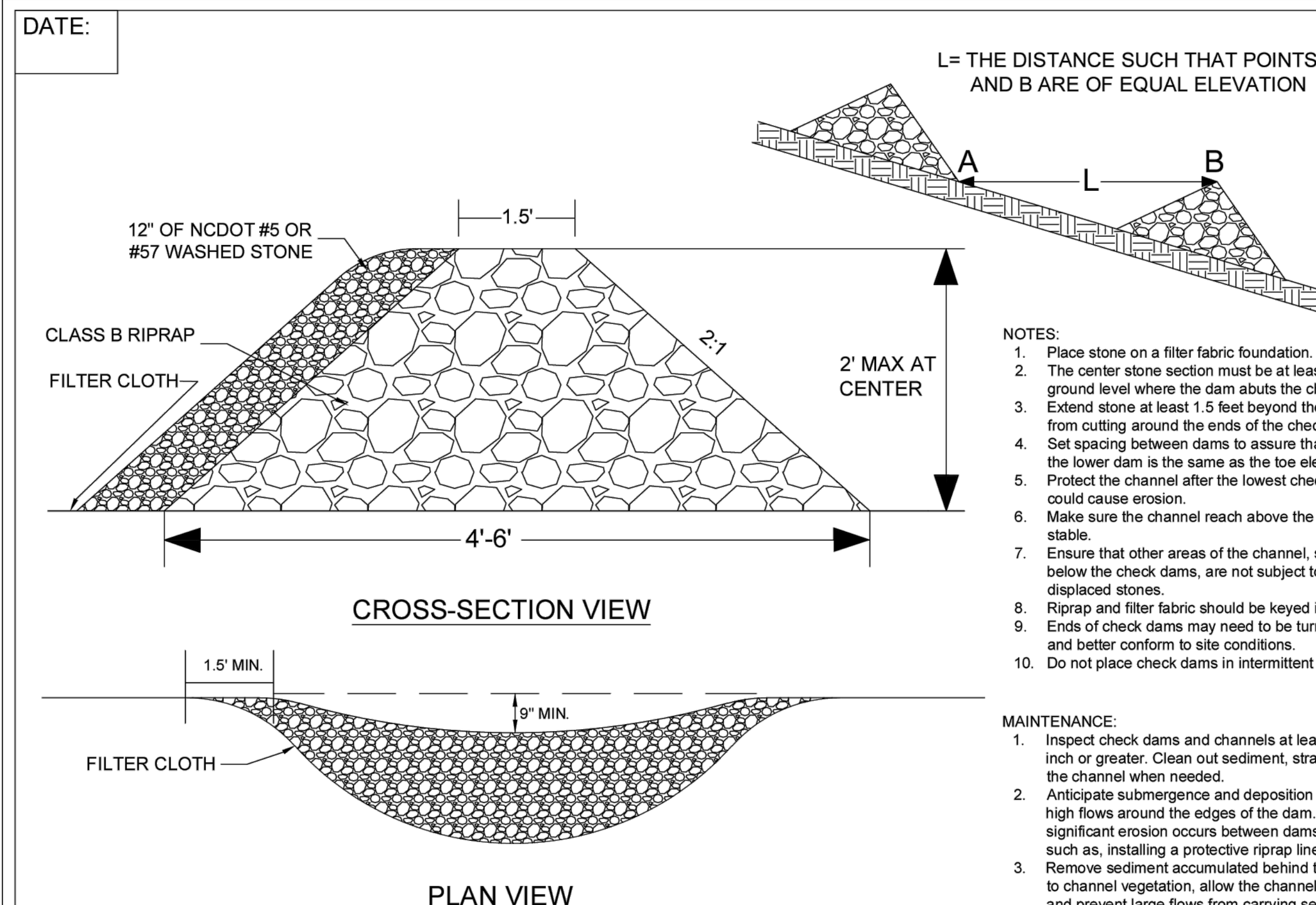
MAINTENANCE:
1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater and repair immediately.
2. Maintain access to baffles. If the fabric collapses, tears, decomposes, or becomes ineffective, replace immediately.
3. Remove sediment deposits when it reaches half full. Replace if baffle fabric is damaged during clean-out operations. Sediment depth should never exceed half the designed storage depth.

NORTH CAROLINA Department of Environmental Quality DEQ

POROUS BAFFLES

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates

DATE: PAGE:



NOTES:
1. Place stone on a filter fabric foundation.
2. The center stone section must be at least 9 inches below natural ground level where the dam abuts the channel banks.
3. Extend stone at least 1.5 feet beyond the ditch bank to keep water from cutting around the ends of the check dam.
4. Set spacing between dams to assure that the elevation at the top of the lower dam is the same as the toe elevation of the upper dam.
5. Protect the channel after the lowest check dam from heavy flow that could cause erosion.
6. Make sure the channel reach above the most upstream dam is stable.
7. Ensure that other areas of the channel, such as culvert entrances below the check dams, are not subject to damage or blockage from displaced stones.
8. Riprap and filter fabric should be keyed in to prevent under cutting.
9. Ends of check dams may need to be turned uphill to prevent bypass and better conform to site conditions.
10. Do not place check dams in intermittent or perennial streams.

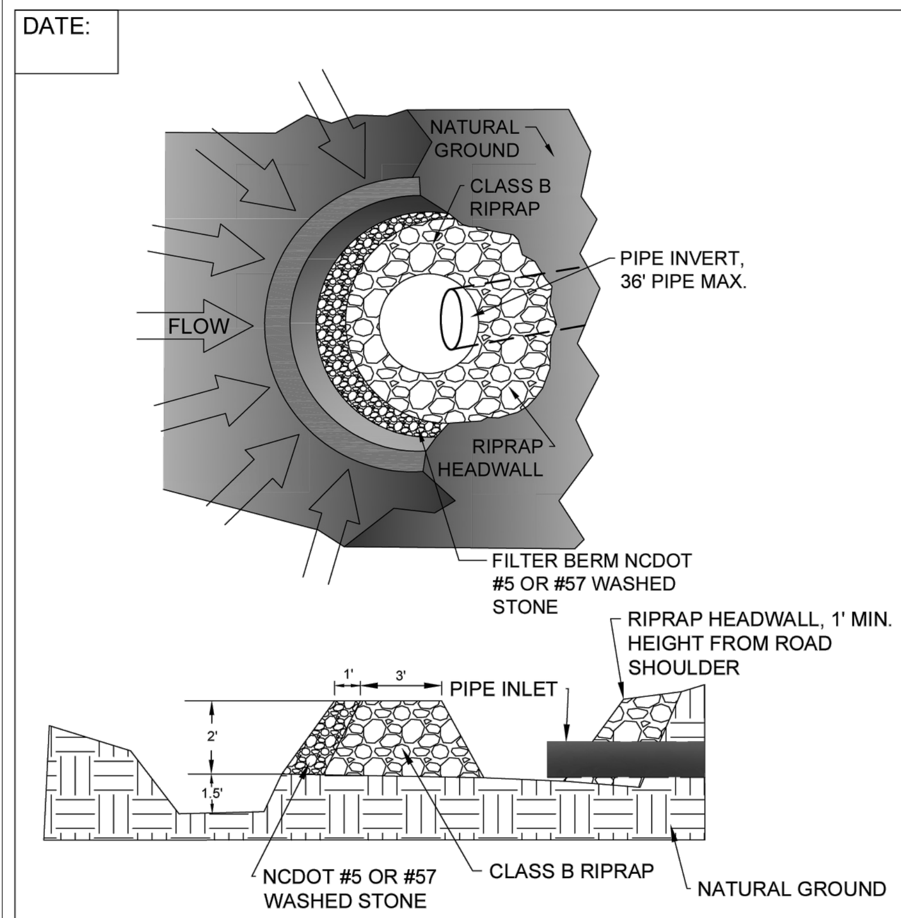
MAINTENANCE:
1. Inspect check dams and channels at least weekly and after each rainfall of 1.0 inch or greater. Clean out sediment, straw, limbs or other debris that could clog the channel when needed.
2. Anticipate submergence and deposition above the check dam and erosion from high flows around the edges of the dam. Correct all damage immediately. If significant erosion occurs between dams, additional measures can be taken such as, installing a protective riprap liner in that portion of the channel.
3. Remove sediment accumulated behind the dams as needed to prevent damage to channel vegetation, allow the channel to drain through the stone check dam, and prevent large flows from carrying sediment over the dam. Add stones to the dams as needed to maintain design height and cross section.

NORTH CAROLINA Department of Environmental Quality DEQ

CHECK DAM

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates

DATE: PAGE:



NOTES:
1. Clear the area of all debris that might hinder excavation and disposal of spoil.
2. Install the Class B or Class 1 riprap in a semi-circle around the pipe inlet. The stone should be built up higher on each end where it ties into the embankment. The minimum crest width of the riprap should be 3 feet, with a minimum bottom width of 11 feet. The minimum height should be 2 feet, but also 1 foot lower than the embankment of diversions.
3. A 1 foot thick layer of NC DOT #5 or #57 stone should be placed on the outside slope of the riprap.
4. The sediment storage area should be excavated around the outside of the stone horseshoe 18 inches below natural grade.
5. When contributing drainage area has been stabilized, remove the pipe and rock, fill depression, establish final grading elevations, compact the area properly, and stabilize with ground cover.

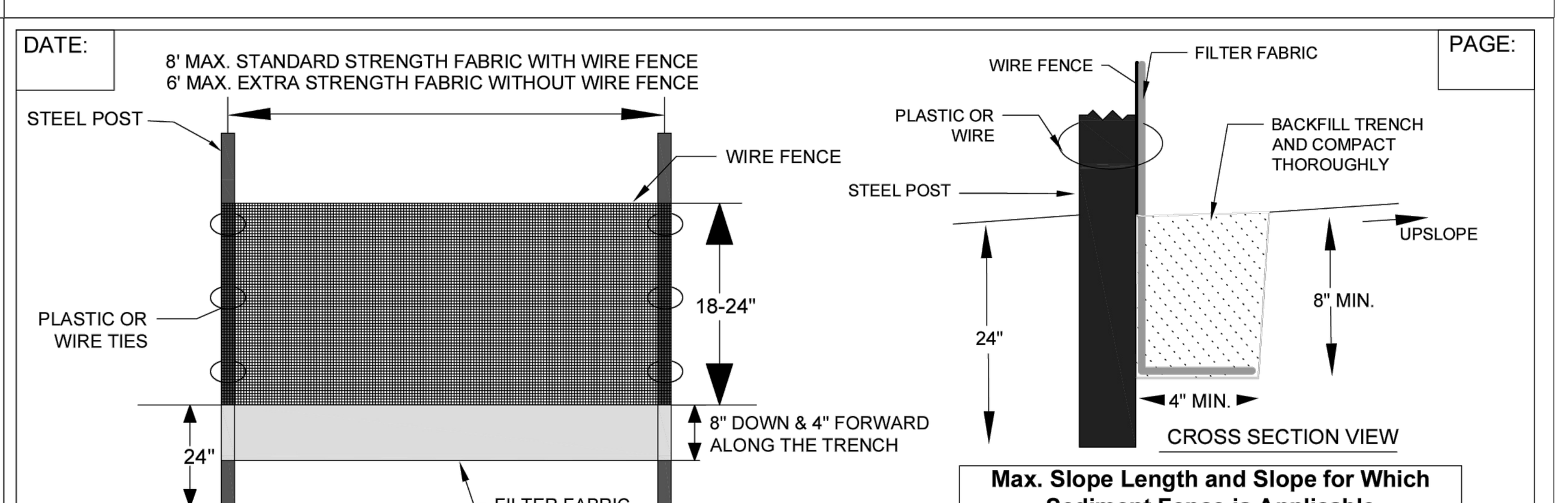
MAINTENANCE:
1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater and repair immediately.
2. Remove sediment and restore the sediment storage area to its original dimensions when the sediment has accumulated to one-half the design depth of the trap.
3. Place the sediment that is removed in the designated disposal area and replace the contaminated part of the gravel facing.
4. Check the structure for damage. Any riprap displaced from the stone horseshoe must be replaced immediately.
5. After all the sediment-producing areas have been permanently stabilized, remove the structure and all the unstable sediment. Smooth the area to blend with the adjoining areas and provide permanent ground cover.

NORTH CAROLINA Department of Environmental Quality DEQ

ROCK PIPE INLET PROTECTION

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates

DATE: PAGE:



Notes:
1. Construct the sediment barrier of standard strength or extra strength synthetic filter fabrics.
2. Ensure that the height of the sediment fence does not exceed 24 inches above the ground. (Higher fences may impound volumes of water sufficient to cause failure of the structure)
3. Construct the filter fabric from a continuous roll cut to the length of the barrier to avoid joints. When joints are necessary, securely fasten the filter cloth only at a support post with 4 feet minimum overlap to the next post.
4. Support standard strength filter fabric by wire mesh fastened securely to the upslope side of the posts. Extend the wire mesh support to the bottom of the trench. Fasten the wire reinforcement, then fabric on the upslope side of the fence post. Wire or plastic zip ties should have a minimum 50 pound tensile strength.
5. When a wire mesh support fence is used, space posts a maximum of 8 feet apart. Supports should be driven securely into the ground a minimum of 24 inches. Wire mesh should be a minimum 14-gauge with 6 inch mesh spacing.
6. Extra strength filter fabric with 6 foot post spacing does not require a wire mesh support fence. Securely fasten the filter fabric directly to posts. Wire or plastic zip ties should have a minimum of 50 pound tensile strength.
7. Excavate the trench approximately 4 inches wide and 8 inches deep along the proposed line of the posts and upslope from the barrier.
8. Place 12 inches of fabric along the bottom and side of the trench.
9. Backfill the trench with soil placed over the filter fabric and compact. Thorough compaction of the backfill is critical to silt fence performance.
10. Do not attach filter fabric to existing trees.
11. Do not place across ditches, streams, or any other areas of concentrated flow.

Max. Slope Length and Slope for Which Sediment Fence is Applicable

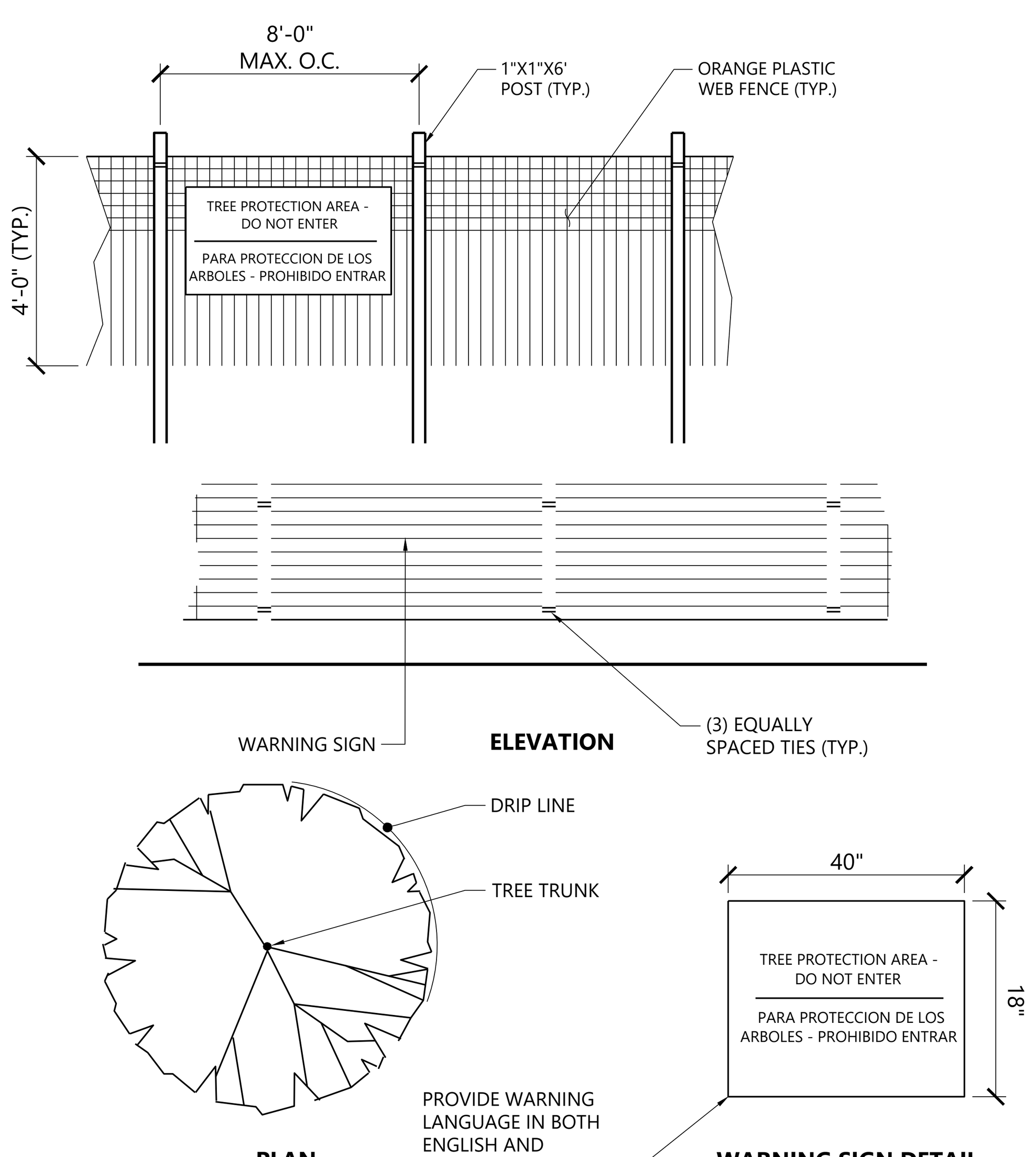
Slope	Slope Length (ft)	Max. Area (ft^2)
<2%	100	10,000
2 to 5%	75	7,500
5 to 10%	50	5,000
10 to 20%	25	2,500
>20%	15	1,500

Maintenance:
1. Inspect all measures at least weekly and after each rainfall of 1.0 inch or greater. Make any required repairs immediately.
2. Should the fabric of a sediment fence collapse, tear, decompose, or become ineffective, replace it promptly.
3. Remove sediment deposits as necessary to provide adequate storage volume for the next rain and reduce pressure on the fence. Take care to avoid undermining the fence during cleanouts.
4. Remove all fencing materials and unstable sediment deposits and bring the area to grade and stabilize it after the contributing drainage area has been properly stabilized.

NORTH CAROLINA Department of Environmental Quality DEQ

SEDIMENT FENCE

Effective Date: 9/1/2023
In accordance with the 2013
Design Manual Updates



NOTES

1. TREE PROTECTION FENCING (TPF) SHALL BE INSTALLED A MINIMUM OF 10 FEET FROM THE TRUNK OF ANY PROTECTED TREE OR DRIP LINE, WHICHEVER IS GREATER FOR ANY TREE GREATER THAN 10 INCHES DBH, THIS DISTANCE SHALL BE INCREASED 1 FOOT FOR EVERY 1 INCH DBH.
2. TREE PROTECTION FENCING SHALL BE MAINTAINED UNTIL A FINAL CERTIFICATE OF OCCUPANCY HAS BEEN ISSUED, UNLESS EXPRESSLY EXEMPTED BY THE PLANNING DIRECTOR.
3. IF THE TPF IS NOT PLACED 10' FROM THE TREE OR DRIP LINE, THE FIRST 10' OF THE PROTECTED AREA WILL NOT COUNT TOWARDS TREE COVERAGE AREA [GARNER UDO SEC. 7.1(I)(5)(A)]

Tree Protection Fence 1/16

N.T.S. Source: VHB REV LD_610

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940 Main Campus Drive
Suite 500
Raleigh, NC 27606
919.829.0328
Corp. # C-3705

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

Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by: DH, WS Checked by: CT
Issued for: Review Date: March 25, 2025

Not Approved for Construction

Drawing Title
Erosion Control Details

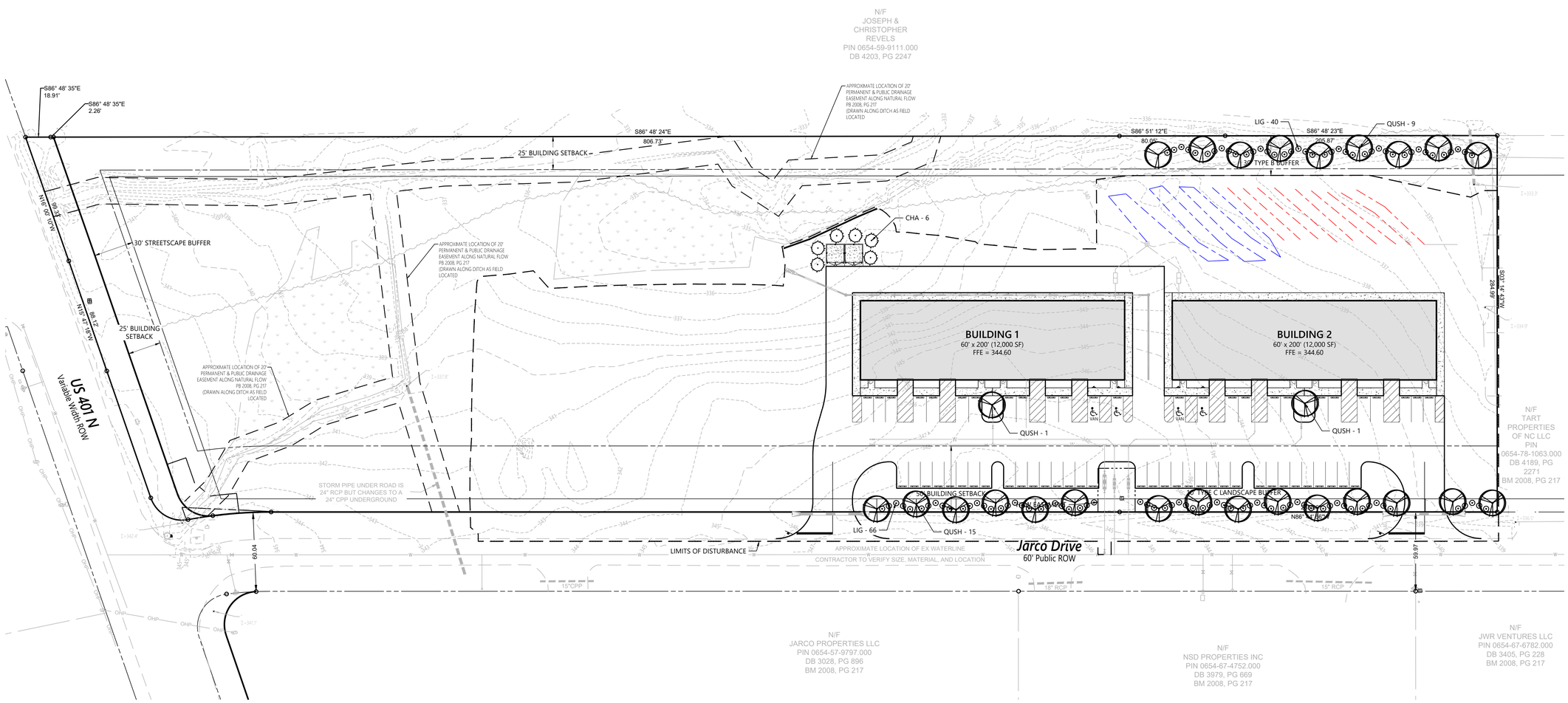
Drawing Number
C6.02

NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 048995 CHARLES D. TOWNSEND 4/8/26

Sheet 17 of 19

Project Number 39563.00

Saved Monday, April 6, 2026 3:55:38 PM WSHERRILL Plotted Tuesday, April 7, 2026 8:44:42 AM Will Sherrill



PLANT SCHEDULE SITE AREA

TREES	CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE
	QUSH	26	Quercus shumardii	Shumard Oak	2"-cal
	CHA	6	Chamaecyparis thyoides	Atlantic White Cedar	2"-cal
SHRUBS	**CODE**	**QTY**	**BOTANICAL NAME**	**COMMON NAME**	**SIZE**
	LIG	106	Ligustrum japonicum 'Wax Leaf'	Wax Leaf Ligustrum	24" min. ht.

Planting Notes

1. ALL PROPOSED PLANTING LOCATIONS SHALL BE STAKED AS SHOWN ON THE PLANS FOR FIELD REVIEW AND APPROVAL BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.
2. CONTRACTOR SHALL VERIFY LOCATIONS OF ALL BELOW GRADE AND ABOVE GROUND UTILITIES AND NOTIFY OWNERS REPRESENTATIVE OF CONFLICTS.
3. NO PLANT MATERIALS SHALL BE INSTALLED UNTIL ALL GRADING AND CONSTRUCTION HAS BEEN COMPLETED IN THE IMMEDIATE AREA. CONTRACTOR SHALL NOTIFY OWNER'S REPRESENTATIVE OF ANY CONFLICT.
4. A 3-INCH DEEP MULCH PER SPECIFICATION SHALL BE INSTALLED UNDER ALL TREES AND SHRUBS, AND IN ALL PLANTING BEDS, UNLESS OTHERWISE INDICATED ON THE PLANS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE.
5. ALL TREES SHALL BE BALLED AND BURLAPPED, UNLESS OTHERWISE NOTED IN THE DRAWINGS OR SPECIFICATION, OR APPROVED BY THE OWNER'S REPRESENTATIVE.
6. FINAL QUANTITY FOR EACH PLANT TYPE SHALL BE AS GRAPHICALLY SHOWN ON THE PLAN. THIS NUMBER SHALL TAKE PRECEDENCE IN CASE OF ANY DISCREPANCY BETWEEN QUANTITIES SHOWN ON THE PLANT LIST AND ON THE PLAN. THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES BETWEEN THE NUMBER OF PLANTS SHOWN ON THE PLANT LIST AND PLANT LABELS PRIOR TO BIDDING.
7. ANY PROPOSED PLANT SUBSTITUTIONS MUST BE REVIEWED BY LANDSCAPE ARCHITECT AND APPROVED IN WRITING BY THE OWNER'S REPRESENTATIVE.
8. ALL PLANT MATERIALS INSTALLED SHALL MEET THE SPECIFICATIONS OF THE "AMERICAN STANDARDS FOR NURSERY STOCK" BY THE AMERICAN ASSOCIATION OF NURSERYMEN AND CONTRACT DOCUMENTS.
9. ALL PLANT MATERIALS SHALL BE GUARANTEED FOR ONE YEAR FOLLOWING DATE OF FINAL ACCEPTANCE.
10. AREAS DESIGNATED "LOAM & SEED" SHALL RECEIVE MINIMUM 6" OF LOAM AND SPECIFIED SEED MIX. LAWNS OVER 2:1 SLOPE SHALL BE PROTECTED WITH EROSION CONTROL FABRIC.
11. ALL DISTURBED AREAS NOT OTHERWISE NOTED ON CONTRACT DOCUMENTS SHALL BE LOAM AND SEEDED OR MULCHED AS DIRECTED BY OWNER'S REPRESENTATIVE.
12. THIS PLAN IS INTENDED FOR PLANTING PURPOSES. REFER TO SITE / CIVIL DRAWINGS FOR ALL OTHER SITE CONSTRUCTION INFORMATION.

Landscape Summary (Article VII, Section 7 Harnett County UDO)

FRONT (SOUTHERN) PROPERTY LINE: 10' TYPE C BUFFER - 330 LINEAR FEET

REQUIRED:	PROVIDED:
1 LARGE MATURING TREE PER 30 LINEAR FEET OF BUFFER	
330'/30 FEET PER TREE = 11 TREES	17 TREES
5 EVERGREEN SHRUBS PER TREE	
11 TREES*5 SHRUBS PER TREE = 55 SHRUBS	68 SHRUBS

REAR (NORTHERN) PROPERTY LINE: 30' TYPE B BUFFER (OPTION 2) - 265 LINEAR FEET

REQUIRED:	PROVIDED:
1 LARGE MATURING TREE PER 30 LINEAR FEET OF BUFFER	
265'/30 FEET PER TREE = 9 TREES	9 TREES, 40 SHRUBS
EXISTING BERM TO BE PRESERVED	

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940 Main Campus Drive
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Raleigh, NC 27606
919.829.0328
Corp. # C-3705

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0 20 40 80 Feet

Jarco Dr Industrial

65 & 165 Jarco Dr
Fuquay Varina, NC

No.	Revision	Date	Appvd.
1	PER HCO COMMENTS	1/30/2026	CT
1	PER NCDEQ COMMENTS	4/6/2026	BS

Designed by: DH, WS | Checked by: CT

Issued for: Review | Date: March 25, 2025

Not Approved for Construction

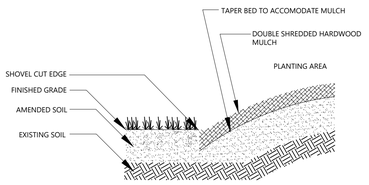
Drawing Title: Landscape Plan

Drawing Number: L1.00

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 18 of 19

Project Number: 39563.00



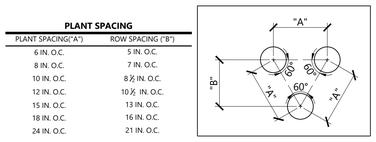
Shovel Cut Edging Detail

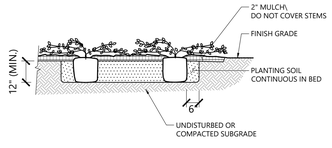
1/16

N.T.S. Source: VHB LD_615

PLANT SPACING

PLANT SPACING("A")	ROW SPACING ("B")
6 IN. O.C.	5 IN. O.C.
8 IN. O.C.	7 IN. O.C.
10 IN. O.C.	8 ½ IN. O.C.
12 IN. O.C.	10 ½ IN. O.C.
15 IN. O.C.	13 IN. O.C.
18 IN. O.C.	16 IN. O.C.
24 IN. O.C.	21 IN. O.C.

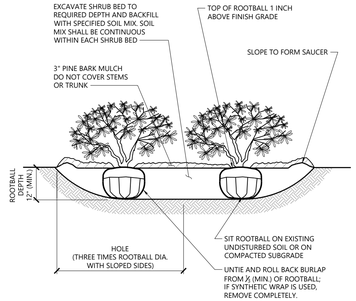




Groundcover Planting

1/16

N.T.S. Source: VHB REV LD_615



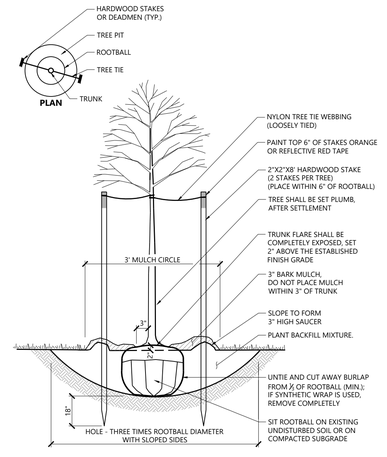
NOTES

1. LOOSEN ROOTS AT THE OUTER EDGE OF ROOTBALL OF CONTAINER GROWN SHRUBS.

Shrub Bed Planting

1/16

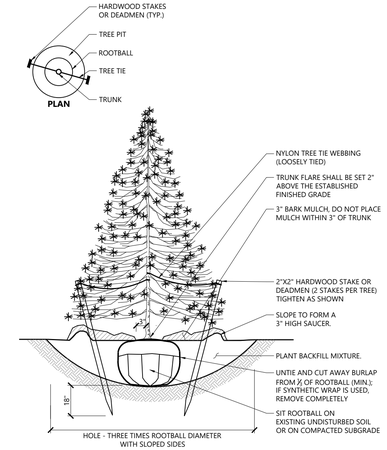
N.T.S. Source: VHB LD_601



Tree Planting (For Trees Under 4" Caliper)

9/21

N.T.S. Source: VHB LD_602



Evergreen Tree Planting

9/21

N.T.S. Source: VHB LD_604

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65 & 165 Jarco Dr
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1	PER HCO COMMENTS	1/30/2026	CT
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Designed by: DH, WS
Checked by: CT

Issued for: Review
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Not Approved for Construction

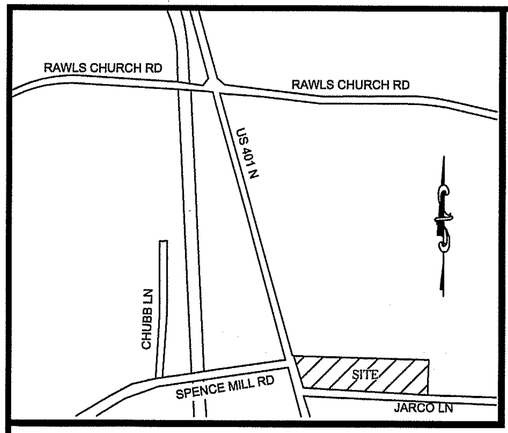
Drawing Title: Landscape Details

Drawing Number: L1.01

NORTH CAROLINA PROFESSIONAL SEAL 048995 ENGINEER CHARLES D. TOWNSEND
4/8/26

Sheet 19 of 19

Project Number: 39563.00



VICINITY MAP
(NOT TO SCALE)

CERTIFICATE OF SURVEY AND ACCURACY

I, JONATHAN R. CALLAHAN , CERTIFY THAT THIS PLAT WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION FROM A (DEED DESCRIPTION RECORDED IN BOOK 3442, PAGE 264, PLAT RECORDED IN BOOK 2008, PAGE 217, & PLAT BOOK 2014, PAGE 353 OR OTHER); THAT THE BOUNDARIES NOT SURVEYED ARE CLEARLY INDICATED AS DRAWN FROM INFORMATION FOUND IN DEED BOOK N/A , PAGE N/A; THAT THE RATIO OF PRECISION AS CALCULATED IS 1: 20,000+ AND THAT THE GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) WAS USED TO PERFORM A PORTION OF THIS SURVEY; THAT THIS PLAT WAS PREPARED IN ACCORDANCE WITH G. S. 47-30, AS AMENDED. THAT THIS PLAT MEETS THE REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.1600). WITNESS MY ORIGINAL SIGNATURE, REGISTRATION NUMBER AND SEAL THIS 15TH DAY OF JULY, 2025 .

SURVEYOR

L-4276
LICENSE NUMBER

CERTIFICATE OF FLOODWAY INFORMATION

I, JONATHAN R. CALLAHAN, P.L.S. , DO HEREBY CERTIFY THAT THE LOCATION OF THE SUBJECT PROPERTY HAS BEEN CHECKED AGAINST AREA MAPS & INFORMATION PROVIDED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY (F.E.M.A.) FOR THE NATIONAL FLOOD INSURANCE PROGRAM AND THAT THE PROPERTY ☐ IS ☒ IS NOT LOCATED IN AN AREA DESIGNATED AS HAVING SPECIAL FLOOD HAZARDS. PROPERTY IS LOCATED IN ZONE "X" AS DEFINED BY F.I.R.M. COMMUNITY PANEL NUMBER 3720065400J WITH AN EFFECTIVE DATE OF OCTOBER 3, 2006.

SURVEYOR

L-4276
LICENSE NUMBER

JULY 15, 2025
DATE

SURVEYOR CERTIFICATION

I, JONATHAN R. CALLAHAN CERTIFY TO ONE OF THE FOLLOWING:

☐ 1. THAT THE SURVEY CREATES A SUBDIVISION OF LAND WITHIN THE AREA OF A COUNTY OR MUNICIPALITY THAT HAS AN ORDINANCE THAT REGULATES PARCELS OF LAND;

☐ 2. THAT THE SURVEY IS LOCATED IN A PORTION OF A COUNTY OR MUNICIPALITY THAT IS UNREGULATED AS TO AN ORDINANCE THAT REGULATES PARCELS OF LAND;

3. IS ONE OF THE FOLLOWING:

- ☐ THAT THE SURVEY IS OF AN EXISTING PARCEL OR PARCELS OF LAND AND DOES NOT CREATE A NEW STREET OR CHANGE AN EXISTING STREET;
- ☐ THAT THE SURVEY IS OF AN EXISTING BUILDING OR OTHER STRUCTURE, OR NATURAL FEATURE, SUCH AS A WATERCOURSE; OR
- ☐ THAT THE SURVEY IS A CONTROL SURVEY.
- ☐ THAT THE SURVEY IS OF A PROPOSED EASEMENT FOR A PUBLIC UTILITY AS DEFINED IN G.S. 62-3.

☑ 4. THAT THE SURVEY IS OF ANOTHER CATEGORY, SUCH AS THE RECOMBINATION OF EXISTING PARCELS, A COURT-ORDERED SURVEY, OR OTHER EXCEPTION TO THE DEFINITION OF SUBDIVISION;

☐ 5. THAT THE INFORMATION AVAILABLE TO THE SURVEYOR IS SUCH THAT THE SURVEYOR IS UNABLE TO MAKE A DETERMINATION TO THE BEST OF THE SURVEYOR'S PROFESSIONAL ABILITY AS TO PROVISIONS CONTAINED IN (1) THROUGH (4) ABOVE.

LEGEND

N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
BM	BOOK OF MAPS
DB	DEED BOOK
PG	PAGE
EIP	EXISTING IRON PIPE
EIR	EXISTING IRON ROD
IPS	IRON PIPE SET

PROPERTY BOUNDARY
RIGHT OF WAY
ADJOINING PROPERTY
EASEMENT LINE

XXX DENOTES PROPERTY ADDRESS

NOTES:

1. ALL DISTANCES ARE HORIZONTAL GROUND.
2. ALL DIMENSIONS ARE IN FEET.
3. AREA COMPUTED USING COORDINATE METHOD FROM MEASURED FIELD DATA.
4. BASIS OF BEARINGS IS NORTH CAROLINA GRID NORTH, NAD83(2011). THE SITE WAS LOCALIZED UTILIZING REAL-TIME KINEMATIC (RTK) GLOBAL POSITIONING SYSTEM (GPS) SOLUTIONS REFERENCING THE CONTINUOUSLY OPERATING REFERENCE STATION (CORS) NETWORK BASE STATION NCLI, LILLINGTON, NC.
5. THIS SURVEY WAS PREPARED WITHOUT THE BENEFIT OF A TITLE REPORT AND MAY BE SUBJECT TO ANY MATTERS THAT A FULL TITLE SEARCH WOULD DISCLOSE.
6. ALL REFERENCE ARE MADE TO THE HARNETT COUNTY REGISTRY.
7. HORIZONTAL DATUM IS NAD 83(2011) AND VERTICAL DATUM IS NAVD 88, GEOID 18.
8. PER PB 2008, PG 217 NO LOT SHALL HAVE DIRECT ACCESS TO US 401 NORTH

BUILDING SETBACKS PER PB 2008, PG 217

INDUSTRIAL ZONING DISTRICT

MINIMUM FRONT YARD: 50 FEET MEASURED FROM THE FRONT PROPERTY LINE OR RIGHT OF WAY WHICHEVER IS MORE RESTRICTIVE AND SHALL BE DEVOTED FOR DRIVEWAYS, WALKS OR LANDSCAPING.

MINIMUM REAR YARD: 25 FEET MEASURED FROM THE REAR PROPERTY LINE UNLESS ADJACENT PROPERTY IS RESIDENTIAL, THEN 50 FEET IS REQUIRED.

MINIMUM SIDE YARD: 25 FEET FROM THE SIDE PROPERTY LINE UNLESS ADJACENT PROPERTY IS ZONED RESIDENTIAL, THEN 50 FEET IS REQUIRED.

LOT AREA

OLD AREAS	
OLD LOT 12	75,018 S.F. (1.7222 AC.)
OLD LOT 13	227,937 S.F. (5.2327 AC.)
TOTAL	302,955 S.F. (6.9549AC.)

NEW AREA:	
NEW LOT 12	302,955 S.F. (6.9549 AC.)
TOTAL	302,955 S.F. (6.9549 AC.)

CURVE TABLE				
CURVE	LENGTH	RADIUS	CHORD	CHORD BEARING
C1	44.24'	345.00'	44.21'	S89° 34' 39"W
C2	18.94'	345.00'	18.94'	S84° 19' 51"W
C3	35.55'	25.00'	32.63'	S56° 30' 39"E

N/F
JOSEPH & CHRISTOPHER REVELS
PIN 0654-59-9111.000
DB 4203, PG 2247

HARNETT COUNTY
NORTH CAROLINA
FILED DATE 7-17-2025 TIME 12:09 pm
MAP NUMBER 2025-4316
MATTHEW WILLIS
REGISTER OF DEEDS
BY: Virginia S Rodriguez DEPUTY III

Instrument #: 2025013266
Recorded: 07/17/2025 12:09:41 PM
Fee Amt: $21.00 Page 1 of 1
Harnett County, North Carolina
Matthew S. Willis, Register of Deeds
BK 2025 PG 436 - 436 (1)

CERTIFICATE OF OWNERSHIP, DEDICATION AND JURISDICTION

I (WE) HEREBY CERTIFY THAT I AM (WE ARE) THE OWNER(S) OR AGENT OF THE PROPERTY SHOWN AND DESCRIBED HEREON AND THAT I (WE) HEREBY ADOPT THIS PLAN WITH MY (OUR) FREE CONSENT, ESTABLISH THE MINIMUM BUILDING SETBACK LINES, AND DEDICATE ALL STREETS, ALLEYS, WALKS, PARKS, AND OTHER SITES AND EASEMENTS TO PUBLIC OR PRIVATE USE AS NOTED, AND ALL OF THE LAND SHOWN HEREON IS WITHIN THE UNIFIED DEVELOPMENT ORDINANCE JURISDICTION OF HARNETT COUNTY,

JULY 15, 2025 (DATE) — 080654 0004 & 080654 0004 13 (TAX PARCEL ID NUMBERS)

TDF INC

I, Kayla Robinson , REVIEW OFFICER OF HARNETT COUNTY, CERTIFY THE MAP OR PLAT TO WHICH THIS CERTIFICATION IS AFFIXED MEETS ALL STATUTORY REQUIREMENTS FOR RECORDING.

Kayla Robinson 07-17-2025
REVIEW OFFICER DATE

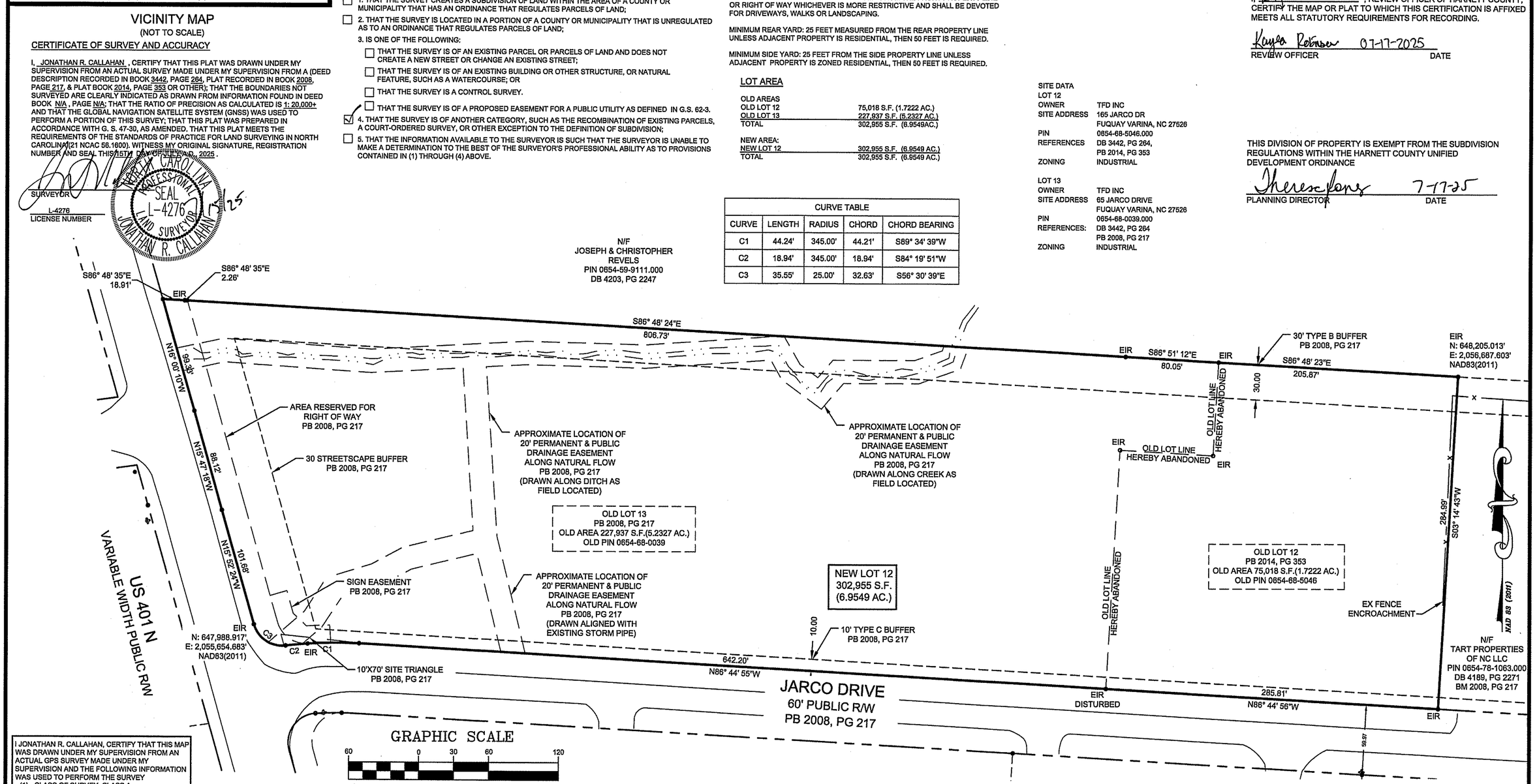
SITE DATA

LOT 12
OWNER TFD INC
SITE ADDRESS 165 JARCO DR FUQUAY VARINA, NC 27526
PIN 0854-68-5046.000
REFERENCES DB 3442, PG 264, PB 2014, PG 353
ZONING INDUSTRIAL

LOT 13
OWNER TFD INC
SITE ADDRESS 65 JARCO DRIVE FUQUAY VARINA, NC 27526
PIN 0654-68-0039.000
REFERENCES: DB 3442, PG 264 PB 2008, PG 217
ZONING INDUSTRIAL

THIS DIVISION OF PROPERTY IS EXEMPT FROM THE SUBDIVISION REGULATIONS WITHIN THE HARNETT COUNTY UNIFIED DEVELOPMENT ORDINANCE

PLANNING DIRECTOR 7-17-25 DATE



GRAPHIC SCALE
60 0 30 60 120
(IN FEET)
1 inch =60 ft.

I JONATHAN R. CALLAHAN, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL GPS SURVEY MADE UNDER MY SUPERVISION AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY

(1) CLASS OF SURVEY: CLASS A
(2) POSITIONAL ACCURACY: H: 0.10 US SURVEY FEET
(3) TYPE OF GPS/FIELD PROCEDURE: REAL TIME KINEMATICS NETWORK (VRS)
(4) DATE OF SURVEY: 1-10-2024
(5) VERTICAL DATUM: NAVD 88 HORIZONAL DATUM: NAD 83(2011) NC GRID EPOCH: 2010.00
(6) PUBLISHED/FIXED CONTROL USE: NAME:NCLL LILLINGTON CORS ARP LAT:35° 25' 12.55171 LONG:78° 48' 40.34278 PID: DR4334 CORS ID: NCLL
(7) GEOID MODEL: GEOID18
(8) COMBINED GRID FACTOR:0.99987292
(9) UNITS: US SURVEY FEET

DATE	REVISION	BY

JOHN A. EDWARDS & COMPANY
Consulting Engineers
NC License F-0289
333 Wade Ave., Raleigh, N.C. 27605
Phone: (919) 828-4428
Fax: (919) 828-4711
E-mail: info@jaeco.com

SCALE: 1" = 60'	DATE: 7-15-2025
FLD. BK. & PAGE	DRAWN BY: ZCS/CLP
FILE NO:	CHECKED BY: JAE, JR.

SURVEY FOR: TFD INC

HECTORS CREEK HARNETT COUNTY NORTH CAROLINA

RECOMBINATION PLAT

SHEET 1 OF 1

HARNETT COUNTY
EMERGENCY SERVICES
NORTH CAROLINA

Application for Fire Marshal Plan Review

Type of Review Requested: ☐ Site Plan Review ☒ Building Plan Review

Project Information

Project Name:	Jarco Business Center
Project Physical Address:	65 Jarco Dr.
PIN #:	0654-68-0039.000

Plan Information

Plans Submitted by:	TFD Inc.
Contact Person:	John Tucker
Contact Phone #:	919-601-9034
Contact Email:	john@associatedcontractservices.com

Contractor Information

Contractor/Company Name:	Associated Contract Services, Inc.
Company Mailing Address:	141 Country Haven Lane Fuquay Varina, NC 27526
Primary Contact Name:	John Tucker
Contact Phone #:	919-601-9034
Contact EMail:	john@associatedcontractservices.com

- Plans that are submitted will be reviewed as quickly as possible with an average time of review between 7-10 working days.
- Status checks may be conducted on plan reviews by visiting the eTrakit portal, or by calling the Harnett County Central Permitting Department (910-893-7525, Option #1) or the Harnett County Fire Marshal's Office (910-893-7580).
- Approved plans must be obtained through Central Permitting (via centralpermitting@harnett.org email) at the time of payment; payment can be made over the phone (910-893-7525, Option #1) or at the Central Permitting Office (420 McKinney Parkway Lillington, NC 27546).
- All fees must be paid before any required inspections can be conducted.

Revised 9/10/2025