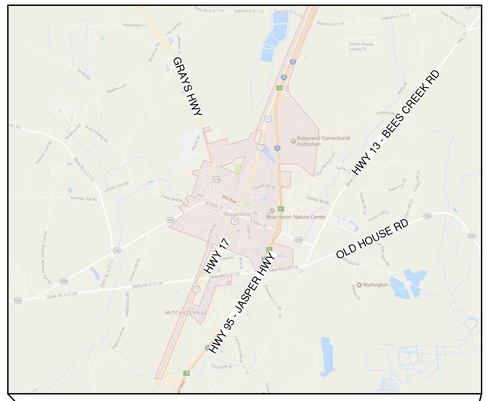
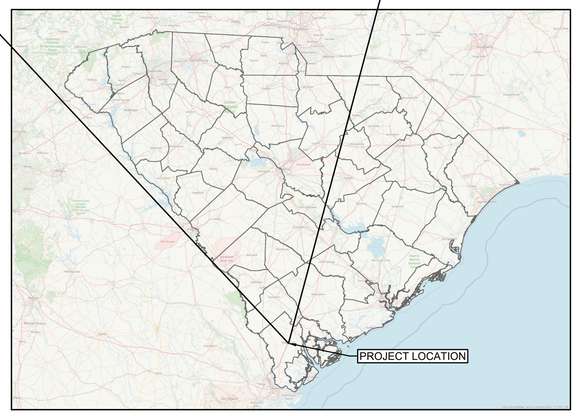
CONSTRUCTION DRAWINGS FOR:

TOWN OF RIDGELAND
WATER AND SEWER RESILIENCY IMPROVEMENTS

REQUEST FOR BIDS NO: TOR-2023-02



LOCATION MAP - VICINITY



LOCATION MAP - REGION

MAYOR
JOSEPH N. MALPHRUS, JR

MAYOR PRO TEMPORE
TOMMY RHODES

COUNCIL MEMBERS
JOSEPHINE BOYLES
CHRIS DUBOSE
GRADY WOODS

TOWN ADMINISTRATOR
DENNIS E. AVERKIN

PROJECT #: 17-007:035

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
904-414-2400 C.O.A.# 5166 WWW.4WENG.COM

PREPARED BY

PART I:	PUMP STATION IMPROVEMENTS
PART II:	GRAVITY SEWER REHABILITATION
PART III:	WELL SITE #2 IMPROVEMENTS
PART IV:	SCADA SYSTEM IMPROVEMENTS

EDA AWARD #: 04-79-07454

DATE: MAY 2023

ISSUE: **BID ISSUE**

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NOTE:

IF ARCHEOLOGICAL MATERIALS ARE ENCOUNTERED DURING CONSTRUCTION, THE PROCEDURES CODIFIED AT 33 CFR 800.13(B) WILL APPLY AND EDA, THE SOUTH CAROLINA STATE HISTORIC PRESERVATION OFFICE, THE MUSCOGEE (CREEK) NATION AND THE CATAWBA INDIAN NATION SHALL BE CONTACTED IMMEDIATELY. ARCHEOLOGICAL MATERIALS CONSIST OF ANY ITEMS, FIFTY YEARS OR OLDER WHICH WERE MADE OR USED BY MAN. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO, STONE PROJECTILE POINTS (ARROWHEADS), CERAMIC SHERDS, BRICKS, WORKED WOOD, BONE AND STONE, METAL AND GLASS OBJECTS, AND HUMAN SKELETAL REMAINS.

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS

PROJECT INDEX

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
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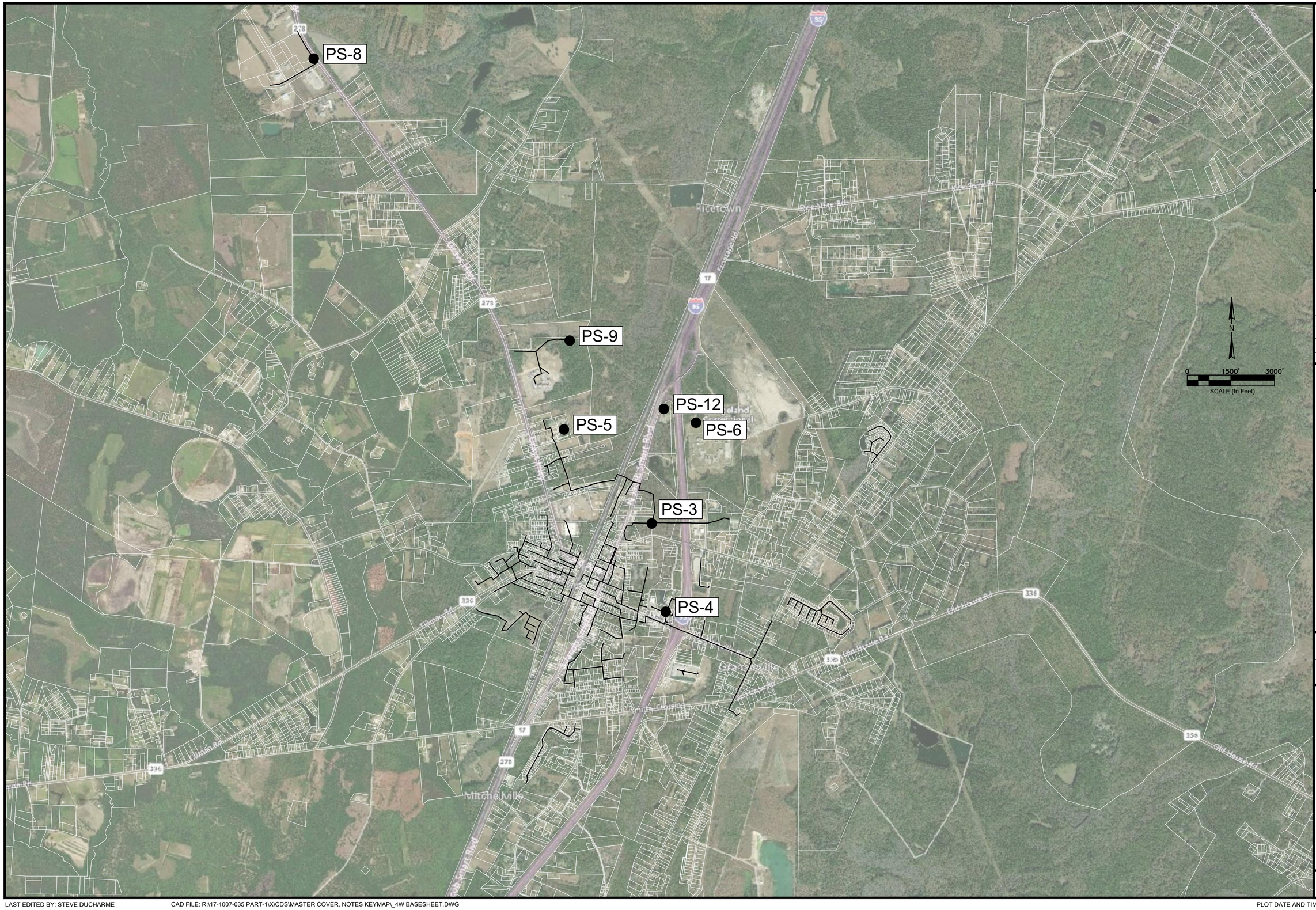
DRAWING NUMBER
G0.2



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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
REGIONAL PROJECT KEY MAP

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	DRAWN	JMC
JOB #	17-1007		
ISSUE DATE	FEB 2023	ISSUE	BID

FOUR WATERS ENGINEERING
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DRAWING NUMBER
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UTILITY SEPARATION NOTES

1. UTILITY SEPARATION FROM WATER MAINS SHALL BE IN ACCORDANCE WITH THE TOWN OF RIDGELAND STANDARD SPECIFICATIONS FOR WATER AND SEWER SYSTEMS. ALL DISTANCES NOTED ARE FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE.

2. HORIZONTAL SEPARATION BETWEEN WATER MAIN AND SEWER PIPE UNDER THE TOWN OF RIDGELAND STANDARD SPECIFICATIONS FOR WATER AND SEWER SYSTEMS SHALL BE A MINIMUM OF TEN FEET WHERE POSSIBLE. THE MINIMUM OF THE HORIZONTAL SEPARATION DISTANCE BETWEEN WATER MAINS AND SEWER PIPE SHALL BE REDUCED WHERE THE BOTTOM OF THE WATER MAIN IS AT LEAST 18" INCHES ABOVE THE TOP OF THE SEWER AS APPROVED BY THE ENGINEER.

3. VERTICAL SEPARATION BETWEEN WATER MAIN AND SEWER PIPE SHALL BE 18 INCHES. PREFERENCE IS FOR THE WATER MAIN TO BE ABOVE THE OTHER PIPELINE.

4. FOR UTILITY CROSSINGS WITH WATER MAINS, ONE FULL LENGTH (20 FEET) OF WATER MAIN QUALITY PIPE SHALL BE CENTERED ABOVE OR BELOW THE OTHER PIPELINE SO THAT THE WATER MAIN JOINTS WILL BE AS FAR AS POSSIBLE FROM THE OTHER PIPELINE. WATER PIPE SHALL BE CONSTRUCTED OF DUCTILE IRON PIPE FOR ALL CROSSINGS OF SEWER LINES AND DRAINAGE LINES, REGARDLESS OF CLEARANCE; FOR ALL CROSSINGS OF CREEKS, RIVERS, OR OTHER WATER BODIES; AND FOR WATER MAINS INSTALLED IN CASING. THE CONTRACTOR SHALL VERIFY, RECORD, AND REPORT THE VERTICAL SEPARATION FROM OUTSIDE OF PIPE TO OUTSIDE OF PIPE AT THE CROSSING.

5. NO WATER MAIN SHALL PASS THROUGH OR COME IN CONTACT WITH ANY PART OF A SANITARY SEWER MANHOLE, A STORM SEWER MANHOLE, OR A STORM SEWER INLET STRUCTURE.

GENERAL NOTES

1. REFERENCE INDIVIDUAL EXISTING CONDITIONS DRAWINGS FOR ELEVATION AND COORDINATE SYSTEM INFORMATION FOR EACH SITE

2. IN ACCORDANCE WITH GENERAL CONDITIONS, IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE AND AVOID ALL UTILITIES, OTHER STRUCTURES AND OBSTRUCTIONS BOTH ABOVE AND BELOW THE GROUND SURFACE. ALL DAMAGE RESULTING FROM THE CONTRACTOR'S FAILURE TO COMPLY WITH THIS REQUIREMENT SHALL BE REPAIRED AT THE CONTRACTORS EXPENSE.

3. THE CONTRACTOR SHALL MAINTAIN UNINTERRUPTED SERVICE AT ALL SERVICE CONNECTIONS. THE MANNER IN WHICH THIS IS ACCOMPLISHED SHALL BE LEFT TO THE DISCRETION OF THE CONTRACTOR, SUBJECT TO THE REQUIREMENTS OF THE CONTRACT SPECIFICATIONS.

4. STATIONING SHOWN ON DRAWINGS REFERS TO CENTERLINE OF ROAD OR RIGHT-OF-WAY LINE.

5. ALL PIPE LENGTHS SHOWN ON PLAN AND PROFILES ARE FROM CENTER TO CENTER OF INLETS OR MANHOLES OR ALONG FORCEMAIN OR WATER MAINS.

6. THE CONTRACTOR SHALL PROVIDE NO LESS THAN A 6 INCH CLEARANCE BETWEEN ALL UTILITIES, OTHER THAN WATER MAINS UNLESS OTHERWISE DIRECTED. NO SPECIAL PAYMENT ALLOWED.

7. MINIMUM PIPE COVER SHALL BE 36 INCHES FOR PIPES LESS THAN 12" IN DIAMETER; 48 INCHES FOR PIPES 14" OR LARGER IN DIAMETER; AND 36 INCHES BELOW ANY SCDOT ROAD ELEVATION.

8. CONTRACTOR SHALL EMPLOY A LAND SURVEYOR, REGISTERED IN THE STATE OF SOUTH CAROLINA, TO REFERENCE AND RESTORE PROPERTY CORNERS AND LANDMARKS WHICH MAY BE DISTURBED BY CONSTRUCTION.

9. EXISTING UTILITIES HAVE BEEN SHOWN FROM THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL NOTIFY THE PROPER UTILITY REPRESENTATIVE AT LEAST 48 HOURS PRIOR TO COMMENCING EXCAVATION NEAR UTILITY. CONTRACTOR IS RESPONSIBLE FOR LOCATION OF ALL SUCH UTILITIES IN THE PATH OF CONSTRUCTION. THE LOCATION SHALL BE MADE WELL IN ADVANCE OF CONSTRUCTION SO THAT CONFLICTS IN CONSTRUCTION MAY BE RESOLVED.

10. THE DEPARTMENT OF TRANSPORTATION IS TO BE NOTIFIED 48 HOURS IN ADVANCE AND RAILROAD COMPANY 7 DAYS IN ADVANCE OF CONSTRUCTION WITHIN THEIR RESPECTIVE RIGHT OF WAY.

11. <u>UTILITY CONTACTS</u>
    SPECTRUM – (833-267-6094)
    CENTURYLINK – (866-642-0444)
    DOMINION ENERGY SOUTH CAROLINA – CUSTOMER SERVICE MAIN LINE (1-800-251-7234)
    PALMETTO ELECTRIC COOPERATIVE – RIDGELAND OFFICE (843-726-5551)
    TOWN OF RIDGELAND WATER & SEWER DEPARTMENT – TY SHAFFER (843-226-0312)

12. THE LOCATION(S) OF THE UTILITIES SHOWN IN THE PLANS ARE BASED ON LIMITED INVESTIGATION TECHNOLOGIES AND SHOULD BE CONSIDERED APPROXIMATE ONLY.

13. CONTACT SUNSHINE STATE ONE-CALL OF SOUTH CAROLINA, INC. AS REQUIRED BY SC CODE § 58-36-120 (2018).

14. CONTRACTOR TO LOCATE, PROTECT AND SUPPORT ALL WATER, SEWER, GAS TELECOMMUNICATIONS AND ELECTRIC UTILITIES ENCOUNTERED DURING CONSTRUCTION.

15. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING, THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE ENGINEER FOR REVIEW AND APPROVAL. THE CONTRACTOR SHALL COMPLY WITH REQUIREMENTS LISTED IN THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL REGULATION 61-113, GROUNDWATER USE AND REPORTING; AND REGULATION 61-9, WATER POLLUTION CONTROL PERMITS, BEFORE ANY DEWATERING CAN BEGIN. CONTRACTOR SHALL SECURE THE SCDHEC GENERAL PERMIT FOR THE DISCHARGE OF GROUND WATER.

16. THE CONTRACTOR'S ATTENTION IS DIRECTED TO THE FACT THAT THESE PLANS DO NOT STAND BY THEMSELVES. ALSO TO BE INCLUDED ARE THE SPECIFICATIONS AND DETAILS.

17. CONTRACTOR TO FURNISH DETOUR AND CONSTRUCTION SIGNING AND LIGHTING AS REQUIRED IN SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION SUPPLEMENT TO THE MANUAL ON TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, AND OTHER SPECIAL ADVANCED DETOUR SIGNS AS NECESSARY.

18. ALL POTABLE WATER PIPE SHALL BE NSFPW RATED.

19. IF SOLVENT CONTAMINATION IS FOUND IN THE PIPE TRENCH, WORK SHALL BE STOPPED AND THE PROPER AUTHORITIES NOTIFIED. WITH APPROVAL OF THE PERMITTING AGENCY, DUCTILE IRON PIPE, FITTINGS AND SOLVENT RESISTANT GASKET MATERIAL SHALL BE USED IN THE CONTAMINATED AREA. THE DUCTILE IRON PIPE SHALL EXTEND AT LEAST 100 FEET BEYOND ANY SOLVENT NOTED.

20. PIPE JOINT DEFLECTION, WHERE ALLOWED BY EXCEPTION, SHALL MATCH THE MANUFACTURER'S RECOMMENDATION FOR THE SIZE AND TYPE OF JOINT.

21. ALL PIPELINES, WATERMAINS, FORMAIN, AND SERVICE LATERALS SHALL HAVE A 12 GAUGE SOLID COPPER SINGLE STRAND TRACER WIRE TAPED ALONG THE TOP OF THE PIPE. THE TRACER WIRE SHALL BE BROUGHT TO SURFACE AT EACH LOCATOR POST ON FORCE MAINS AND ACCESSIBLE FROM THE SURFACE AT ALL VALVE BOXED AND LOCATOR POSTS. AT LOCATIONS TRACER WIRE SURFACES BETWEEN VALVES, REGULAR VALVE BOX WITH PLAIN LID AND COLLAR SHALL BE INSTALLED BETWEEN A PIPELINE MARKER PAIR.

22. CONTRACTOR SHALL CONTACT EACH PROPERTY OWNER ALONG THE ROUTE OF NEW PIPING AND CONSTRUCTION AND LOCATE ANY EXISTING IRRIGATION/SPRINKLER SYSTEMS. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR/REPLACEMENT OF ANY DAMAGED IRRIGATION/SPRINKLER SYSTEMS ON PRIVATE PROPERTY OR CITY R.O.W'S DUE TO WORK BEING PERFORMED BY CONTRACTOR AND/OR SUB-CONTRACTORS.

23. THE CONTRACTOR SHALL SUBMIT A SHORING PLAN FOR EXCAVATIONS ADJACENT TO BUILDINGS, ADJACENT TO RIGHT-OF-WAY, OR ANY OTHER EXCAVATIONS DEEPER THAN 7 FEET. THE SHORING PLAN SHALL INCLUDE SHORING SYSTEM DESIGN CALCULATIONS AND DETAILS SIGNED AND SEALED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER.

24. ALL PROTECTED TREES SHALL BE PROTECTED FROM INJURY DURING ANY LAND CLEARING OR CONSTRUCTION. PRIOR TO ANY LAND CLEARING OR CONSTRUCTION OPERATIONS, TEMPORARY BARRIERS SHALL BE INSTALLED AT THE DRIP LINE OF ALL PROTECTED TREES IN ACCORDANCE WITH JASPER COUNTY ZONING ORDINANCE § 13:5 (2).

25. TREE BARRICADE APPROVAL: OBTAIN TOWN APPROVAL OF TREE BARRICADES BEFORE BEGINNING CLEARING OPERATIONS OR ANY CONSTRUCTION.

26. SCDOT RIGHTS-OF-WAY PERMITS ARE REQUIRED FOR THIS PROJECT

27. CONSTRUCTION ACTIVITIES DISTURBING ANY LAND AREA WITHIN JASPER COUNTY SHALL REQUIRE NOTIFICATION TO SCDHEC PRIOR TO CONSTRUCTION. NOTIFICATION REQUIREMENTS AND/OR NPDES PERMIT REQUIREMENTS VARY BASED UPON LAND DISTURBANCE AREA AND PROXIMITY TO A COASTAL RECEIVING WATER BODY. CONTRACTOR SHALL SUBMIT AN NOI TO SCDHEC PRIOR TO CONSTRUCTION.

1

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No. 21839
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
GENERAL NOTES

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
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DRAWING NUMBER
G0.4

GENERAL ELECTRICAL NOTES:

G1. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. PROVIDE AERIAL OR UNDERGROUND SERVICE AS REQUIRED BY THE UTILITY AND PROJECT REQUIREMENTS. COORDINATE WITH DOMINION ENERGY; CONTACT PARKS MOSS, SENIOR CUSTOMER SERVICE ENGINEER, 843-815-8808.

G2. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.

G3. FOR STATIONS WITH UNDERGROUND UTILITY POWER DISTRIBUTION, MOUNT THE AREA LIGHT ON A 25' CLASS 4 PRESSURE TREATED POLE WITH AN ALUMINUM POLE CAP SECURED WITH ALUMINUM NAILS. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH YOKE MOUNT, SQ CORD, AND INTEGRAL PHOTOCELL: CATALOG NO. DSXF2 LED-3-A530/40K-WFL-MVOLT-YKC62-PE-DDBXD.
   A. WHEN AERIAL/OVERHEAD DISTRIBUTION SERVICES ARE PROVIDED, MOUNT THE FLOOD LIGHT TO THE TOP OF THE SERVICE POLE BELOW THE SERVICE DROP RACK.
   B. PROVIDE A WEATHERPROOF SWITCH ON THE POLE, 48" ABOVE FINISH GRADE.

G4. ALL CONDUITS INSTALLED EXPOSED TO ATMOSPHERE SHALL BE ALUMINUM RIGID CONDUIT (ARC). ALL CONDUITS INSTALLED BELOW GRADE SHALL BE SCHEDULE 80 PVC. ALL ELBOWS TO BE ARC. PROTECT ARC CONDUITS FROM BELOW GRADE TO 6" ABOVE GRADE WITH TWO COATS OF SCOTCHRAP PIPE PRIMER AND TWO OVERLAPPING LAYERS OF SCOTCHRAP 51 TAPE.

G5. ALL CONDUITS ENTERING NEMA 4X ENCLOSURES SHALL BE TERMINATED WITH THREADED HUBS TO MAINTAIN THE NEMA RATING OF THE ENCLOSURE UNLESS NOTED OTHERWISE (SEALING HUBS).

G6. FOR TERMINATION OF CONDUITS AT THE JUNCTION BOXES, PROVIDE CROUSE-HINDS ES SEALING HUBS.
   A. CONTROL PANEL TO JUNCTION BOX CONDUITS:
      1. PROVIDE TWO SEALING LOCKNUTS (INSIDE/OUTSIDE ENCLOSURE) TO MAINTAIN THE 4X RATING OF THE JUNCTION BOXES.
      2. PROVIDE A NYLON BUSHING ON THE HUB.
      3. SEAL THE CONDUIT HUBS WITH TSC EPOXY SEALING COMPOUND.
      4. THE ULTRASONIC TRANSDUCER CONDUIT SHALL BE SEALED PER NOTE G6.B.
   B. JUNCTION BOX TO WET WELL CONDUITS:
      1. PROVIDE TWO SEALING LOCKNUTS (INSIDE/OUTSIDE ENCLOSURE) TO MAINTAIN THE 4X RATING OF THE JUNCTION BOXES.
      2. PROVIDE A NYLON BUSHING ON THE HUB.
      3. PACK HUB WITH DUCT SEAL AROUND CABLES. LEAVE BETWEEN 1/4" TO 3/8" OF SPACE AT THE TOP OF THE HUB (NOT BUSHING).
      4. POUR 1/4" TO 3/8" OF EPOXY SEALING COMPOUND INTO TOP OF SEALING HUB.

G7. SEAL ALL CONDUITS ENTERING PANELS AND ENCLOSURES WITH ELECTRICAL DUCT SEAL.

G8. SIZE THE EQUIPMENT FRAME TO FIT EQUIPMENT TO BE INSTALLED. CIRCUIT BREAKER AND SWITCH OPERATING HANDLES SHALL BE A MAXIMUM OF 66" ABOVE FINISHED GRADE. PROVIDE STAINLESS STEEL BOLTS, NUTS AND WASHERS. MAXIMUM SPAN BETWEEN VERTICAL SUPPORTS: 60".

G9. POSITION ELECTRICAL EQUIPMENT SO THAT ALARM LIGHT CAN BE SEEN FROM THE NEAREST ROAD.

G10. JUNCTION BOXES FOR PUMP CABLE TERMINATION SHALL BE FURNISHED WITH POWER TERMINAL BLOCK AND TERMINAL STRIP FOR PUMP POWER CONDUCTORS AND PUMP CONTROL CONDUCTORS. MINIMUM SIZE OF THE JUNCTION BOX SHALL BE 12"X12"X6". PROVIDE LARGER ENCLOSURE AS REQUIRED BY THE NEC OR AS NOTED ON THE INDIVIDUAL PLANS. FURNISH NEMA 4X S.S. JUNCTION BOX W/ QUARTER-TURN DOOR LATCH AND ALUMINUM BACK PLATE. PROVIDE PRODUCTS OF HOFFMAN/PENTAIR OR HAMMOND MANUFACTURING.

G11. JUNCTION BOXES FOR FLOAT CABLES SHALL BE FURNISHED WITH WITH EIGHT (8) POSITION TERMINAL STRIP. THE JUNCTION BOX SHALL BE 12"X12"X6". FURNISH NEMA 4X S.S. JUNCTION BOX W/ QUARTER-TURN DOOR LATCH AND ALUMINUM BACK PLATE. PROVIDE PRODUCTS OF HOFFMAN/PENTAIR OR HAMMOND MANUFACTURING.

G12. JUNCTION BOXES FOR THE ULTRASONIC CABLE DOES NOT REQUIRE A TERMINAL STRIP. THE CABLE SHALL NOT BE TERMINATED OR OTHERWISE INTERCEPTED IN THE JUNCTION BOX. THE JUNCTION BOX SHALL BE 12"X12"X6". FURNISH NEMA 4X S.S. JUNCTION BOX W/ QUARTER-TURN DOOR LATCH AND ALUMINUM BACK PLATE. PROVIDE PRODUCTS OF HOFFMAN/PENTAIR OR HAMMOND MANUFACTURING.

G13. THE SCADA SYSTEM SHALL BE PROVIDED BY LORD & COMPANY INDUSTRIAL AUTOMATION, 2100 CAROLINA PLACE DRIVE, FORT MILL, SOUTH CAROLINA 29708, 803-802-0060. CONTACT PIERRE WOOTON FOR PRICING ON SCADA SYSTEM. THE SCADA SYSTEM TO BE PROVIDED UNDER THIS PROJECT SHALL INCLUDE ALL OF THE SITES LISTED ON SHEET G11.1:

   A. SIXTEEN (16) SEWAGE PUMP STATIONS
   B. THREE (3) WELLS
   C. FIVE (5) ELEVATED TANKS

   THE CENTRAL CONTROL POINT SHALL BE AT THE JIMMY MIXSON WRF.

   EXTEND CONDUCTORS AS REQUIRED FROM THE PUMP CONTROL PANEL, WELL STARTER, AUTOMATIC TRANSFER SWITCH, GENERATOR, SURGE PROTECTION, PRESSURE TRANSDUCER, ETC. FOR COMMUNICATION OF THE ALARMS, CONDITIONS AND CONTROL TO THE OWNER'S SYSTEM.

   EXTEND A DEDICATED 20A/1P 0.120VAC CIRCUIT TO THE SCADA PANEL: 3/4"C W/ 2 NO.12, 1 NO.12(G), WHERE NOT SHOWN. FIELD COORDINATE LOCATION/SOURCE PANEL FOR THE BRANCH CIRCUIT.

G14. THE SCADA SYSTEM SHALL MONITOR AND TRANSMIT THE FOLLOWING POINTS AND TELEMETRY:

   DIGITAL POINTS - PUMP STATION:
   - RTU FAIL - POWER FAILURE - PHASE FAIL
   - PUMP 1 FAIL - PUMP 1 STATUS - LOW LEVEL
   - PUMP 2 FAIL - PUMP 2 STATUS - HIGH WET WELL
   - GENERATOR PRE-ALARM - GENERATOR FAIL
   - GENERATOR IN 'AUTO' POSITION - ATS SWITCH POSITION
   - GENERATOR SWITCH IN 'AUTO'
   - SURGE PROTECTION ALARM

   DIGITAL POINTS - WELL:
   - RTU FAIL - POWER FAILURE - PHASE FAIL
   - PUMP FAIL - PUMP STATUS - LOW LEVEL
   - GENERATOR PRE-ALARM - GENERATOR FAIL
   - GENERATOR IN 'AUTO' POSITION - ATS SWITCH POSITION
   - GENERATOR SWITCH IN 'AUTO'
   - SURGE PROTECTION ALARM

   DIGITAL POINTS - ELEVATED TANK:
   - RTU FAIL - POWER FAILURE - PHASE FAIL
   - SURGE PROTECTION ALARM

   ANALOG POINTS - ELEVATED TANK:
   - ELEVATED TANK LEVEL/SYSTEM PRESSURE

G15. PROVIDE IN THE WET WELL HATCH WINDOW A STAINLESS STEEL BRACKET FOR SUPPORT OF ALL CABLES. FURNISH WITH FOUR (4) HOOKS, MINIMUM. PROVIDE A NON-METALLIC, ARAMID FIBER, CLOSED MESH, HEAVY DUTY CORD SUPPORT GRIP FOR EACH CABLE IN THE WET WELL. PROVIDE PRODUCTS OF
   SLINGCO AMERICA, TYRONE, GA. CONTACT CAROLE SYPES, SALES ACCOUNT MANAGER, (888) 685-9478
   OR
   HUBBELL: CONTACT BENNY THOMAS, PRODUCT MANAGER, (475) 882-4326.

G16. REFER TO THE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL ELECTRICAL REQUIREMENTS.

G17. GENERATORS SHALL BE PROPANE FUELED UNITS. COORDINATE PROPANE SUPPLY WITH OWNER'S PREFERRED VENDOR: CONTACT BEAUFORT GAS, PAUL NORRIS, PE, 843-557-0176. FIELD COORDINATE REQUIRED TANK SIZE BASED UPON GENERATOR CONSUMPTION AT FULL LOAD. TANK SHALL PROVIDE A MINIMUM 36HR RUN CAPACITY AT FULL LOAD. COORDINATE WITH GENERATORS PROVIDED.

G18. PROVIDE GREEN EQUIPMENT GROUNDING CONDUCTOR IN ALL RACEWAYS. SEE SPECIFICATIONS.

G19. COORDINATE ALL WORK WITH OTHER TRADES, THE OWNER AND THE ELECTRICAL UTILITY.

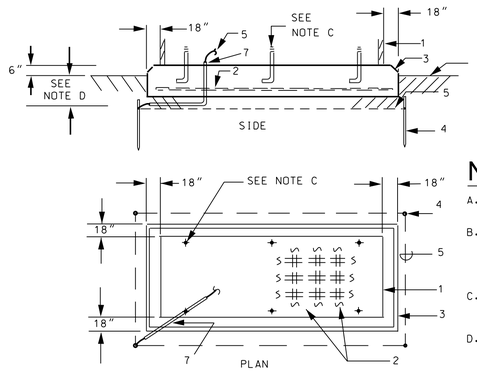
G20. WHERE CONDUCTOR SIZE IS SHOWN FOR CIRCUIT, IT SHALL BE MAINTAINED FOR ENTIRE CIRCUIT.

G21. MAINTAIN 4' CLEAR ON SIDES AND CONTROL PANEL END OF THE GENERATORS AT THE RADIATOR EXHAUST END. MAINTAIN 15' CLEAR.

G22. PROVIDE TEST REPORT FOR THE GENERATOR SETS. TESTING SHALL BE BY THE GENERATOR MANUFACTURER'S LOCAL REPRESENTATIVE.

G23. ENCLOSED CIRCUIT BREAKER SHALL BE U.L. APPROVED FOR USE AS SERVICE ENTRANCE EQUIPMENT, FURNISHED WITH INSULATED BONDED NEUTRAL. PROVIDE WITH HANDLE OPERATOR THAT IS LOCKABLE IN BOTH ON AND OFF POSITIONS.

G24. CONCRETE AROUND ELECTRICAL RACKS, PANELS AND EQUIPMENT SHALL BE 6" THICK MINIMUM, 3000PSI WITH FIBER REINFORCEMENT. CONCRETE SLABS FOR GENERATORS AND PROPANE TANKS SHALL BE CONSTRUCTED PER DETAIL 1/E0.1.



1 - GENERATOR SET ENCLOSURE OUTLINE
2 - REINFORCING STEEL, NOTE A
3 - 1" CHAMFER
4 - 3/4" X 10' COPPERCLAD GROUND ROD AND
5 - #1/0 CU BARE GROUND CONDUCTOR
6 - FINISHED GRADE
7 - 3/4" PVC, SEE NOTE B

NOTES: GENERATOR FOUNDATION DETAIL

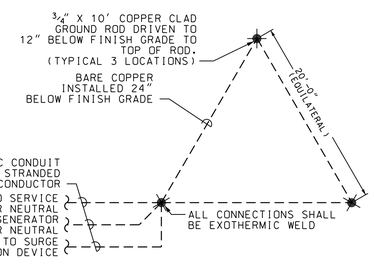
A. #8 GA. STEEL WIRE MESH, 6" O.C. OR #6 REBAR, 12" O.C., VERTICALLY AND HORIZONTALLY.

B. CONNECT TO GENERATOR GROUND CONNECTION LUG. VERIFY STUB UP LOCATION WITH MANUFACTURER'S SHOP DRAWINGS. SEAL CONDUIT END WITH ELECTRICAL DUCT SEAL.

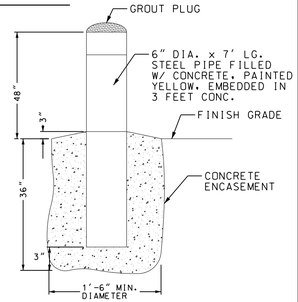
C. ANCHOR BOLTS FURNISHED WITH GENERATOR SET. PROVIDE SIX, MINIMUM. TIE TO REINFORCING STEEL.

D. DIMENSION SHALL BE 6" (12" OVERALL DEPTH) UP TO & INCLUDING 600KW; 12" (18" OVERALL DEPTH) LARGER THAN 600KW.

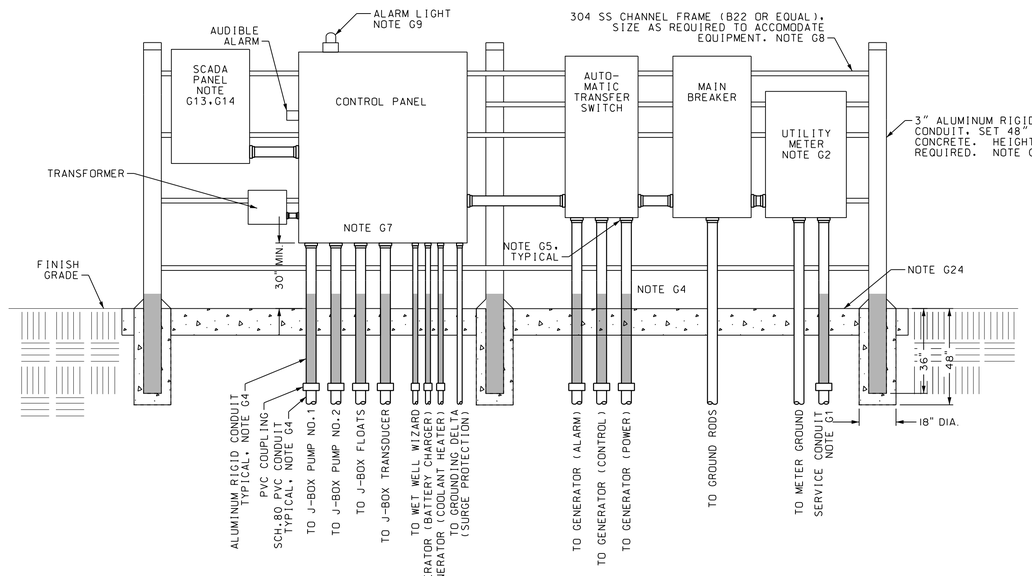
1 GENERATOR FOUNDATION DETAIL
E0.1 NOT TO SCALE



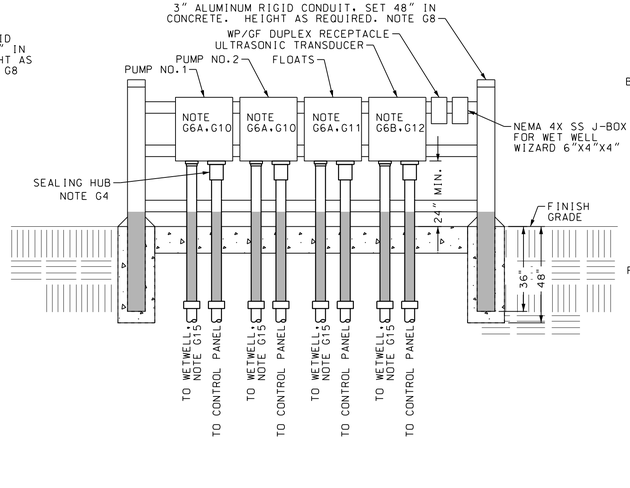
2 SECONDARY ELECTRICAL GROUNDING
E0.1 NOT TO SCALE



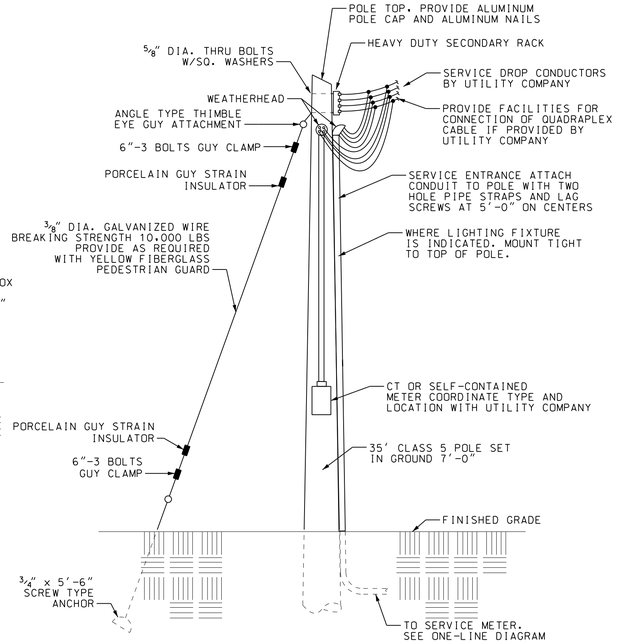
3 BOLLARD DETAIL
E0.1 NOT TO SCALE



4 ELECTRICAL EQUIPMENT RACK ELEVATION
E0.1 NOT TO SCALE



5 JUNCTION BOX FRAME ELEVATION
E0.1 NOT TO SCALE



6 SERVICE POLE DETAIL
E0.1 NOT TO SCALE

SOUTH CAROLINA PROFESSIONAL ENGINEER CHARLES BEVERLEY COBB No. 40028 26 May 2023
SOUTH CAROLINA CHATHAM ENGINEERING COMPANY LLC C04812 CERTIFICATE OF AUTHORIZATION

REV/NO	DATE	DRWN/BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I ELECTRICAL DETAILS & GENERAL NOTES

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	CC	DRAWN	CC
JOB #	17-1007.035	ISSUE DATE	04-2023
ISSUE			100%

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
E0.1

CADD PLOT
29-MAY-2023
13:42
CCOBB

E:\Ridgeland Well No.2 Rehab - 21010.01\CADD\E0.1.dgn

STATE PLANE
S.C. GRID

N Green St

N Jacob Smart Blvd

MATCHLINE TO SHEET 3

MATCHLINE G1.1

PS3 SITE

ACCESS ROAD

063-27-13-019
063-30-01-001
063-27-13-007
063-27-13-008
063-27-13-008
063-27-13-018
063-30-01-001
063-27-13-009
063-27-13-010
063-27-13-012
063-27-13-015
063-27-13-017
063-30-01

17

Plain Bill Rd

N

0 60' 120'
SCALE (In Feet)

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1				
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

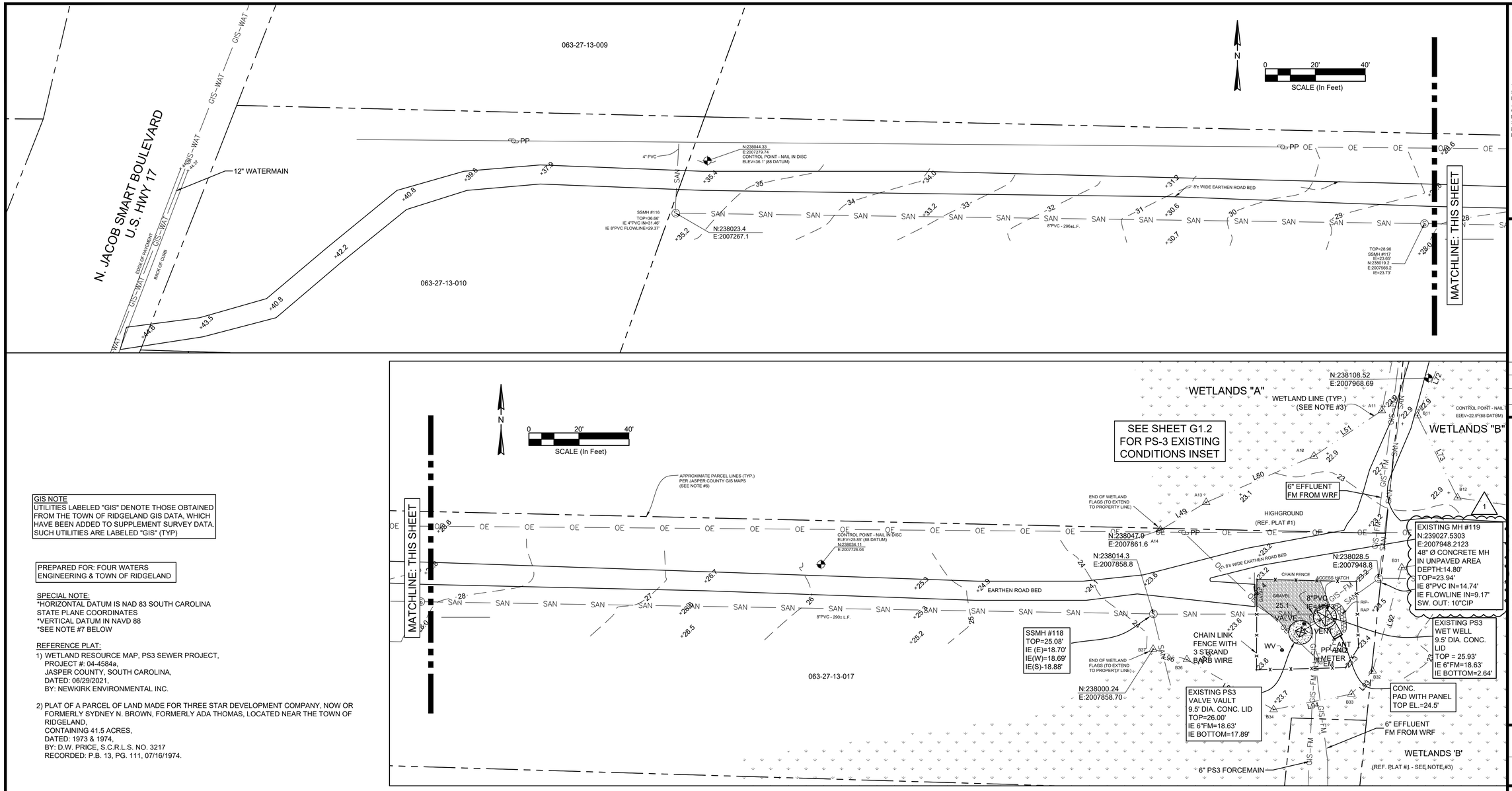
PS-3 PROJECT AREA AND VICINITY

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
ISSUE	BID		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G1.0



GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

PREPARED FOR: FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

SPECIAL NOTE:
*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #7 BELOW

REFERENCE PLAT:
1) WETLAND RESOURCE MAP, PS3 SEWER PROJECT,
PROJECT #: 04-4584a,
JASPER COUNTY, SOUTH CAROLINA,
DATED: 06/29/2021,
BY: NEWKIRK ENVIRONMENTAL INC.

2) PLAT OF A PARCEL OF LAND MADE FOR THREE STAR DEVELOPMENT COMPANY, NOW OR FORMERLY SYDNEY N. BROWN, FORMERLY ADA THOMAS, LOCATED NEAR THE TOWN OF RIDGELAND,
CONTAINING 41.5 ACRES,
DATED: 1973 & 1974,
BY: D.W. PRICE, S.C.R.L.S. NO. 3217
RECORDED: P.B. 13, PG. 111, 07/16/1974.

NOTES:
1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
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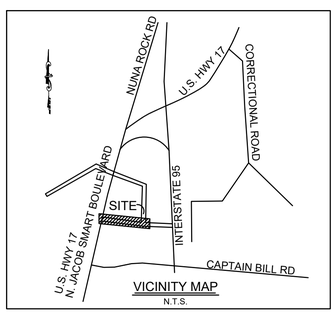
6. NO BOUNDARY LINES AND/OR ROAD RIGHT-OF-WAY LINES WERE NOT ESTABLISHED AS A PART OF THIS SURVEY. THE APPROXIMATE BOUNDARY LINES SHOWN WERE SCALED FROM THE JASPER COUNTY ONLINE GIS MAPPING SERVICE AND WERE NOT FIELD VERIFIED. THIS PLAT SHOULD IN NO WAY BE CONSTRUED AS A BOUNDARY SURVEY.
7. THE HORIZONTAL DATUM SHOWN IS BASED ON NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES. THE VERTICAL DATUM SHOWN IS BASED ON NAVD 88 DATUM. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

LEGEND:

22	CONTOUR
+/-0.5	SPOT ELEVATION
SSMH	SANITARY SEWER MANHOLE
IE	INVERT ELEVATION
PP	POWER POLE
N.T.S .	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
A5	TYPICAL WETLAND FLAG LABEL
PVC	POLYVINYL CHLORIDE PIPE
WV	WATER VALVE
EM	ELECTRIC METER
ANT	ANTENNA
GW	GUY WIRE ANCHOR
CO	CLEANOUT
OHP	OVERHEAD POWERLINE
SAN	SANITARY SEWER LINE



VICINITY MAP
N.T.S.

ASBUILT, TOPOGRAPHIC & WETLAND
EXHIBIT OF
SANITARY SEWER MANHOLES
& PUMP STATION #3
BETWEEN
U.S. HWY 17 & INTERSTATE 95
A SECTION OF
TOWN OF RIDGELAND
JASPER COUNTY, SOUTH CAROLINA
DATE: 08/27/2021 JOB NO: SC210030-PS3

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 826-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

DRBN: JHWW
CAD: A1

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL UPDATES
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-3 OVERALL EXISTING CONDITIONS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	JOB #	17-1007
DRAWN	JMC	ISSUE DATE	FEB 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G1.1

SPECIAL NOTE:
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*VERTICAL DATUM IN NAVD 88
*SEE NOTE #7 BELOW

REFERENCE PLAT:
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PREPARED FOR: FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

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WETLAND LINE TABLE

LINE TABLE		
LINE	LENGTH	BEARING
L49	21.35'	N58°56'14"E
L50	46.87'	N66°45'01"E
L51	32.66'	N56°14'24"E
L52	60.92'	N11°29'39"E
L53	78.19'	N05°12'42"E
L54	67.30'	N05°22'32"E
L55	86.13'	N08°36'21"E
L56	63.74'	N03°46'13"W
L57	63.59'	N04°50'12"E
L58	82.03'	N01°39'25"W
L59	65.81'	N04°15'50"W
L60	108.69'	N02°05'22"W
L61	33.98'	N01°57'17"W
L62	9.29'	N71°14'28"E
L63	43.04'	S04°32'40"E
L64	101.31'	S04°06'08"E
L65	63.31'	S01°54'48"E
L66	84.34'	S03°09'48"E
L67	67.44'	S10°51'35"E
L68	73.05'	S10°03'25"W

LINE TABLE		
LINE	LENGTH	BEARING
L69	84.07'	S04°39'15"W
L70	77.51'	S06°54'56"W
L71	91.26'	S06°20'55"W
L72	33.49'	S22°46'57"W
L73	36.48'	S26°02'40"E
L74	58.69'	S81°46'50"E
L75	70.02'	S87°12'34"E
L76	80.24'	S86°12'04"E
L77	86.25'	N88°45'40"E
L78	77.47'	S86°30'36"E
L79	111.09'	N84°16'58"E
L80	11.15'	S83°40'45"E
L81	24.48'	S08°20'00"W
L82	10.81'	N63°57'06"W
L83	24.73'	S49°28'26"W
L84	25.06'	S70°34'15"W
L85	45.14'	N67°34'54"W
L86	39.20'	N85°44'09"W
L87	95.80'	N89°55'50"W
L88	94.49'	N88°20'35"W

LINE TABLE		
LINE	LENGTH	BEARING
L89	81.81'	N84°37'19"W
L90	88.43'	S89°00'40"W
L91	19.16'	S80°54'48"W
L92	42.90'	S15°44'09"W
L93	12.53'	S42°42'14"W
L94	31.65'	N78°45'05"E
L95	39.99'	N60°03'14"W
L96	14.13'	N72°52'20"W

PHOTO LEGEND:
DENOTES PHOTO LOCATION AND DIRECTION

WETLANDS "A"
WETLANDS "B"
WETLAND LINE (TYP.) (SEE NOTE #3)
N:238108.52
E:2007968.69
6" EFFLUENT FM FROM WRF
214± L.F.
N:238047.9
E:2007861.6
N:238014.3
E:2007858.8
N:238028.5
E:2007948.8
EARTHEN ROAD BED
DOUBLE GATE
ACCESS HATCH
GRAVEL
8"PVC
VALVE
VENT
ANT
WV
PP AND METER
EM
EXISTING MH #119
N:239027.5303
E:2007948.2123
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:14.80'
TOP=23.94'
IE 8"PVC IN=14.74'
IE FLOWLINE IN=9.17'
SW. OUT: 10"CIP
EXISTING PS3
WET WELL
9.5' DIA. CONC. LID
TOP = 25.93'
IE 6"FM=18.63'
IE BOTTOM=2.64'
SSMH #118
TOP=25.08'
IE (E)=18.70'
IE(W)=18.69'
IE(S)-18.88'
CHAIN LINK FENCE WITH 3 STRAND BARB WIRE
CONC. PAD WITH PANEL TOP EL.=24.5'
EXISTING PS3
VALVE VAULT
9.5' DIA. CONC. LID
TOP=26.00'
IE 6"FM=18.63'
IE BOTTOM=17.89'
N:238000.24
E:2007858.70
6" PS3 FORCEMAIN
6" EFFLUENT FM FROM WRF
0 10' 20'
SCALE (In Feet)

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

LEGEND:

22 / +22.5	CONTOUR / SPOT ELEVATION
SSMH	SANITARY SEWER MANHOLE
IE	INVERT ELEVATION
PP	POWER POLE
N.T.S.	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
A5	TYPICAL WETLAND FLAG LABEL
PVC	POLYVINYL CHLORIDE PIPE
WV	WATER VALVE
EM	ELECTRIC METER
ANT	ANTENNA
GW	GUY WIRE ANCHOR
CO	CLEANOUT
OHP	OVERHEAD POWERLINE
SAN	SANITARY SEWER LINE

VICINITY MAP
N.T.S.
NUNA ROCK RD
U.S. HWY 17
CORRECTIONAL ROAD
U.S. HWY 17 N. JACOB SMART BOULEVARD
INTERSTATE 95
SITE
CAPTAIN BILL RD

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-3 INSET EXISTING CONDITIONS AND KEY
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
	JOB # 17-1007	ISSUE DATE FEB 2023	BID

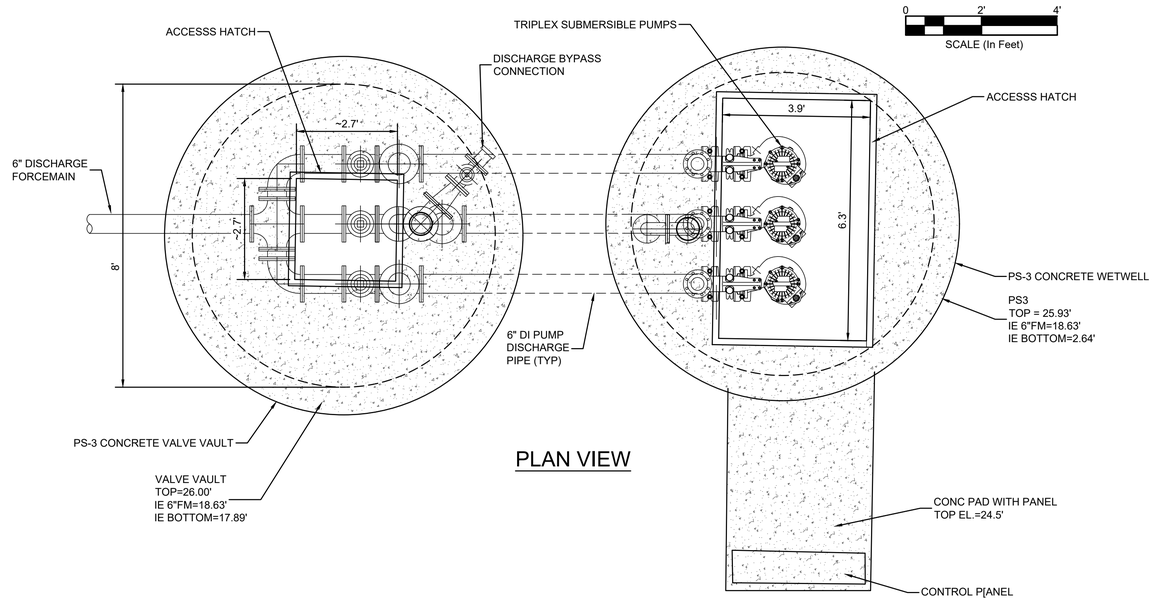
ASBUILT, TOPOGRAPHIC & WETLAND
EXHIBIT OF
SANITARY SEWER MANHOLES & PUMP STATION #3
BETWEEN
U.S. HWY 17 & INTERSTATE 95
A SECTION OF
TOWN OF RIDGELAND
JASPER COUNTY, SOUTH CAROLINA
DATE: 08/27/2021 JOB NO: SC210030-PS3

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 826-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

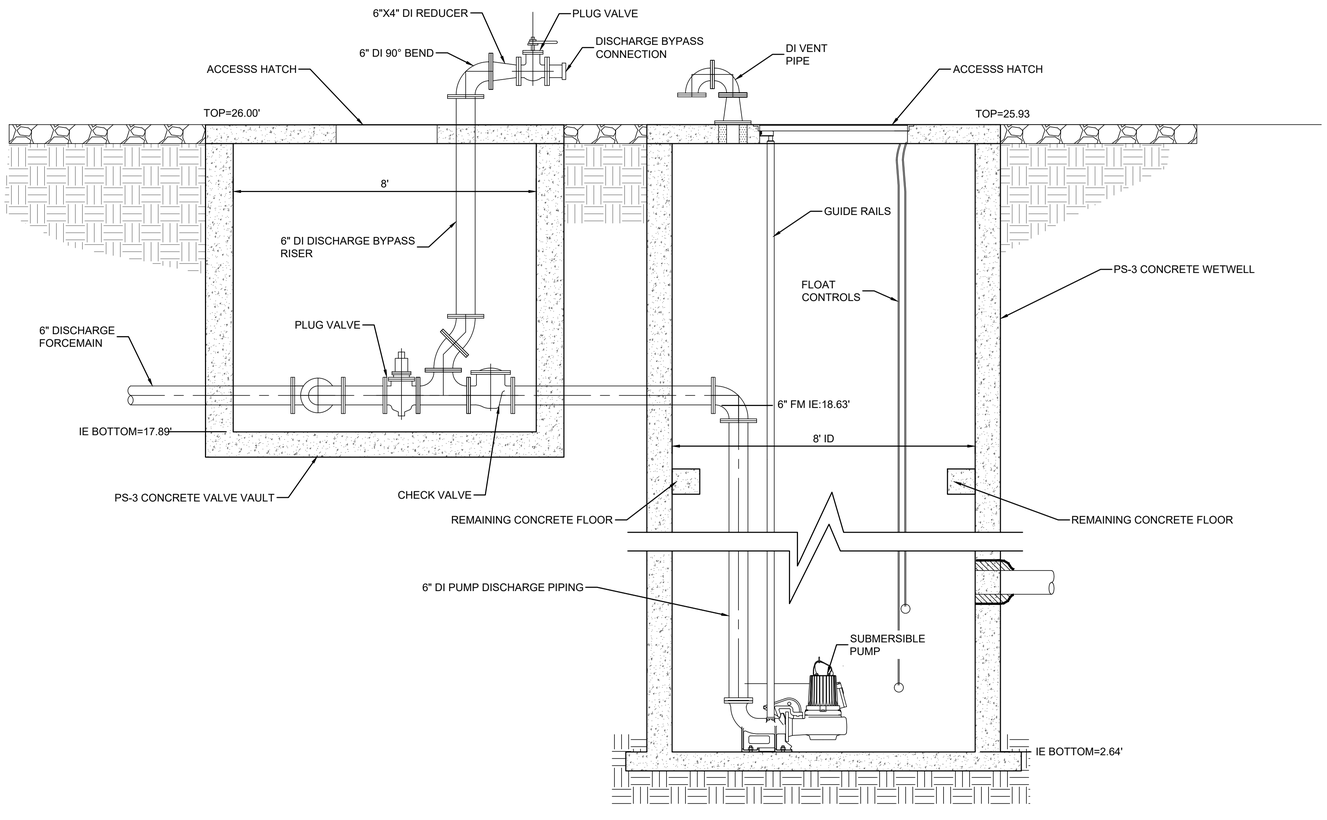
CREW: JH/MW CAD: AT

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G1.2



PLAN VIEW



PROFILE

PHOTO-1

LOOKING DOWN IN WET WELL

PHOTO-2

LOOKING DOWN IN WET WELL

PHOTO-3

LOOKING DOWN IN VALVE VAULT

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

PS-3 EXISTING CONDITIONS DETAIL

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

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G1.3

PHOTO-4

LOOKING SOUTHEAST AT WET WELL AND VALVE VAULT

PHOTO-5

LOOKING SOUTHEAST AT WET WELL

PHOTO-10

LOOKING WEST TOWARD ACCESS ROAD FROM PUMP STATION SITE

PHOTO-6

LOOKING SOUTHWEST FROM WET WELL TO VALVE VAULT

PHOTO-7

LOOKING DOWN IN WET WELL

PHOTO-8

LOOKING SOUTHWEST FROM WET WELL TO VALVE VAULT

PHOTO-9

LOOKING NORTH

PHOTO-11

PS-3 ACCESS ROAD OFF N. JACOB SMART BLVD (US HWY 17) LOOKING EAST
FROM GOOGLE CAPTURE MAY 2023

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 21839
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CERTIFICATE OF AUTHORIZATION
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-3 EXISTING CONDITIONS SITE PHOTOS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

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DRAWN JMC			

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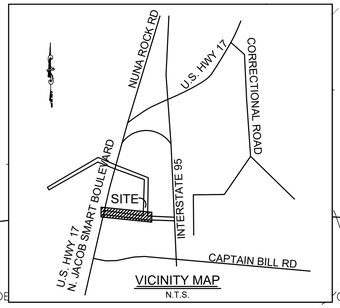
DRAWING NUMBER
G1.4

	DESCRIPTION
	DENOTES LIMITS OF DISTURBANCE FOR PS-3 (17391 SF)
SF	SILT FENCE
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED
	DENOTES EARTHEN ROAD BED ACCESS ROAD
	DENOTES SITE GRAVEL BED



VICINITY MAP
N.T.S.

INSTALL SINGLE ROW SILT FENCE

DENOTES LIMITS OF DISTURBANCE

EXISTING WRF EFFLUENT FORCEMAIN

REMOVE ALL PUMPS, PIPING, FITTINGS AND FLOAT SWITCHES, AND ALL OTHER ACCESSORIES AND EQUIPMENT FROM WET WELL. SEE DRAWING C1.2.

EXISTING MH #119
N:239027.5303
E:2007948.2123
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:14.80'
TOP=23.94'
IE 8"PVC IN=14.74'
IE FLOWLINE IN=9.17'
SW. OUT: 10"CIP

REMOVE GRAVEL FROM PS-3 SITE FOR CONSTRUCTION OPERATIONS. MAY BE USED FOR RESTORATION

REMOVE PIPING BETWEEN VALVE VAULT AND WET WELL

REMOVE ALL PIPING AND VALVES FROM VALVE VAULT

REMOVE 18 LF 8" PVC GRAVITY SEWER. PHASE DEMOLITION AS NECESSARY.

REMOVE EXISTING WET WELL STRUCTURE PER NOTES ON DRAWING C1.2. PHASE DEMOLITION AS NECESSARY.

REMOVE RIP RAP

REMOVE 37 LF 10" CIP GRAVITY SEWER. PHASE DEMOLITION AS NECESSARY.

INSTALL SINGLE ROW SILT FENCE

REMOVE EXISTING VALVE VAULT STRUCTURE PER NOTES ON DRAWING C1.2. PHASE DEMOLITION AS NEEDED.

DENOTES LIMITS OF DISTURBANCE

EXISTING PS3 WET WELL
9.5' DIA. CONC. LID
TOP = 25.93'
IE 6"FM=18.63'
IE BOTTOM=2.64'

SSMH #118
TOP=25.08'
IE (E)=18.70'
IE(W)=18.69'
IE(S)-18.88'

REMOVE EXISTING CHAIN LINK FENCING AND GATES. CONTRACTOR TO MAINTAIN SECURITY OF SITE AT ALL TIMES.

CHAIN LINK FENCE WITH 3 STRAND BARB WIRE

REMOVE 63 LF 6" EFFLUENT FORCEMAIN FOR REROUTE. PHASE DEMOLITION AS NECESSARY AND COORDINATE WITH WRF OPERATOR.

REMOVE CONCRETE PAD AND ELECTRICAL PANELS AND SCADA ANTENNA. PHASE DEMOLITION AS NECESSARY. REFERENCE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

EXISTING PS3 VALVE VAULT
9.5' DIA. CONC. LID
TOP=26.00'
IE 6"FM=18.63'
IE BOTTOM=17.89'

CONC. PAD WITH PANEL TOP EL.=24.5'

REMOVE 27 LF 6" PS3 FORCEMAIN. PHASE DEMOLITION AS NECESSARY.

CONTRACTOR TO LOCATE EXISTING PS3 FORCEMAIN AND EXISTING WRF EFFLUENT FORCEMAIN.

DENOTES LIMITS OF DISTURBANCE

INSTALL APPROXIMATELY 160 LF OF DOUBLE ROW SILT FENCE

EXISTING 6" PS3 DISCHARGE FORCEMAIN

EXISTING 6" WRF EFFLUENT FORCEMAIN

477 LF TO CAPTAIN BILL CREEK

SCALE (In Feet) 0 5' 10'

N

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-3 DEMOLITION PLAN SITE PLAN
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID

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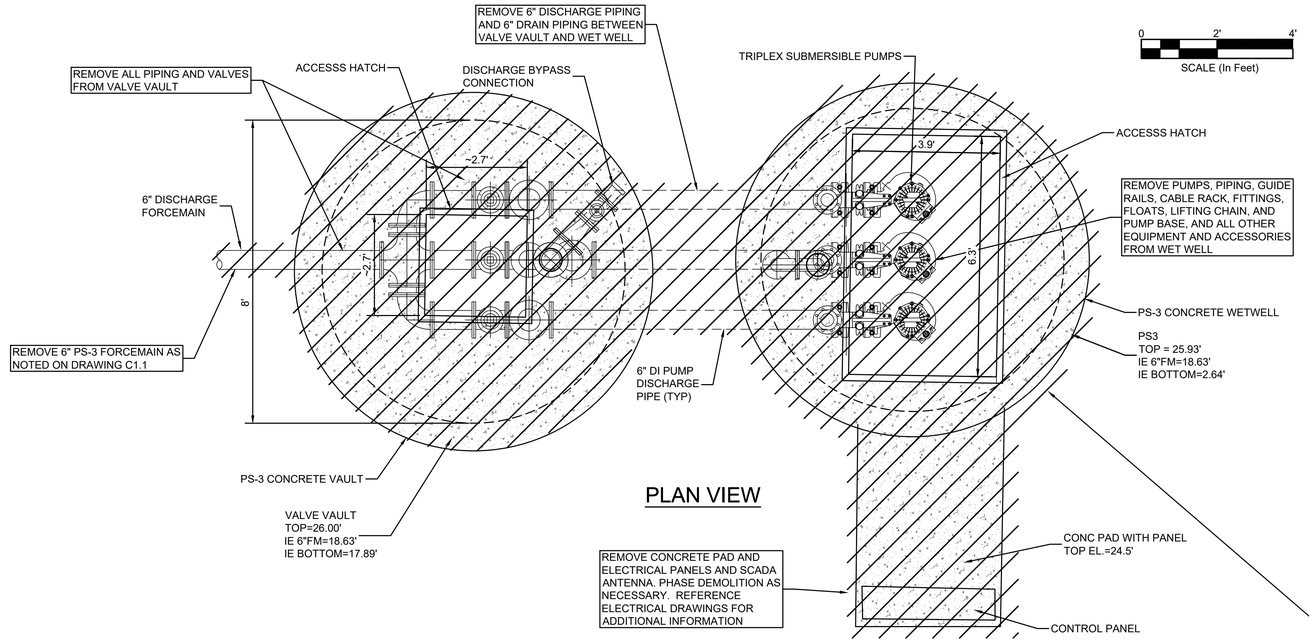
DRAWING NUMBER
C1.1



	DESCRIPTION
▨	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

DEMOLITION NOTES:

1. ALL NECESSARY TEMPORARY BYPASS OPERATIONS SHALL BE IN PLACE AND OPERATIONAL PRIOR TO INITIATING DEMOLITION ACTIVITIES.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. CONTRACTOR SHALL COORDINATE WITH TOWN OF RIDGELAND PROJECT REPRESENTATIVE REGARDING EQUIPMENT TO BE RETAINED BY TOWN WHICH SHALL BE DELIVERED TO THE JIMMY MIXSON WRF AT 366 PREACHER STREET. UNLESS SO IDENTIFIED, ALL OTHER EQIUPMENT AND MATERIALS TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
4. PRIOR TO DEMOLITION OR REMOVAL OF STRUCTURES USED FOR WASTEWATER, ALL WASTEWATER AND SOLIDS SHALL BE REMOVED FROM THE STRUCTURE AND PROPERLY DISPOSED.
5. REMOVAL OF EXISTING STRUCTURES: REMOVAL OF WET WELL, VALVE VAULT AND OTHER STRUCTURES SHALL BE THE COMPLETE REMOVAL OF THE STRUCTURE. THE EXISTING STRUCTURE SHALL BE REMOVED FROM THE SITE. ANY OR ALL EXISTING PIPES IN AND OUT OF THE STRUCTURE NOT TO BE REROUTED OR CONNECTED TO THE NEW WET WELL SHALL BE REMOVED OR GROUT FILLED. ANY VOID LEFT BY THE STRUCTURE REMOVAL SHALL BE FILLED WITH CLEAN COMPACTED STRUCTURAL FILL TO 100% OF MAXIMUM DENSITY AS DETERMINED BY THE LABORATORY STANDARD PROCTER TEST, ASTM D698. A TOLERANCE OF MINUS 2% WILL BE ALLOWED IN THE COMPACTIVE EFFORT.

1

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-3 DEMOLITION PLAN SITE PLAN DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	DRAWN	JMC
JOB #	17-1007		
ISSUE DATE	FEB 2023	ISSUE	BID

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DRAWING NUMBER
C1.2

063-27-13-009

063-27-13-010

063-27-13-012

063-27-13-015

063-27-13-017

063-30-01-001

ACCESS ROAD IMPROVEMENTS WITH 8" SCDOT CRUSHED AGGREGATE OR CRUSH CRETE. SEE DETAIL DRAWING D8.1

CONTROL POINT - NAIL IN DISC
ELEV=36.1' (88 DATUM)
N:238044.33
E:2007279.74

INSTALL APPROXIMATELY 1757 LF OF SINGLE ROW SILT FENCE TO PS-3 SITE

LIMITS OF DISTURBANCE

INSTALL 12"X2" TAP FOR 2" WATER SERVICE. SEE DETAIL

N. JACOB SMART BOULEVARD
U.S. HWY 17

REMOVE AND RESTORE CONCRETE CURB AND GUTTER SIDEWALK AND DRIVEWAY APPROACH AT US HIGHWAY 17. EXTEND CONCRETE DRIVEWAY (8' WIDTH) 5' INTO PROPERTY. CONSTRUCTION SHALL BE IN ACCORDANCE WITH SCDOT STANDARD 720-405-00

MATCH EXISTING GRADES AT US HIGHWAY 17 AND PROPOSED ACCESS ROAD IMPROVEMENTS

TTC: 610-025-00
LANE CLOSURE DAYTIME
MULTILANE
PRIMARY ROUTES

TOTAL 850 SQUARE YARDS ACCESS ROAD IMPROVEMENTS

LIMITS OF DISTURBANCE

8± WIDE EARTHEN ROAD BED

MATCHLINE: THIS SHEET BELOW LEFT

	DESCRIPTION
— SF —	SILT FENCE
- - - - -	DENOTES LIMITS OF DISTURBANCE FOR PS-3 (17391 SF)

N

0 20' 40'
SCALE (In Feet)

1

SEE SHEET C1.4 FOR PS-3 PROPOSED SITE IMPROVEMENTS

ACCESS ROAD IMPROVEMENTS WITH 8" SCDOT CRUSHED AGGREGATE OR CRUSH CRETE. SEE DETAIL DRAWING D8.1

APPROXIMATE PARCEL LINES (TYP.) PER JASPER COUNTY GIS MAPS (SEE NOTE #6)

CONTROL POINT - NAIL IN DISC
ELEV=25.85' (88 DATUM)
N:238034.11
E:2007726.04

MATCHLINE: THIS SHEET ABOVE RIGHT

8± WIDE EARTHEN ROAD BED

N:238019.2
E:2007566.2

LIMITS OF DISTURBANCE

SSMH #118
TOP=25.08'
IE (E)=18.70'
IE(W)=18.69'
IE(S)-18.88'

SEE DRAWING C1.4 FOR 2" WATER SERVICE CONTINUATION

EXISTING PS3 VALVE VAULT
9.5 'DIA. CONC. LID
TOP=26.00'
IE 6"FM=18.63'
IE BOTTOM=17.89'
TO BE REMOVED

N:238047.9
E:2007861.6

N:238014.3
E:2007858.8

N:238000.24
E:2007858.70

N:238028.5
E:2007948.8

HIGHGROUND
(REF. PLAT #1)

END OF WETLAND FLAGS (TO EXTEND TO PROPERTY LINE)

WETLANDS 'B'
(REF. PLAT #1 -'SEE NOTE #3)

EXISTING MH #119
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:14.80'
TOP=23.94'
IE 8"PVC IN=14.74'
IE FLOWLINE IN=9.17'
SW. OUT: 10"CIP

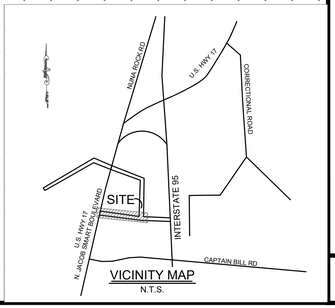
CONC.
PAD WITH PANEL
TOP EL.=24.5'
TO BE REMOVED

EXISTING PS3
WETWELL
9.5' DIA. CONC. LID
TOP = 25.93'
IE 6"FM=18.63'
IE BOTTOM=2.64'
TO BE REMOVED

477 LF TO CAPTAIN BILL CREEK

MATCHLINE TO SHEET 2

MATCHLINE TO SHEET 1



VICINITY MAP
N.T.S.

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-3 PROPOSED ENTRANCE ROAD IMPROVEMENTS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN
ABB	JMC

JOB #	17-1007
ISSUE DATE	FEB 2023
ISSUE	BID

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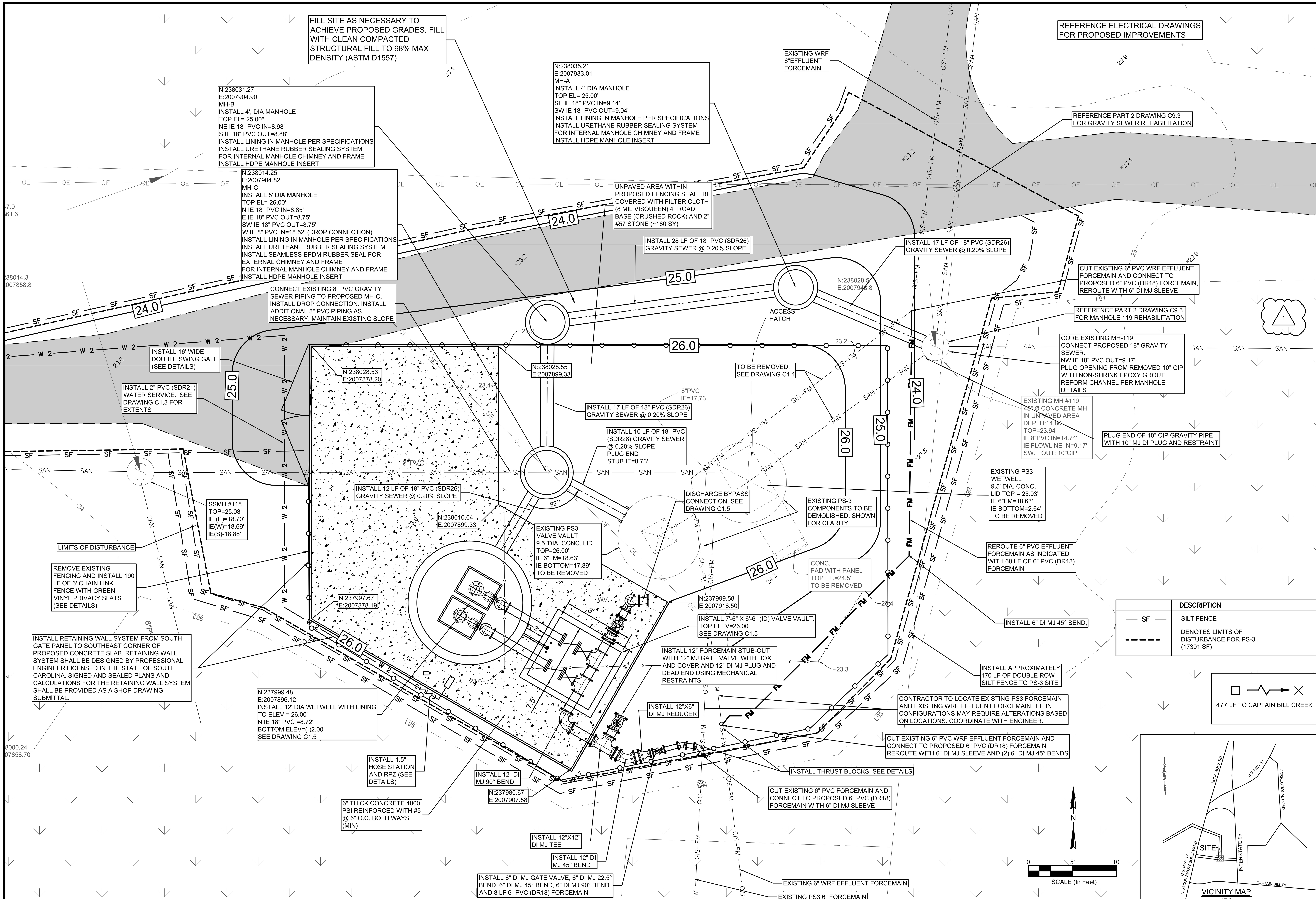
C1.3



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3				
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

PS-3 PROPOSED IMPROVEMENTS PLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	DRAWN	JMC
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

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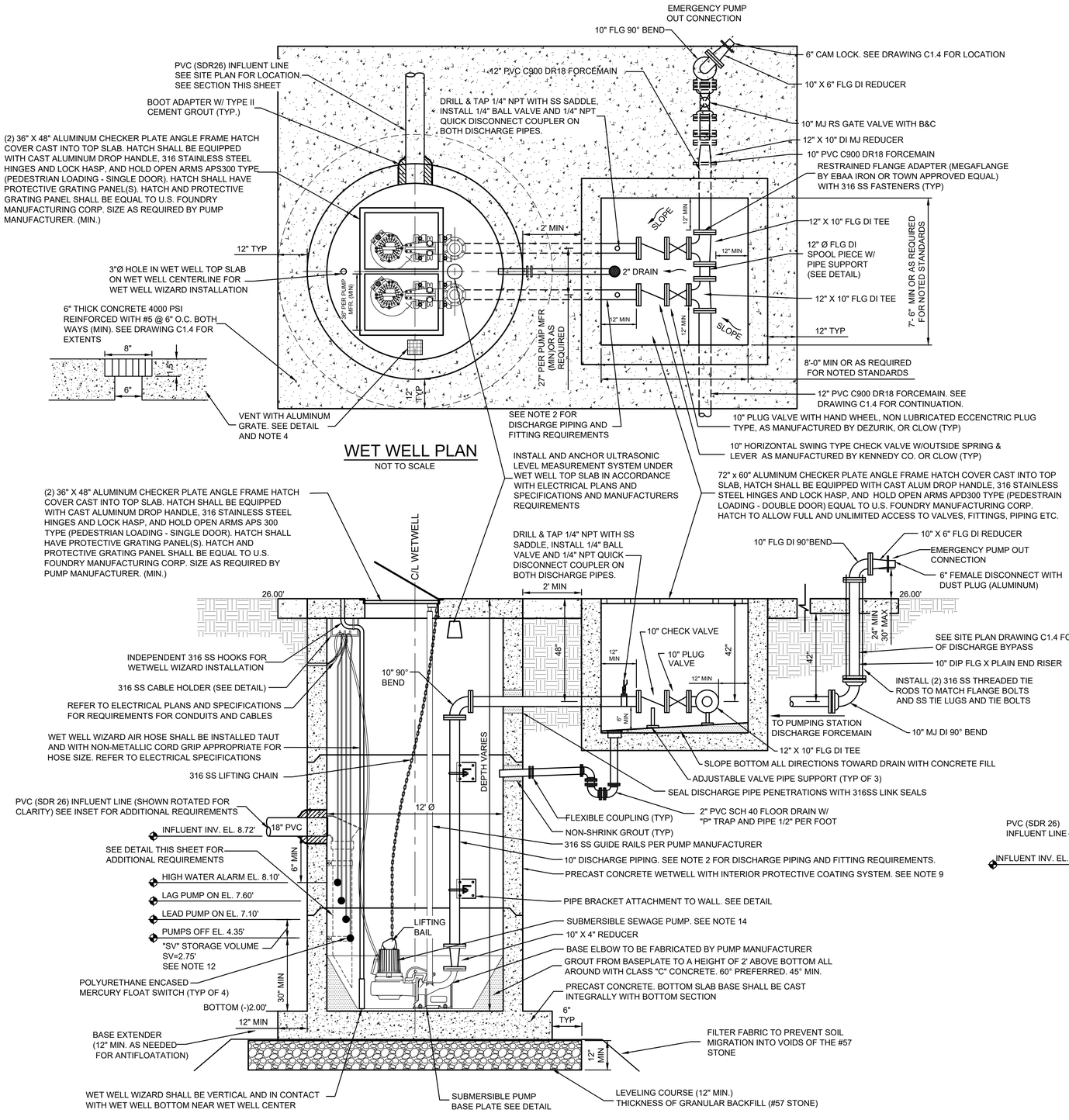
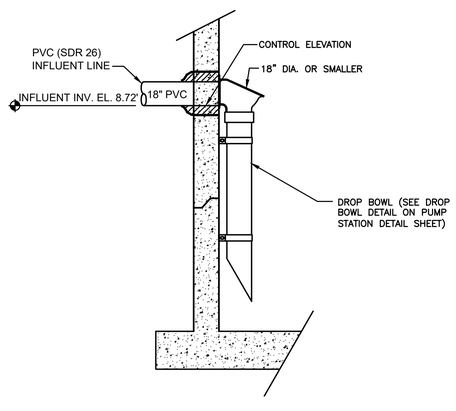
LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-1\X\CDS\PS-3\C1.3 ETC.DWG
PLOT DATE AND TIME: 6/1/2023 7:05:39 PM



WET WELL PLAN
NOT TO SCALE

WET WELL PROFILE
NOT TO SCALE



INFLUENT SECTION
NOT TO SCALE

GENERAL NOTES

1. ALL METALS INSIDE THE WET WELL INCLUDING BUT NOT LIMITED TO GUIDE RAILS, LIFTING CHAINS, NUTS, BOLTS, CABLE HOLDERS, PIPE SUPPORTS AND BRACES, ETC., TO BE 316 STAINLESS STEEL, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. PUMP DISCHARGE PIPING AND FITTINGS: DISCHARGE PIPING AND FITTINGS FROM PUMP ELBOW THROUGH TO CHECK VALVE IN VALVE VAULT SHALL BE A MINIMUM 4" (UNLESS APPROVED OTHERWISE BY TOWN) AND SHALL BE:
   a. FUSED PVC PIPE AND STAINLESS STEEL FITTINGS: PVC PIPE SHALL BE C900 DR18 AND SHALL BE FUSED AS ONE PIECE BETWEEN PUMP BASE ELBOW AND 90 DEGREE BEND IN WET WELL, AND FROM 90 DEGREE BEND IN WET WELL TO CHECK VALVE IN VALVE VAULT. 90 DEGREE BEND IN WET WELL SHALL BE FLANGED 316 STAINLESS STEEL, SCH 40. PVC PIPING ENDS SHALL UTILIZE RESTRAINED FLANGE ADAPTER (MEGAFLANGE BY EBAA IRON OR TOWN APPROVED EQUAL) WITH 316 SS FASTENERS TO CONNECT TO PUMP BASE ELBOW, 90 DEGREE BEND, AND CHECK VALVE.
3. AERATION SYSTEM: WET WELL WIZARD SYSTEM AS MANUFACTURED BY RELIANT WATER TECHNOLOGIES, NEW ORLEANS, LA. WWW.RELIANTWATER.US.COM SHALL BE INSTALLED IN WET WELL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. WET WELL WIZARD SYSTEM SHALL INCLUDE (1) WET WELL WIZARD, (1) 1.5 HP BLOWER, AND ALL NECESSARY ASSOCIATED EQUIPMENT.
4. VENT: PROVIDE 6"X6" OPENING THROUGH THE CONCRETE TOP OF THE WET WELL AND INSERT 8"X 8" X 1-1/2" THICK ALUMINUM GRATE VENT CONSTRUCTED OF 1-1/2" WIDE X 1/8" MATERIAL.
5. FITTINGS: ALL DUCTILE IRON FITTINGS SHALL BE EPOXY LINED. ALL BURIED FITTINGS SHALL BE RESTRAINED.
6. LEVEL MONITORING: INSTALL ULTRASONIC LEVEL MEASUREMENT SYSTEM IN ACCORDANCE WITH ELECTRICAL PLANS AND SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS. PROVIDE FOUR BACKUP POLYURETHANE ENCASED MERCURY FLOAT SWITCHES FOR PUMPS OFF, LEAD PUMP ON, LAG PUMP ON, AND HIGH WATER ALARM.
7. WET WELL: PRECAST CONCRETE WET WELL SHALL MEET ASTM C-478 STANDARD. CONCRETE, REINFORCING STEEL, AND BUOYANCY DESIGN AND CALCULATIONS TO BE PREPARED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH THE SHOP DRAWINGS.
8. WET WELL AND MANHOLES: ALL EXTERIOR JOINTS OF PRECAST CONCRETE WET WELL AND MANHOLES SHALL BE SEALED WITH A 18" WIDE RUBBERIZED ASPHALT MEMBRANE TAPE. EXTERIOR COATING OF BITUMINOUS COATING AS SPECIFIED IN ANSI SPECIFICATIONS A21.51 SHALL BE APPLIED TO WET WELL AND MANHOLES.
9. INTERIOR PROTECTIVE COATINGS: PROTECTIVE COATING SHALL BE APPLIED TO THE INTERIOR OF WET WELLS AND RECEIVING MANHOLES. COATING SYSTEM IN WET WELL SHALL BE APPLIED TO VERTICAL WALLS AND TOP, AT A MINIMUM. PROTECTIVE COATING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND SHALL BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND BY INSTALLER CERTIFIED BY COATING SYSTEM MANUFACTURER.
10. EMERGENCY PUMP OUT CONNECTION: PIPE SIZE FOR EMERGENCY PUMP OUT CONNECTION SHALL MATCH PUMP DISCHARGE PIPE SIZE IN WET WELL.
11. GEOTECHNICAL DATA:
    a. REFERENCE PROJECT GEOTECHNICAL REPORT "RIDGELAND PUMP STATIONS, RIDGELAND, SOUTH CAROLINA" JANUARU 28, 2022 TERRACON PROJECT No HG215050.
    b. IN SILTS, CLAY OR HIGHLY ORGANIC SOILS (FINE-GRAINED SOILS INCLUDING SOIL GROUPS ML, CL, OL, MH, CH, OH AND PT) THE SOILS SHALL BE OVER-EXCAVATED AN ADDITIONAL 12", AT A MINIMUM, OR PER GEOTECHNICAL REPORT RECOMMENDATIONS, AND BACKFILLED WITH GRANULAR BACKFILL (57 STONE).
12. "SV" – STORAGE VOLUME: STORAGE VOLUME PER DESIGN ENGINEER OF RECORD AND SHALL BE DESIGNED FOR A MAXIMUM SIX (6) STARTS PER HOUR, 10 MINUTE CYCLE TIME.
13. MIN. WATER LEVEL: MINIMUM WATER LEVEL IN WET WELL SHALL BE 30" MINIMUM FOR PROPER OPERATION OF THE WET WELL WIZARD, SHALL COVER TOP OF PUMP MOTOR, OR SHALL BE GREATER IF RECOMMENDED BY PUMP MANUFACTURER.
14. SUBMERSIBLE SEWAGE PUMPS:
    a. PUMPS SHALL BE SULZER ABS PUMPS SUITABLE FOR SUBMERSIBLE SEWER SERVICE. PUMPS SHALL BE 230/460 VOLTS, 3 PHASE, 60 HERTZ MOTORS.
    b. PUMP BASE ELBOW: BASE ELBOW TO BE FABRICATED BY PUMP MANUFACTURER.
15. FLOOD ZONE: DESIGN ENGINEER OF RECORD SHALL PROVIDE INFORMATION ON THE FLOOD ZONE OF THE PUMP STATION SITE AND SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WET WELL IS ABOVE THE 100 YEAR FLOOD ELEVATION AND THAT THE BOTTOM OF THE CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB AREA ALL ABOVE THE 100 YEAR FLOOD ELEVATION + 2 FEET OR THE 500 YEAR FLOOD ELEVATION, WHICHEVER IS GREATER.
16. PS-3 PROJECT SITE LOCATED IN ZONE X AREA OF MINIMAL FLOODING (NO ESTABLISHED FLOOD ELEVATIONS) PER FEMA FIRM MAP NO. 45053C0305D PANEL 305 OF 575 OCTOBER 18, 2019.
17. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ELEVATIONS AND DIMENSIONS CALLED OUT ON THIS PLAN SET FOR THE PUMP STATION PRIOR TO ORDERING OF ANY MATERIALS OR COMPONENTS OF THE PUMP STATION. ANY DEVIATION OF THE LAYOUTS INDICTED ON THIS PLAN MUST BE COMMUNICATED TO THE TOWN AND ENGINEER OF RECORD FOR FURTHER DIRECTION.
18. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY STABILIZATION FOR DEMOLITION AND CONSTRUCTION AND SHALL HIRE A SPECIALTY PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA TO DESIGN THE STABILIZATION SYSTEM FOR EXCAVATION AND EVALUATE THE DRAWDOWN OF THE DEWATERING OPERATIONS DURING CONSTRUCTION IN ORDER TO PROTECT THE EXISTING PS-12 STRUCTURES. DESIGN AND EVALUATION SHALL BE SIGNED AND SEALED AND SUBMITTED TO THE TOWN OF RIDGELAND AND ENGINEER OF RECORD.
19. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING OPERATIONS, THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN FOR APPROVAL AND SHALL SECURE ANY NECESSARY SCDHEC PERMIT.
20. PUMP STATION SITE SHALL HAVE CONCRETE SLAB AROUND WET WELL VALVE VAULT AND PANEL AREAS AS NOTED. PROVIDE 1/2" EXPANSION JOINT MATERIAL BETWEEN WET WELL AND SLAB AND VALVE VAULT AND SLAB. CONCRETE SLAB SHALL BE 4000 PSI CONCRETE WITH REINFORCEMENT AS PER DRAWINGS.
21. RESTORE ALL ARES DISTURBED BY CONSTRUCTION TO PRE CONSTRUCTION CONDITION. HYDROSEED AND MULCH ALL UNPAVED AREAS OUTSIDE OF FENCING. REFERENCE DRAWING C7.3 FOR RESTORATION REQUIREMENTS INSIDE PUMP STATION FENCING.

*PUMP STATION: TOWN OF RIDGELAND PS-3
*LOCATION: HWY 17; 11306 N. JACOB SMART BLVD.
DESIGN CONDITION: 900 GPM @ 99 FT TDH
*PUMP MANUFACTURER: SULZER
*MODEL#: XFP105J-CB2 15 1/3" IMP
SERIAL#:
HORSEPOWER: 57.7 HP
VOLTAGE:
DATE INSTALLED:
*ENGINEER: FOUR WATERS ENGINEERING INC.
CONTRACTOR:
*INFORMATION REQUIRED ON CONSTRUCTION PLANS. REMAINING INFORMATION REQUIRES ASBUILT

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL UPDATES
2				
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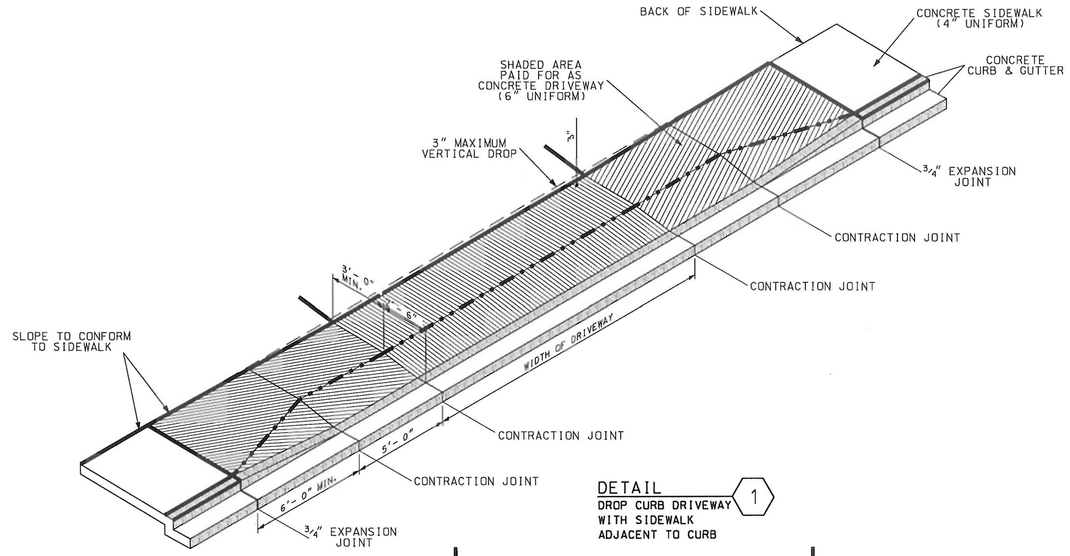
WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-3 PROPOSED IMPROVEMENTS DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

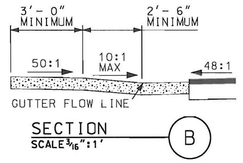
DRAWING NUMBER
C1.5



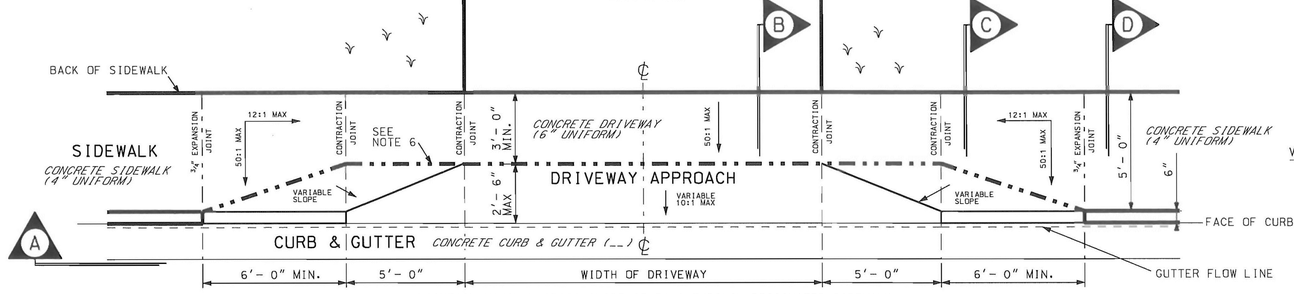
DETAIL 1
DROP CURB DRIVEWAY WITH SIDEWALK ADJACENT TO CURB

NOTES:

1. PROVIDE ADDITIONAL CONTRACTION JOINTS WITHIN DRIVEWAY WIDTH AS SPECIFIED IN SCDOT STANDARD SPECIFICATIONS, SECTION 720.
2. DRIVEWAYS TO BE CONSTRUCTED WHERE DESIGNATED BY THE RESIDENT CONSTRUCTION ENGINEER.
3. CONCRETE CURB THROUGH DRIVEWAY TO BE MEASURED AND PAID FOR AS CURB & GUTTER EVEN WHEN CURB IS DROPPED.
4. ALL SIDEWALKS ARE TO BE CONSTRUCTED ON A 50:1 MAX. CROSS SLOPE. ALL OTHER SLOPES OF RAMPS AND DRIVEWAYS ARE TO BE A 12:1 MAX UNLESS NOTED OTHERWISE.
5. SIDEWALK SHALL BE BUILT IN ACCORDANCE WITH THE REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY (NOVEMBER 23, 2005).
6. METAL KEYWAY STYLE JOINTS MAY BE INSTALLED BETWEEN DRIVEWAY APPROACH AND SIDEWALK TO ACHIEVE LINE AND GRADE. KEEP METAL JOINT MATERIAL FLUSH WITH OR BELOW ELEVATION OF CONCRETE.
7. FOR CURB OR INTEGRAL CURB DETAILS SEE STANDARD DRAWING NO. 720-105-00.
8. THE PAY ITEMS SHALL BE:
7205000 CONCRETE DRIVEWAY (6"UNIFORM) _____SY
7203XXX CONCRETE CURB & GUTTER ( )_____LF
7204100 CONCRETE SIDEWALK (4"UNIFORM)_____SY

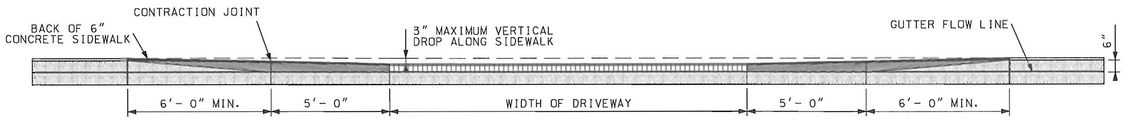


SECTION B
SCALE 3/16":1'



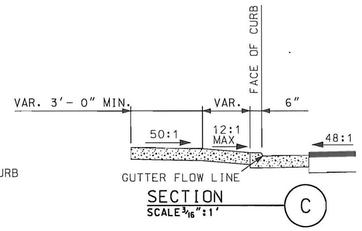
MAINTAIN MAXIMUM CROSS SLOPE OF 50:1 THROUGH DESIGNATED SIDEWALK

DETAIL 2
SCALE 3/16":1'
DRIVEWAY PLAN

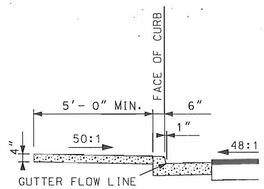


6' MINIMUM IS ONLY IF CURB LINE IS ON 0% GRADE. THIS FIGURE WILL VARY WITH GRADE AND SHOULD BE DETERMINED BY SHAPE OF ROADWAY.

SECTION A
SCALE 3/16":1'
DRIVEWAY ELEVATION



SECTION C
SCALE 3/16":1'



SECTION D
SCALE 3/16":1'

REFERENCES

NATIONAL DOCUMENTS

REVISED DRAFT GUIDELINES FOR ACCESSIBLE PUBLIC RIGHTS-OF-WAY (NOVEMBER 23, 2005)

SCDOT DOCUMENTS

RELATED DRAWINGS & KEYWORDS

PRECONSTRUCTION SUPPORT ENGINEER

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER NO. 8858 EDWIN SYLVESTER EAGLE, II

SIGNATURE

MARCH 24, 2009
DATE

#	DATE	CHK	DESCRIPTION
6			
5			
4			
3			
2			
1			
0	3/2009	DSO	GENERAL REVISIONS

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

DRIVEWAY WITH SIDEWALK ADJACENT TO CURB

720-405-00

EFFECTIVE LETTING DATE | MAY, 2009

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	NEW DETAIL PAGE
2				
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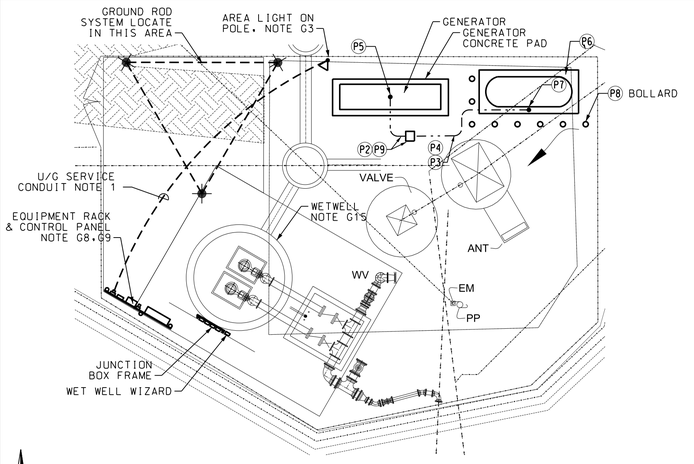
WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-3 PROPOSED IMPROVEMENTS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		BID
ISSUE			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C1.6

1



1 SITE PLAN PS-3 - ELECTRICAL

E1.1 SCALE: 1" = 10' - 0"

PROPANE FUEL NOTES:

(P1) ALL PROPANE GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED JOINTS. ALL WORK AND MATERIALS ON THE GAS SYSTEM SHALL COMPLY WITH THE "INTERNATIONAL GAS CODE". PAINT ALL EXPOSED GAS PIPING WITH RUST INHIBITING PRIMER AND 1 COAT OF OIL BASED YELLOW ENAMEL PAINT.

(P2) PROPANE GAS PRESSURE REGULATOR SIZED FOR 2000 CFH AT 13 INCH WC OUTLET PRESSURE.

(P3) PROPANE GAS LINE U/G BY CONTRACTOR. COORDINATE WITH PROPANE COMPANY.

(P4) 3" GAS DOWN TO UNDERGROUND. UNDERGROUND PIPING SHALL BE SDR 11 POLYETHLYLENE PIPE AND FITTINGS.

(P5) 3" GAS UP TO GENERATOR. PROVIDE PLUG VALVE, UNION AND DRIPLEG AT CONNECTION. COORDINATE EXACT LOCATION OF CONNECTION WITH GENERATOR.

(P6) PROVIDE A CONCRETE PAD FOR THE PROPANE TANK. 12" THICK, 24"WIDER AND 24" LONGER THAN THE PROPANE TANK. REFER TO DETAIL 1/E0.1 FOR CONSTRUCTION REQUIREMENTS.

(P7) PROVIDE 2" SCH.80 PVC RISER AT TANK MID-POINT. EXTEND TO WITHIN 5' OF GENERATOR. CONDUIT SHALL BE 30" BELOW FINISH GRADE. MINIMUM. PROVIDE DETECTABLE PLASTIC WARNING TAPE 12" BELOW FINISH GRADE.

(P8) PROVIDE STEEL PIPE BOLLARDS IN FRONT OF THE PROPANE TANK. 36" ON CENTER. SEE DETAIL THIS SHEET. BOLLARDS SHALL EXTEND BEYOND THE END OF THE PROPANE TANK.

(P9) FIELD COORDINATE INLET LOCATION ON GENERATOR AND THE REGULATOR WITH THE PROPANE PROVIDER. THE REGULATOR SHALL NOT BE WITHIN 5' OF THE GENERATOR.

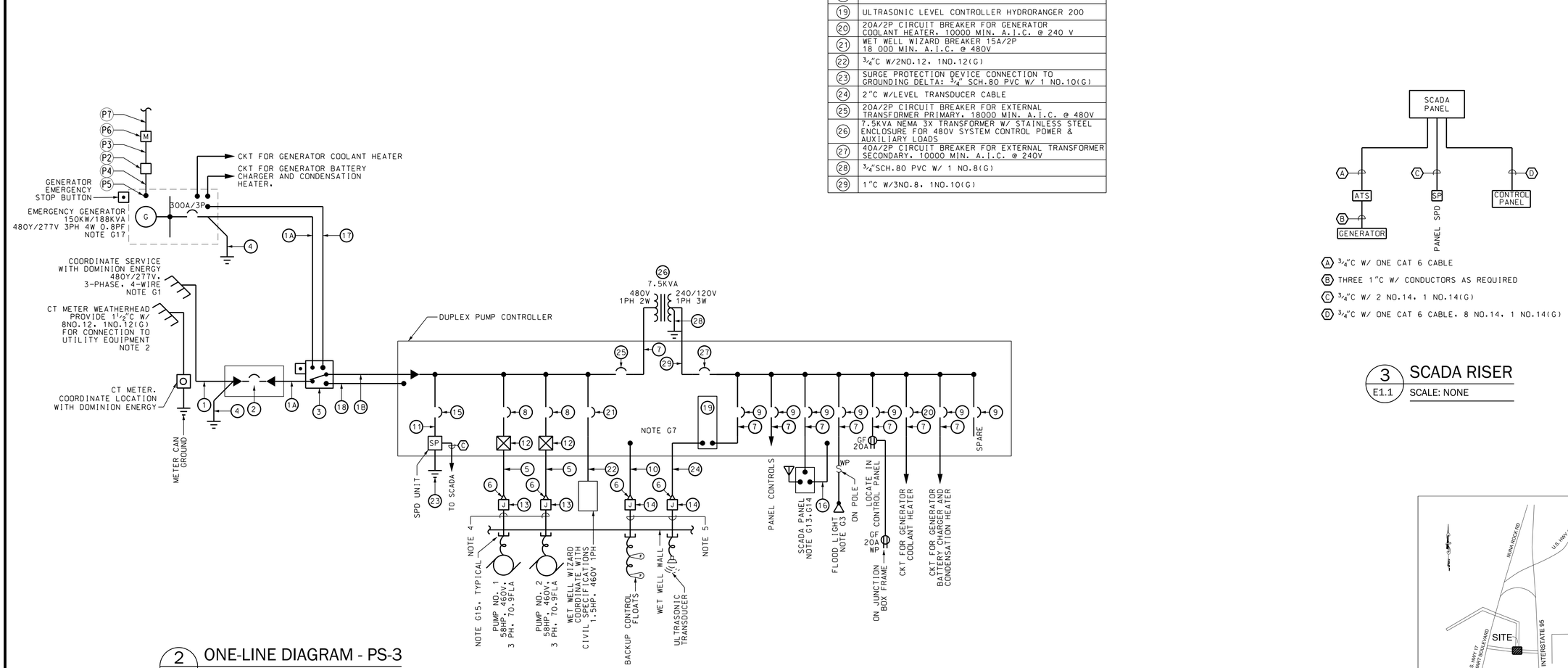
DUPLEX PUMP STATION ONE LINE SCHEDULE

ITEM# PS-3 58HP 460V 3PH 70.9FLA

(1)	3"C W/ 4 NO.350MCM
(1A)	3"C W/ 4 NO.350MCM, 1 NO.4(G)
(1B)	3"C W/ 3 NO.350MCM, 1 NO.4(G)
(2)	ENCLOSED BREAKER. 300A/3P/4X SS ENCLOSURE UL SERVICE LABEL, POST FAULT CURRENT AVAILABLE & DATE CALCULATED 18000 MIN A.I.C @ 480V
(3)	300A/4P 4X STAINLESS STEEL AUTOMATIC TRANSFER SWITCH MOUNTED ON EQUIPMENT FRAME
(4)	3/4" SCH.80 PVC W/1NO.2 (G) GROUNDING ELECTRODE CONDUCTOR
(5)	2"C.W/3NO.3, 1 NO.6(G) 4NO.12(CNTLS)
(6)	SEALING HUB. C-H TYPE ES. NOTE G6
(7)	3/4"C W/2NO.12, 1NO.12(G)
(8)	200A/3P MOTOR BREAKER 18 000 MIN. A.I.C. @ 480V
(9)	20A/1P CIRCUIT BREAKER. 10 000 MIN. A.I.C. @ 120V
(10)	3/4"C W/4NO.12, 1NO.12(G) FOR FLOATS
(11)	3NO.10, 1NO.10(G) SHALL NOT EXCEED 18" IN LENGTH
(12)	MOTOR CONTROLLER: REDUCED VOLTAGE SOLID STATE STARTER WITH SHORTING CONTACTOR FOR 58HP 460V 3PH 70.9FLA MOTOR
(13)	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH POWER BLOCKS AND TERMINAL STRIPS AS REQUIRED. NOTE G10
(14)	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH TERMINAL STRIPS AS REQUIRED. NOTE G11,G12
(15)	30A/3P SURGE PROTECTION DEVICE CIRCUIT BREAKER. COORDINATE WITH EQUIPMENT 18 000 MIN A.I.C. @ 480V
(16)	2"C W/ SCADA ALARM AND STATUS CONDUCTORS
(17)	THREE 1"C W/CONDUCTORS AS REQUIRED FOR CONTROL AND ALARM ANNUNCIATION
(18)	1"C W/CONDUCTORS AS REQUIRED FOR LOAD CONTROL
(19)	ULTRASONIC LEVEL CONTROLLER HYDRORANGER 200
(20)	20A/2P CIRCUIT BREAKER FOR GENERATOR COOLANT HEATER. 10000 MIN. A.I.C. @ 240 V
(21)	WET WELL WIZARD BREAKER 15A/2P 18 000 MIN. A.I.C. @ 480V
(22)	3/4"C W/2NO.12, 1NO.12(G)
(23)	SURGE PROTECTION DEVICE CONNECTION TO GROUNDING DELTA: 3/4" SCH.80 PVC W/ 1 NO.10(G)
(24)	2"C W/LEVEL TRANSDUCER CABLE
(25)	20A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER PRIMARY. 18000 MIN. A.I.C. @ 480V
(26)	7.5KVA NEMA 3X TRANSFORMER W/ STAINLESS STEEL ENCLOSURE FOR 480V SYSTEM CONTROL POWER & AUXILIARY LOADS
(27)	40A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER SECONDARY. 10000 MIN. A.I.C. @ 240V
(28)	3/4"SCH.80 PVC W/ 1 NO.8(G)
(29)	1"C W/3NO.8, 1NO.10(G)

ELECTRICAL NOTES:

1. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. PROVIDE AERIAL SERVICE AS REQUIRED BY THE UTILITY AND PROJECT REQUIREMENTS. COORDINATE WITH DOMINION ENERGY: CONTACT PARKS MOSS. CUSTOMER SERVICE ENGINEER 843-815-8808
2. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.
3. MOUNT THE AREA LIGHT ON THE 35' CLASS 4 PRESSURE TREATED SERVICE POLE. REFER TO DETAIL 5/E0.1. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH YOKE MOUNT, SO CORD, AND INTEGRAL PHOTOCELL; CATALOG NO. DSXF2 LED-3-A530/40K-WFL-MVOLT-YKC62-PE-DDBXD.
   A. MOUNT THE FLOOD LIGHT TO THE TOP OF THE SERVICE POLE BELOW THE SERVICE DROP RACK.
   B. PROVIDE A WEATHERPROOF SWITCH ON THE POLE, 48" ABOVE FINISH GRADE.
4. 3" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR PUMP CABLES.
5. 2" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR FLOATS AND TRANSDUCER CABLES.



2 ONE-LINE DIAGRAM - PS-3

E1.1 NOT TO SCALE

(A) 3/4"C W/ ONE CAT 6 CABLE

(B) THREE 1"C W/ CONDUCTORS AS REQUIRED

(C) 3/4"C W/ 2 NO.14, 1 NO.14(G)

(D) 3/4"C W/ ONE CAT 6 CABLE, 8 NO.14, 1 NO.14(G)

3 SCADA RISER

E1.1 SCALE: NONE

VICINITY MAP

N.T.S.

SOUTH CAROLINA PROFESSIONAL ENGINEER CHARLES BEVERLEY COBB No. 40028 26 May 2023

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CHATHAM ENGINEERING COMPANY LLC C04812

REV/ NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
2				
3				
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I PS-3 ELECTRICAL SITE PLAN, NOTES & ONE-LINE DIAGRAM

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN
CC	CC
JOB #	17-1007-035
ISSUE DATE	04-2023
ISSUE	100%

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
E1.1

CADD PLOT
29-MAY-2023
13:42
CCOBB

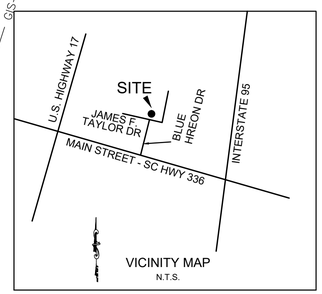
E:\Ridgeland Well No.2 Rehab - 21010.01\CADD\E1.1.dgn

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

XX PHOTO LEGEND:
DENOTES PHOTO LOCATION AND DIRECTION

ADDRESS:
#123 JAMES F. TAYLOR DRIVE
PARENT TAX PARCEL I.D. NO. 063-31-02-009

PREPARED FOR: FOUR WATERS ENGINEERING & TOWN OF RIDGELAND



N
0 10' 20'
SCALE (In Feet)

1

REFERENCE PLAT:
A TOPOGRAPHIC SURVEY ALONG A PORTION OF JAMES TAYLOR DRIVE, TOWN OF RIDGELAND, JASPER COUNTY, SC, DATED: 11/17/2017,
BY: THOMAS S. STANLEY, S.C.R.L.S. NO. 18269,
TGS LAND SURVEYING.

SPECIAL NOTE:
*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #8 BELOW

NOTES

1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
2. UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN AND ARE APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE EXACT LOCATION OF ANY UNDERGROUND UTILITY.
3. NO SUBSURFACE OR ENVIRONMENTAL INVESTIGATION OR WETLAND SURVEYS WERE PERFORMED FOR THIS PLAT. THEREFORE THIS PLAT DOES NOT REFLECT THE EXISTENCE OR NONEXISTENCE OF WETLANDS, CONTAMINATION, OR OTHER CONDITIONS WHICH MAY AFFECT THIS PROPERTY.
4. SURVEYING CONSULTANTS CERTIFIES TO THE BOUNDARY, TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS OF THE DATE OF SURVEY. IF THIS DOCUMENT IS TO BE PROVIDED AS A BASE MAP FOR OTHERS, INFORMATION ADDED AFTER THE DATE OF THIS SURVEY IS NOT THE RESPONSIBILITY OF SURVEYING CONSULTANTS.
5. SURVEYING CONSULTANTS DOES NOT PROVIDE ARBORIST SERVICES. TREE IDENTIFICATIONS ARE MADE AS BEST OBSERVANCE/KNOWLEDGE OF A NON-ARBORIST. A CERTIFIED ARBORIST SHOULD BE CONSULTED TO VERIFY TREE IDENTIFICATION, IF IDENTIFICATION OF TREES IS CRITICAL TO DEVELOPMENT.
6. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, THEREFORE THERE MAY BE OTHER EASEMENTS, RIGHT-OF-WAY, SETBACK LINES, AGREEMENTS, RESERVATIONS, RESTRICTIONS, OR OTHER SIMILAR MATTERS OF PUBLIC RECORD, NOT DEPICTED ON THIS SURVEY.
7. BOUNDARY LINES AND/OR ROAD RIGHT-OF-WAY LINES WERE NOT ESTABLISHED AS A PART OF THIS SURVEY.
8. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

LEGEND:
TREE SIZES ARE INCHES IN DIAMETER

+9.5	SPOT ELEVATION
PLM	PALMETTO
EM	ELECTRIC METER
GI	GRATE INLET
IE	INVERT ELEVATION
LP	LAMP POST
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
SN	SIGN
SSMH	SANITARY SEWER MANHOLE
WM	WATER METER
WV	WATER VALVE
PVC	POLYVINYL CHLORIDE
SAN	SANITARY SEWER LINE

ASBUILT & TOPOGRAPHIC
EXHIBIT OF
PUMP STATION 4 (PS4)
#123 JAMES F. TAYLOR DRIVE
A SECTION OF
TOWN OF RIDGELAND
JASPER COUNTY, SOUTH CAROLINA
DATE: 04/21/2021 JOB NO: SC210030-PS4

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 826-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

CREW: JH/MW CAD: AJ

PREPARED FOR:
FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC. No. 5166

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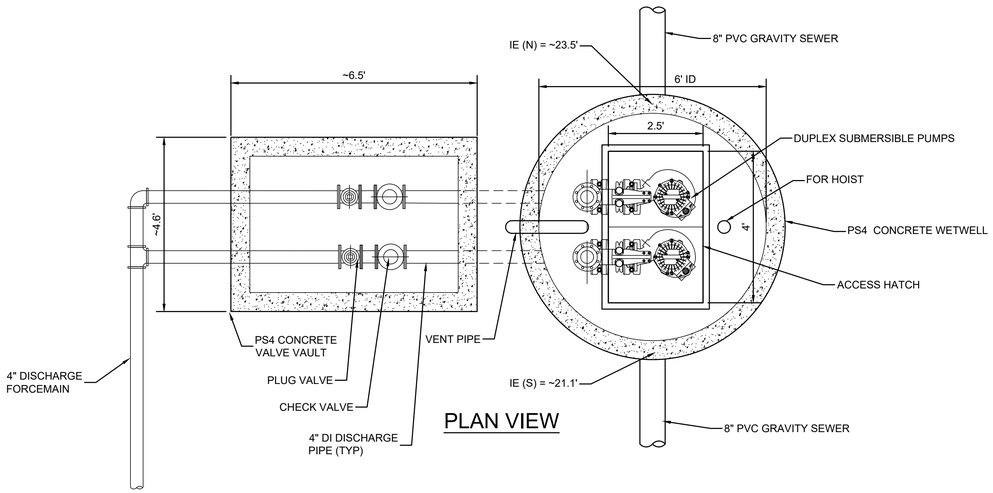
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-4 EXISTING CONDITIONS AND KEY
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

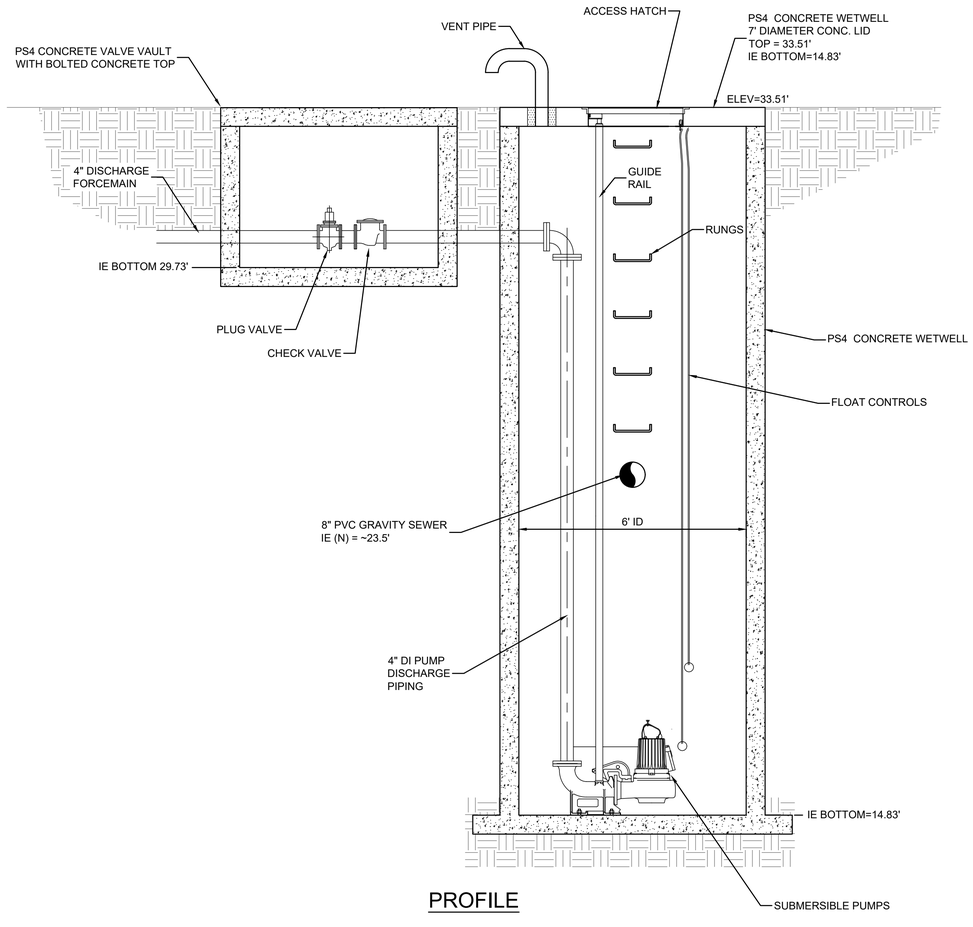
DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G2.1



PLAN VIEW



PROFILE

0 2' 4'

SCALE (In Feet)

PHOTO-1

LOOKING AT WET WELL

PHOTO-2

LOOKING INTO WET WELL

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-4 EXISTING CONDITIONS DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

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G2.2

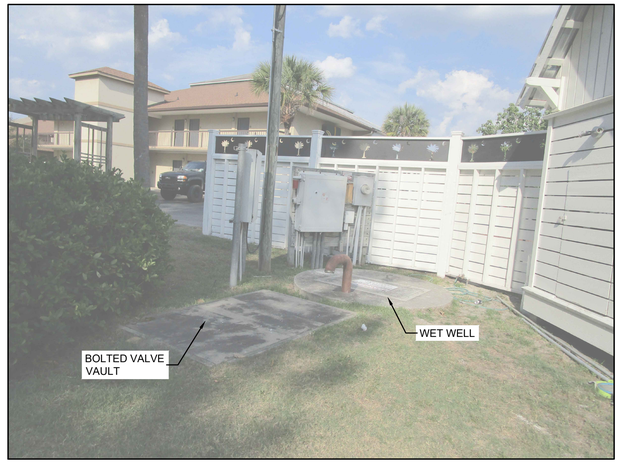

PHOTO-3
LOOKING NORTHEAST AT PS-4

PHOTO-4
LOOKING EAST ACROSS VALVE VAULT AND WET WELL

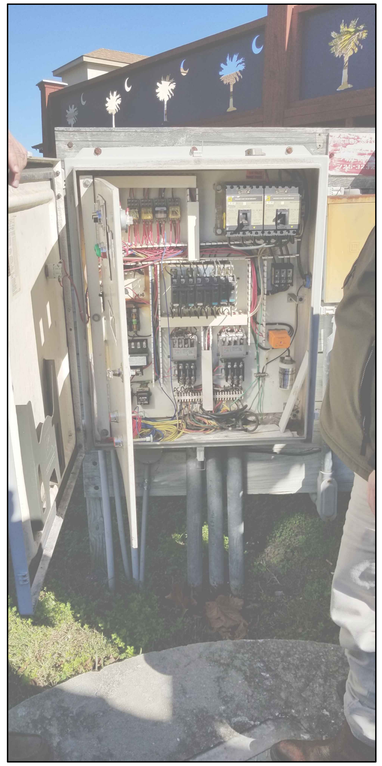

PHOTO-5
LOOKING NORTHEAST AT CONTROL PANEL

PHOTO-6
LOOKING EAST AT WET WELL

PHOTO-7
LOOKING WEST OVER VALVE VAULT

PHOTO-8
LOOKING SOUTH TOWARDS PS-4 FROM GARDEN/PARK

PHOTO-9
LOOKING SOUTH AT PS-4 FROM GARDEN/PARK

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-4 EXISTING CONDITIONS SITE PHOTOS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

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ISSUE			BID

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DRAWING NUMBER
G2.3

REMOVE CHAIN LINK FENCE

PINE TREES AT EMBANKMENT

POND

TOP OF BANK

APPROXIMATE PROPERTY LINE PER REF. PLAT (NOT VERIFIED)

TOWN OF RIDGELAND TAX PARCEL# 063-32-01-009

BENCH

CAN

APPROXIMATE PROPERTY LINE PER REF. PLAT (NOT VERIFIED)

BLUE HERON NATURE CENTER BUTTERFLY GARDEN ADJACENT TO PS-4 SITE. SECURITY OF PS-4 CONSTRUCTION SITE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION BY INSTALLATION OF 6' HIGH CHAIN LINK FENCING AND GATE

8" PVC DISCHARGE

8" PVC

BLUE HERON NATURE CENTER BUTTERFLY GARDEN

RUBBER PATH

REMOVE VALVE VAULT AND PIPING BETWEEN VALVE VAULT AND WET WELL. SEE DRAWING C-2 FOR ADDITIONAL REQUIREMENTS

CONTROL POINT
NAIL WITH DISC
N:234993.87
E:2008421.92
ELEV. = 33.66'

REMOVE SHRUBS AND MAGNOLIA

MAGNOLIA

LANDSCAPED AREA WITH LOW SHRUBS

CHAIN LINK FENCE

INSTALL APPROXIMATELY 46 LF OF SINGLE ROW SILT FENCE

IRRIGATION VALVE

REMOVE ELECTRICAL PANELS. REFERENCE ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.

VALVE VAULT
TOP = ~33.5'
IE BOTTOM=29.73'

PANEL

LP & ANTENNA

PANEL

EDGE OF ASPHALT

BLUE HERON DRIVE

CENTER OF PAVEMENT

GATE

PS4
7' DIAMETER CONC. LID
TOP = 33.51'
IE BOTTOM=14.83'

6"VENT

WM

EM

LIMITS OF DISTURBANCE

CENTER OF PS4 LID
N:234976.88
E:2008420.48

REMOVE WET WELL VENT PIPE

SPIGOT

SN STOP

WOOD FENCE

4" PS4 FORCEMAIN

36' FROM CAPTAINS BILL CREEK

JAMES F. TAYLOR DRIVE
R/W VARIES

EDGE OF ASPHALT

6'x6'
WOOD SHED

REMOVE PUMPS, PIPING, GUIDE RAILS, CABLE RACK FITTINGS, FLOATS, PUMP BASE AND ALL EQUIPMENT FROM WET WELL. SEE DRAWING C2.2 FOR ADDITIONAL REQUIREMENTS

WATER METER

REMOVE 21 LF OF 4" FM

INSTALL APPROXIMATELY 102 LF OF SINGLE ROW SILT FENCE

EXISTING WOOD SHED TO REMAIN

EXISTING WOODEN SCREEN FENCING CAN BE REMOVED AS NECESSARY FOR CONSTRUCTION BUT SHALL BE REINSTALLED OR REPLACED IN KIND AT COMPLETION OF CONSTRUCTION. SECURITY OF SITE SHALL BE MAINTAINED AT ALL TIMES

CENTER OF PAVEMENT

APPROX. 8"PVC
PER REF. PLAT #1

TOP=33.67' IE
FLOWLINE=21.19'

N:234928.01
E:2008405.18

SSMH

TOP=33.06' IE
FLOWLINE=22.06'

SSMH

N:234922.49
E:2008420.20

8"PVC

36 LF TO CAPTAIN BILL CREEK

LEGEND:

TREE SIZES ARE INCHES IN DIAMETER

+9.5	SPOT ELEVATION
PLM	PALMETTO
EM	ELECTRIC METER
GI	GRATE INLET
IE	INVERT ELEVATION
LP	LAMP POST
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
SN	SIGN
SSMH	SANITARY SEWER MANHOLE
WM	WATER METER
WV	WATER VALVE
PVC	POLYVINYL CHLORIDE
SAN	SANITARY SEWER LINE

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

	DESCRIPTION
SF	SILT FENCE
	DENOTES LIMITS OF DISTURBANCE FOR PS-3 (1352 SF)
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

VICINITY MAP
N.T.S.
SITE
JAMES F TAYLOR DR
BLUE HREON DR
U.S. HIGHWAY 17
MAIN STREET - SC HWY 336
INTERSTATE 95

N

0 5' 10'
SCALE (In Feet)

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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FOUR WATERS ENGINEERING, INC.
No. 5166

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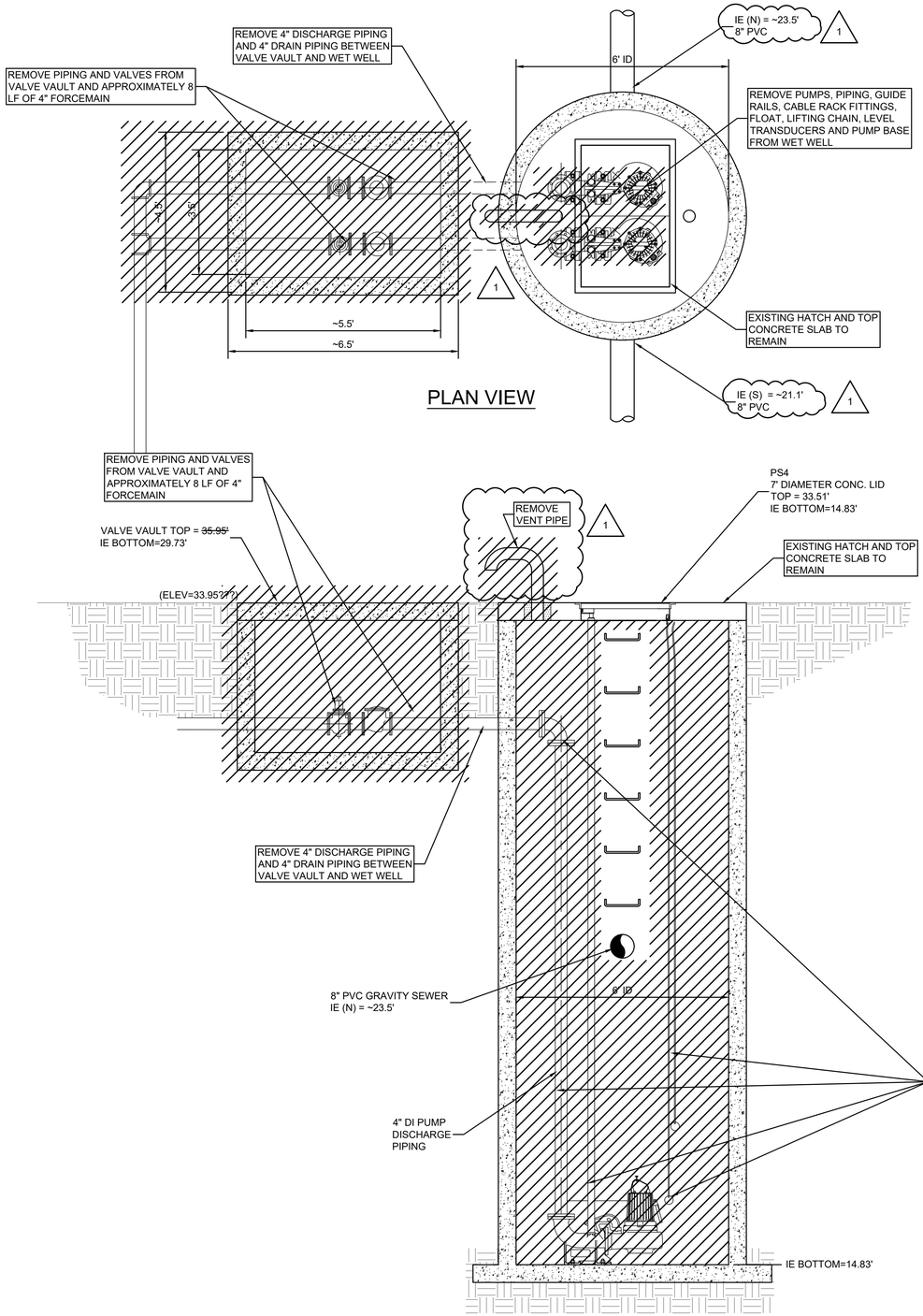
WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-4 DEMOLITION PLAN SITE PLAN
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C2.1



	DESCRIPTION
▨	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

DEMOLITION NOTES:

1. ALL NECESSARY TEMPORARY BYPASS OPERATIONS SHALL BE IN PLACE AND OPERATIONAL PRIOR TO INITIATING DEMOLITION ACTIVITIES.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. CONTRACTOR SHALL COORDINATE WITH TOWN OF RIDGELAND PROJECT REPRESENTATIVE REGARDING EQUIPMENT TO BE RETAINED BY TOWN WHICH SHALL BE DELIVERED TO THE JIMMY MIXSON WRF AT 366 PREACHER STREET. UNLESS SO IDENTIFIED, ALL OTHER EQUIPMENT AND MATERIALS TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
4. PRIOR TO DEMOLITION OR REMOVAL OF STRUCTURES USED FOR WASTEWATER, ALL WASTEWATER AND SOLIDS SHALL BE REMOVED FROM THE STRUCTURE AND PROPERLY DISPOSED.

0 2' 4'
SCALE (In Feet)

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-4 DEMOLITION PLAN DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

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324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

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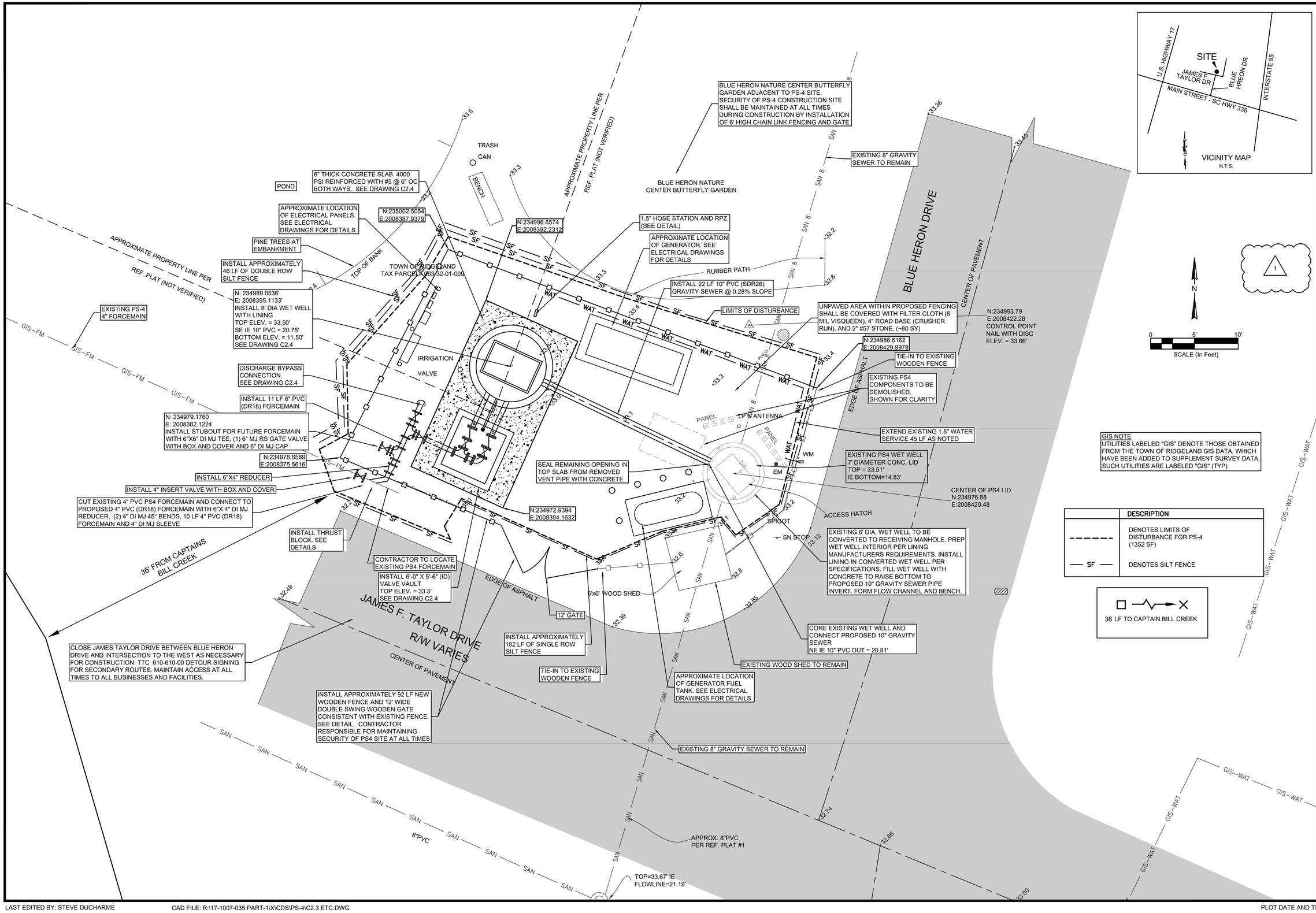
C2.2



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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-4 PROPOSED IMPROVEMENTS PLAN
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB | DRAWN JMC
JOB # 17-1007
ISSUE DATE FEB 2023
ISSUE BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
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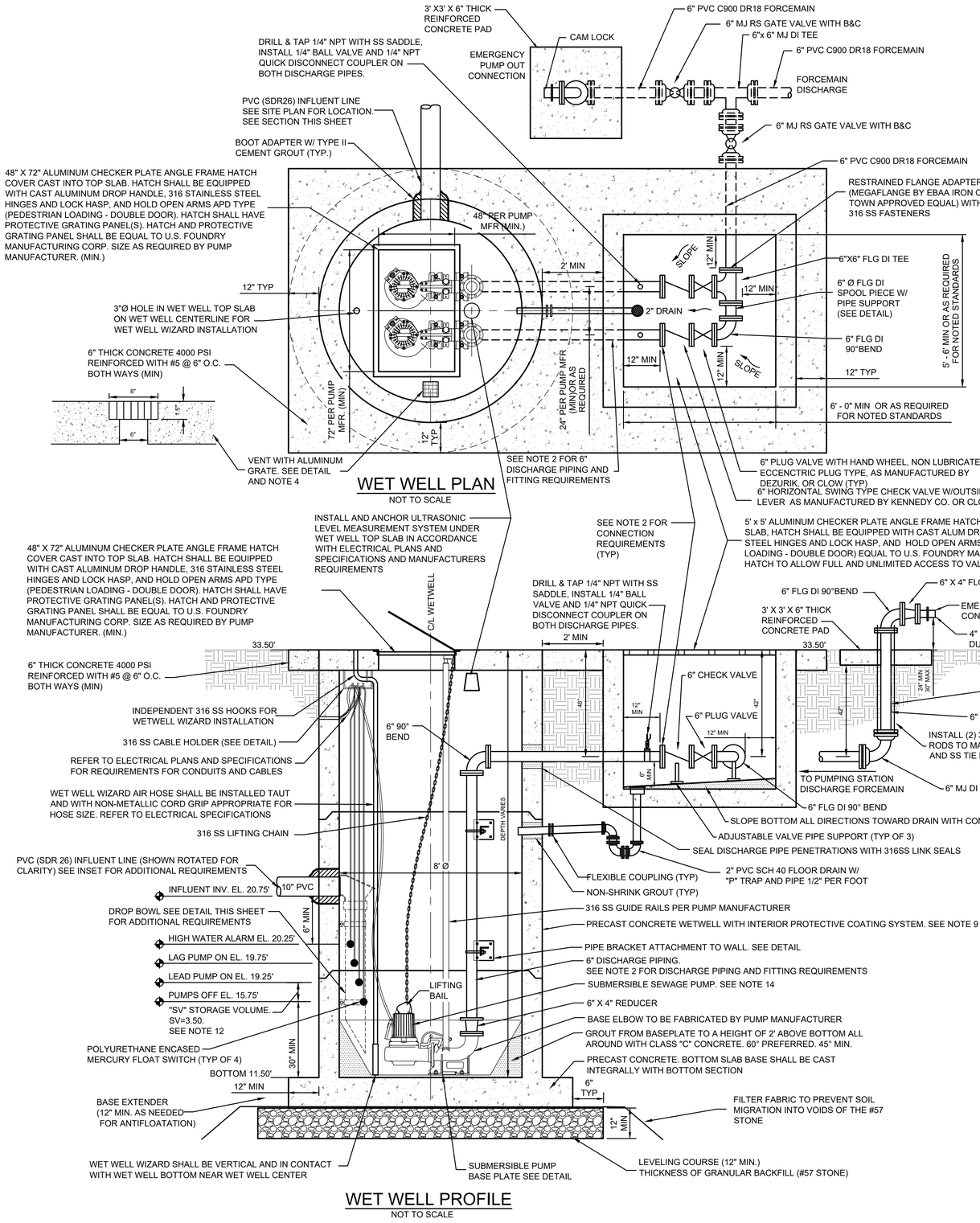
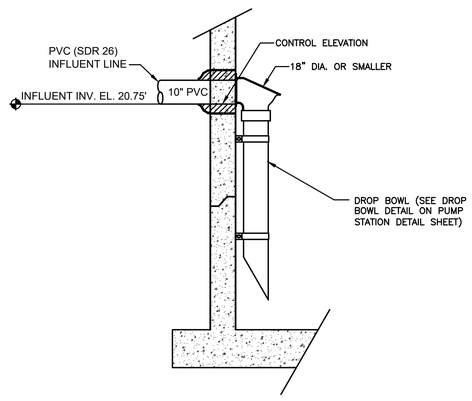


WET WELL PLAN

NOT TO SCALE

WET WELL PROFILE

NOT TO SCALE



INFLUENT SECTION

NOT TO SCALE

GENERAL NOTES

1. ALL METALS INSIDE THE WET WELL INCLUDING BUT NOT LIMITED TO GUIDE RAILS, LIFTING CHAINS, NUTS, BOLTS, CABLE HOLDERS, PIPE SUPPORTS AND BRACES, ETC., TO BE 316 STAINLESS STEEL, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. PUMP DISCHARGE PIPING AND FITTINGS: DISCHARGE PIPING AND FITTINGS FROM PUMP ELBOW THROUGH TO CHECK VALVE IN VALVE VAULT SHALL BE A MINIMUM 4" (UNLESS APPROVED OTHERWISE BY TOWN) AND SHALL BE:
   a. FUSED PVC PIPE AND STAINLESS STEEL FITTINGS: PVC PIPE SHALL BE C900 DR18 AND SHALL BE FUSED AS ONE PIECE BETWEEN PUMP BASE ELBOW AND 90 DEGREE BEND IN WET WELL, AND FROM 90 DEGREE BEND IN WET WELL TO CHECK VALVE IN VALVE VAULT. 90 DEGREE BEND IN WET WELL SHALL BE FLANGED 316 STAINLESS STEEL, SCH 40. PVC PIPING ENDS SHALL UTILIZE RESTRAINED FLANGE ADAPTER (MEGAFLANGE BY EBAA IRON OR TOWN APPROVED EQUAL) WITH 316 SS FASTENERS TO CONNECT TO PUMP BASE ELBOW, 90 DEGREE BEND, AND CHECK VALVE.
3. AERATION SYSTEM: WET WELL WIZARD SYSTEM AS MANUFACTURED BY RELIANT WATER TECHNOLOGIES, NEW ORLEANS, LA. WWW.RELIANTWATER.US.COM SHALL BE INSTALLED IN WET WELL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. WET WELL WIZARD SYSTEM SHALL INCLUDE (1) WET WELL WIZARD, (1) 1.5 HP BLOWER, AND ALL NECESSARY ASSOCIATED EQUIPMENT.
4. VENT: PROVIDE 6"X6" OPENING THROUGH THE CONCRETE TOP OF THE WET WELL AND INSERT 8"X 8" X 1-1/2" THICK ALUMINUM GRATE VENT CONSTRUCTED OF 1-1/2" WIDE X 1/8" MATERIAL.
5. FITTINGS: ALL DUCTILE IRON FITTINGS SHALL BE EPOXY LINED. ALL BURIED FITTINGS SHALL BE RESTRAINED.
6. LEVEL MONITORING: INSTALL ULTRASONIC LEVEL MEASUREMENT SYSTEM IN ACCORDANCE WITH ELECTRICAL PLANS AND SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS. PROVIDE FOUR BACKUP POLYURETHANE ENCASED MERCURY FLOAT SWITCHES FOR PUMPS OFF, LEAD PUMP ON, LAG PUMP ON, AND HIGH WATER ALARM.
7. WET WELL: PRECAST CONCRETE WET WELL SHALL MEET ASTM C-478 STANDARD. CONCRETE, REINFORCING STEEL, AND BUOYANCY DESIGN AND CALCULATIONS TO BE PREPARED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH THE SHOP DRAWINGS.
8. WET WELL AND MANHOLES: ALL EXTERIOR JOINTS OF PRECAST CONCRETE WET WELL AND MANHOLES SHALL BE SEALED WITH A 18" WIDE RUBBERIZED ASPHALT MEMBRANE TAPE. EXTERIOR COATING OF BITUMINOUS COATING AS SPECIFIED IN ANSI SPECIFICATIONS A21.51 SHALL BE APPLIED TO WET WELL AND MANHOLES.
9. INTERIOR PROTECTIVE COATINGS: PROTECTIVE COATING SHALL BE APPLIED TO THE INTERIOR OF WET WELLS AND RECEIVING MANHOLES. COATING SYSTEM IN WET WELL SHALL BE APPLIED TO VERTICAL WALLS AND TOP, AT A MINIMUM. PROTECTIVE COATING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND SHALL BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND BY INSTALLER CERTIFIED BY COATING SYSTEM MANUFACTURER.
10. EMERGENCY PUMP OUT CONNECTION: PIPE SIZE FOR EMERGENCY PUMP OUT CONNECTION SHALL MATCH PUMP DISCHARGE PIPE SIZE IN WET WELL.
11. GEOTECHNICAL DATA:
    a. REFERENCE PROJECT GEOTECHNICAL REPORT "RIDGELAND PUMP STATIONS, RIDGELAND SOUTH CAROLINA" JANUARY 28, 2022 TERRACON PROJECT NO HG215050.
    b. IN SILTS, CLAY OR HIGHLY ORGANIC SOILS (FINE-GRAINED SOILS INCLUDING SOIL GROUPS ML, CL, OL, MH, CH, OH AND PT) THE SOILS SHALL BE OVER-EXCAVATED AN ADDITIONAL 12", AT A MINIMUM, OR PER GEOTECHNICAL REPORT RECOMMENDATIONS, AND BACKFILLED WITH GRANULAR BACKFILL (57 STONE).
12. "SV" – STORAGE VOLUME: STORAGE VOLUME PER DESIGN ENGINEER OF RECORD AND SHALL BE DESIGNED FOR A MAXIMUM SIX (6) STARTS PER HOUR, 10 MINUTE CYCLE TIME.
13. MIN. WATER LEVEL: MINIMUM WATER LEVEL IN WET WELL SHALL BE 30" MINIMUM FOR PROPER OPERATION OF THE WET WELL WIZARD, SHALL COVER TOP OF PUMP MOTOR, OR SHALL BE GREATER IF RECOMMENDED BY PUMP MANUFACTURER.
14. SUBMERSIBLE SEWAGE PUMPS:
    a. PUMPS SHALL BE SULZER ABS PUMPS SUITABLE FOR SUBMERSIBLE SEWER SERVICE. PUMPS SHALL BE 230/460 VOLTS, 3 PHASE, 60 HERTZ MOTORS.
    b. PUMP BASE ELBOW: BASE ELBOW TO BE FABRICATED BY PUMP MANUFACTURER.
15. FLOOD ZONE: DESIGN ENGINEER OF RECORD SHALL PROVIDE INFORMATION ON THE FLOOD ZONE OF THE PUMP STATION SITE AND SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WET WELL IS ABOVE THE 100 YEAR FLOOD ELEVATION AND THAT THE BOTTOM OF THE CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB AREA ALL ABOVE THE 100 YEAR FLOOD ELEVATION + 2 FEET OR THE 500 YEAR FLOOD ELEVATION, WHICHEVER IS GREATER.
16. PS-4 PROJECT SITE LOCATED IN ZONE X AREA OF MINIMAL FLOODING (NO ESTABLISHED FLOOD ELEVATION) PER FEMA FIRM MAP NO. 45053C0305D PANEL 305 OF 575 OCTOBER 18, 2019.
17. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ELEVATIONS AND DIMENSIONS CALLED OUT ON THIS PLAN SET FOR THE PUMP STATION PRIOR TO ORDERING OF ANY MATERIALS OR COMPONENTS OF THE PUMP STATION. ANY DEVIATION OF THE LAYOUTS INDICTED ON THIS PLAN MUST BE COMMUNICATED TO THE TOWN AND ENGINEER OF RECORD FOR FURTHER DIRECTION.
18. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY STABILIZATION FOR DEMOLITION AND CONSTRUCTION AND SHALL HIRE A SPECIALTY PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA TO DESIGN THE STABILIZATION SYSTEM FOR EXCAVATION AND EVALUATE THE DRAWDOWN OF THE DEWATERING OPERATIONS DURING CONSTRUCTION IN ORDER TO PROTECT THE EXISTING PS-6 STRUCTURES. DESIGN AND EVALUATION SHALL BE SIGNED AND SEALED AND SUBMITTED TO THE TOWN OF RIDGELAND AND ENGINEER OF RECORD.
19. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING OPERATIONS, THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN FOR APPROVAL AND SHALL SECURE AN SCDHEC NPDES GENERIC PERMIT WHICH COVERS STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES AND DEWATERING OF NON-CONTAMINATED GROUNDWATER.
20. PIMP STATION SITE SHALL HAVE CONCRETE SLAB AROUND WET WELL VALVE VAULT AND PANEL AREAS AS NOTED. PROVIDE ½" EXPANSION JOINT MATERIAL BETWEEN WET WELL AND SLAB AND VALVE VAULT AND SLAB. CONCRETE SLAB SHALL BE 4000 PSI CONCRETE WITH REINFORCEMENT AS PER DRAWINGS.
21. RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO PRE CONSTRUCTION CONDITION. HYDROSEED AND MULCH ALL UNPAVED AREAS OUTSIDE OF FENCING. REFERENCE DRAWING C2.3 FOR RESTORATION REQUIREMENTS INSIDE PUMP STATION FENCING.

1

*PUMP STATION: TOWN OF RIDGELAND PS-4
*LOCATION: JAMES F. TAYLOR DR. & BLUE HERON DR.
DESIGN CONDITION: 350 GPM @ 92 FT TDH
*PUMP MANUFACTURER: SULZER
*MODEL#: XFP100G CB1 10 1/3" IMP
SERIAL#:
HORSEPOWER: 24.8 HP
VOLTAGE:
DATE INSTALLED:
*ENGINEER: FOUR WATERS ENGINEERING, INC.
CONTRACTOR:
*INFORMATION REQUIRED ON CONSTRUCTION PLANS. REMAINING INFORMATION REQUIRES ASBUILT

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL MINOR UPDATES
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

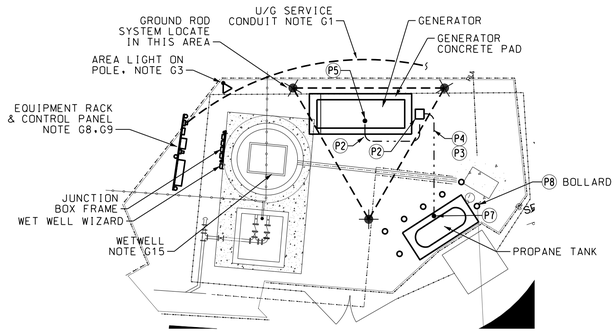
PS-4 PROPOSED IMPROVEMENTS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C2.4



1 E2.1 SITE PLAN PS-4 - ELECTRICAL

SCALE: 1" = 10' - 0"

PROPANE FUEL NOTES:

(P1) ALL PROPANE GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED JOINTS. ALL WORK AND MATERIALS ON THE GAS SYSTEM SHALL COMPLY WITH THE "INTERNATIONAL GAS CODE". PAINT ALL EXPOSED GAS PIPING WITH RUST INHIBITING PRIMER AND 1 COAT OF OIL BASED YELLOW ENAMEL PAINT.

(P2) PROPANE GAS PRESSURE REGULATOR SIZED FOR 521 CFH AT 11 INCH WC OUTLET PRESSURE.

(P3) PROPANE GAS LINE U/G BY CONTRACTOR. COORDINATE WITH PROPANE COMPANY.

(P4) 3" GAS DOWN TO UNDERGROUND. UNDERGROUND PIPING SHALL BE SDR 11 POLYETHLYLENE PIPE AND FITTINGS.

(P5) 3" GAS UP TO GENERATOR. PROVIDE PLUG VALVE, UNION AND DRIPLEG AT CONNECTION. COORDINATE EXACT LOCATION OF CONNECTION WITH GENERATOR.

(P6) PROVIDE A CONCRETE PAD FOR THE PROPANE TANK, 12" THICK, 24"WIDER AND 24" LONGER THAN THE PROPANE TANK. REFER TO DETAIL 1/E0.1 FOR CONSTRUCTION REQUIREMENTS.

(P7) PROVIDE 2" SCH.80 PVC RISER AT TANK MID-POINT, EXTEND TO WITHIN 5' OF GENERATOR. CONDUIT SHALL BE 30" BELOW FINISH GRADE, MINIMUM. PROVIDE DETECTABLE PLASTIC WARNING TAPE 12" BELOW FINISH GRADE.

(P8) PROVIDE STEEL PIPE BOLLARDS IN FRONT OF THE PROPANE TANK, 36" ON CENTER. SEE DETAIL THIS SHEET. BOLLARDS SHALL EXTEND BEYOND THE END OF THE PROPANE TANK.

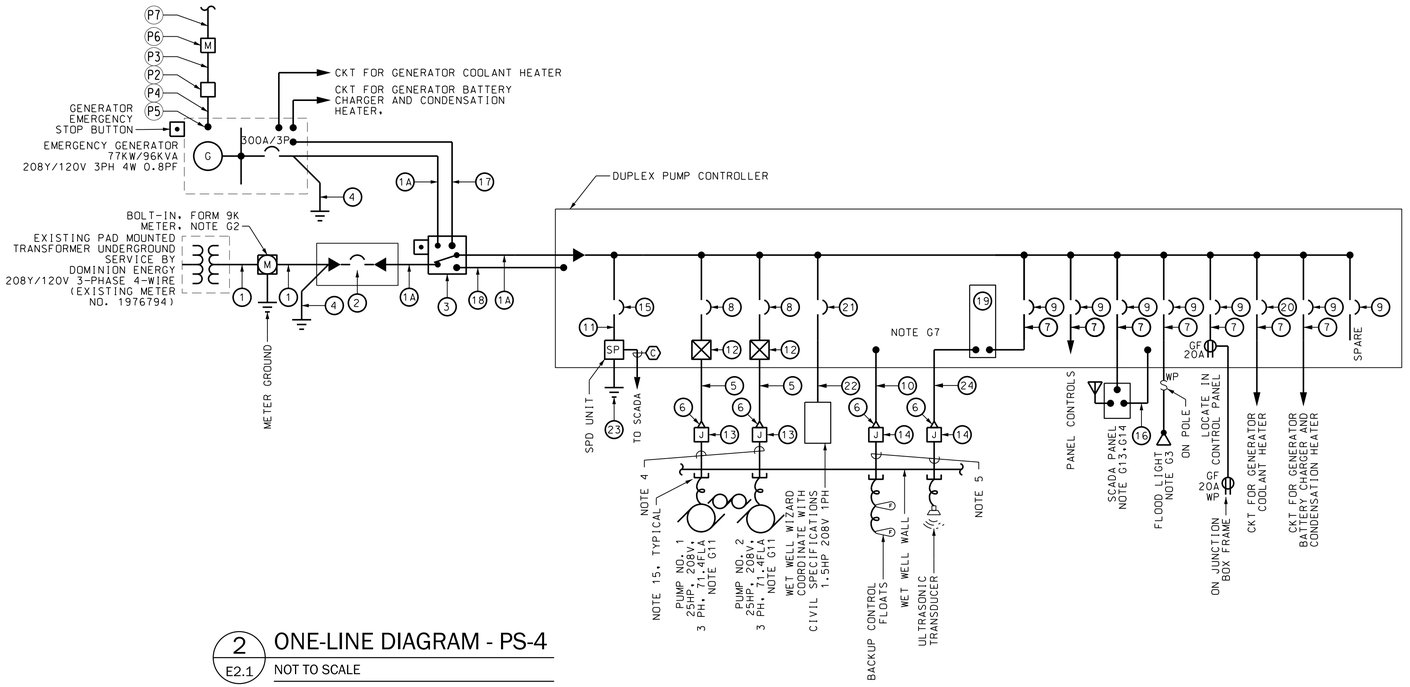
(P9) FIELD COORDINATE INLET LOCATION ON GENERATOR AND THE REGULATOR WITH THE PROPANE PROVIDER. THE REGULATOR SHALL NOT BE WITHIN 5' OF THE GENERATOR.

DUPLEX PUMP STATION ONE LINE SCHEDULE

ITEM#	PS-4 25HP 208V 3PH 71.4FLA
1	3"C W/ 4 NO.350MCM
1A	3"C W/ 4 NO.350MCM, 1 NO.4(G)
2	300A/3P/4X SS ENCLOSURE UL SERVICE LABEL, POST FAULT CURRENT AVAILABLE & DATE CALCULATED 10 000 MIN A.I.C. @ 208V
3	300A/4P 4X STAINLESS STEEL AUTOMATIC TRANSFER SWITCH MOUNTED ON EQUIPMENT FRAME
4	3/4" SCH.80 PVC W/1NO.2 GROUNDING ELECTRODE CONDUCTOR
5	2"C.W/3NO.2, 1 NO.6(G) 4NO.12(CNTLS)
6	SEALING HUB, C-H TYPE ES, NOTE G6
7	3/4"C W/2NO.12, 1NO.12(G)
8	200A/3P MOTOR BREAKER 10 000 MIN. A.I.C. @ 208V
9	20A/1P CIRCUIT BREAKER, 10 000 MIN. A.I.C. @ 120V
10	3/4"C W/4NO.12, 1NO.12(G) FOR FLOATS
11	3NO.10, 1NO.10(G) SHALL NOT EXCEED 18" IN LENGTH
12	MOTOR CONTROLLER: REDUCED VOLTAGE SOLID STATE STARTER WITH SHORTING CONTACTOR FOR 25HP 208V 3PH 71.4FLA MOTOR
13	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH POWER BLOCKS AND TERMINAL STRIPS AS REQUIRED, NOTE G10
14	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH TERMINAL STRIPS AS REQUIRED, NOTE G11
15	30A/3P 10 000 MIN A.I.C. @ 208V SURGE PROTECTION DEVICE CIRCUIT BREAKER, COORDINATE WITH EQUIPMENT
16	2"C W/ SCADA ALARM AND STATUS CONDUCTORS
17	THREE 1"C W/CONDUCTORS AS REQUIRED FOR CONTROL AND ALARM ANNUNCIATION
18	1"C W/CONDUCTORS AS REQUIRED FOR LOAD CONTROL
19	ULTRASONIC LEVEL CONTROLLER: HYDRORANGER 200
20	20A/2P CIRCUIT BREAKER FOR GENERATOR COOLANT HEATER
21	WET WELL WIZARD EQUIPMENT 25A/2P CIRCUIT BREAKER, 10 000 MIN. A.I.C. @ 208V
22	TO WET WELL WIZARD EQUIPMENT 3/4"C. W/2NO.10, 1NO.10(G)
23	SURGE PROTECTION DEVICE CONNECTION TO GROUNDING DELTA: 3/4" SCH.80 PVC W/ 1 NO.10(G)
24	2"C W/ ULTRASONIC TRANSDUCER CABLE. NO SPLICES PERMITTED CABLE SHALL BE CONTINUOUS FROM WET WELL TO CONTROL PANEL

ELECTRICAL NOTES:

1. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. PROVIDE AERIAL OR UNDERGROUND SERVICE AS REQUIRED BY THE UTILITY AND PROJECT REQUIREMENTS. COORDINATE WITH DOMINION ENERGY OR PALMETTO ELECTRIC AS APPLICABLE.
2. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.
3. FOR STATIONS WITH UNDERGROUND UTILITY POWER DISTRIBUTION, MOUNT THE AREA LIGHT ON A 25' CLASS 4 PRESSURE TREATED POLE WITH AN ALUMINUM POLE CAP SECURED WITH ALUMINUM NAILS. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH YOKE MOUNT, SQ CORD, AND INTEGRAL PHOTOCELL; CATALOG NO. DSXF2 LED-3-A530/40K-WFL-MVOLT-YKC62-PE-DDBXD.
4. 3" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR PUMP CABLES.
5. 2" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR FLOATS AND TRANSDUCER CABLES.



2 E2.1 ONE-LINE DIAGRAM - PS-4

NOT TO SCALE

A 3/4"C W/ ONE CAT 6 CABLE

B THREE 1"C W/ CONDUCTORS AS REQUIRED

C 3/4"C W/ 2 NO.14, 1 NO.14(G)

D 3/4"C W/ ONE CAT 6 CABLE, 8 NO.14, 1 NO.14(G)

3 E2.1 SCADA RISER

SCALE: NONE

VICINITY MAP

N.T.S.

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 40028 26 May 2023 CHARLES BEVERLEY COBB

SOUTH CAROLINA CHATHAM ENGINEERING COMPANY LLC C04812 CERTIFICATE OF AUTHORIZATION

REV/ NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
2				
3				
4				
5				
6				
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
PS-4 ELECTRICAL SITE PLAN, NOTES & ONE-LINE DIAGRAM

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
CC	CC		
JOB #	17-1007.035	ISSUE DATE	04-2023
		ISSUE	100%

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
E2.1

CADD PLOT
29-MAY-2023
13:43
CCOBB

E:\Ridgeland Well No.2 Rehab - 21010.01\CADD\E2.1.dgn

REFERENCE PLAT:

BOUNDARY, TREE & TOPOGRAPHIC SURVEY OF 2.00 ACRES,
TRACT C, S.C. HIGHWAY 362,
A SECTION OF JASPER COUNTY HOSPITAL,
U.S. HIGHWAY 278, RIDGELAND, JASPER COUNTY, SC,
BY: TERRY G. HATCHELL, S.C.R.L.S. NO. 11059,
SURVEYING CONSULTANTS,
RECORDED: P.B. 20 PAGE 281.

SPECIAL NOTE:

*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #7 BELOW

XX PHOTO LEGEND:
DENOTES PHOTO LOCATION AND DIRECTION

CONTROL POINT
NAIL WITH DISC
N:241308.72
E:2004688.18
ELEV. = 65.00'

CONTROL POINT
NAIL WITH DISC
N:241308.03
E:2004879.01
ELEV. = 62.83'

SSMH
TOP=63.00'
IE FLOWLINE=59.31'

CENTER OF PAVEMENT
EDGE OF PAVEMENT
BACK OF CURB
GIS-FM
GIS-WAT
SAN
6"PVC

PS5
4' DIAMETER METAL LID ON
CONCRETE PAD
TOP = 62.60'
IE BOTTOM=52.60'
NAVD 88 DATUM

CONCRETE VALVE VAULT
TOP = 62.35' IE
BOTTOM=59.05'

SMALL PUMP
CONTROL PANEL
PB
4"PVC
IE=58.65
6"PVC
IE=58.55
6"PVC
IE=58.38
GATE
CHAIN FENCE

2" PS5
FORCEMAIN

CENTER OF PS5 LID
N:241235.75
E:2004903.45

EARTHEN ACCESS PATHWAY

APPROXIMATE
LOCATION OF 20'
SEWER EASEMENT
(PER REF. PLAT)

COUNTY ROAD S-27-362
50' R/W PER REF. PLAT

APPROXIMATE PROPERTY LINE (PER REF. PLAT)

SC DEPT. OF MENTAL
RETARDATION
TAX PARCEL# 060-00-06-014

SC DEPT. OF HEALTH
TAX PARCEL# 060-00-06-015

CONTROL POINT
1/2"REBAR FOUND
N:241170.20
E:2004722.30

PRIVATE ASPHALT DRIVEWAY

TO RIDGELAND — US HIGHWAY 278 — TO GRAYS
LIVE OAKS HOSPITAL (JASPER COUNTY)
SC HWY S-27-362
SITE
VICINITY MAP
N.T.S.

N
0 10' 20'
SCALE (In Feet)

NOTES

1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
2. UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN AND ARE APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE EXACT LOCATION OF ANY UNDERGROUND UTILITY.
3. NO SUBSURFACE OR ENVIRONMENTAL INVESTIGATION OR WETLAND SURVEYS WERE PERFORMED FOR THIS PLAT. THEREFORE THIS PLAT DOES NOT REFLECT THE EXISTENCE OR NONEXISTENCE OF WETLANDS, CONTAMINATION, OR OTHER CONDITIONS WHICH MAY AFFECT THIS PROPERTY.
4. SURVEYING CONSULTANTS CERTIFIES TO THE BOUNDARY, TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS OF THE DATE OF SURVEY. IF THIS DOCUMENT IS TO BE PROVIDED AS A BASE MAP FOR OTHERS, INFORMATION ADDED AFTER THE DATE OF THIS SURVEY IS NOT THE RESPONSIBILITY OF SURVEYING CONSULTANTS.
5. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, THEREFORE THERE MAY BE OTHER EASEMENTS, RIGHT-OF-WAY, SETBACK LINES, AGREEMENTS, RESERVATIONS, RESTRICTIONS, OR OTHER SIMILAR MATTERS OF PUBLIC RECORD, NOT DEPICTED ON THIS SURVEY.
6. THE BOUNDARY AND EASEMENT LINES SHOWN ARE BASED ON MINIMAL MONUMENTATION FOUND AND THIER RELATIONSHIP TO THE REFERENCE PLAT AND SHOULD BE CONSIDERED APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE BOUNDARY AND EASEMENT LINES SHOWN.
7. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

LEGEND:

+63.5	SPOT ELEVATION
PVC	POLYVINYL CHLORIDE PIPE
EM	ELECTRIC METER
IE	INVERT ELEVATION
PP	POWER POLE
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
SSMH	SANITARY SEWER MANHOLE
WM	WATER METER
FFE	FINISH FLOOR ELEVATION
—— SAN ——	SANITARY SEWER LINE

PREPARED FOR: FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

ADDRESS:
(OFF OF) GRAYS HIGHWAY (S-27-362)
PARENT TAX PARCEL I.D. NO. 062-00-06-215

ASBUILT & TOPOGRAPHIC
EXHIBIT OF

PUMP STATION #5

OFF OF

GRAYS HIGHWAY (S-27-362)

A SECTION OF

TOWN OF RIDGELAND

JASPER COUNTY, SOUTH CAROLINA

DATE: 07/29/2021 JOB NO: SC210030-PS5

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 828-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

CREW: JH/MW CAD: AV

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

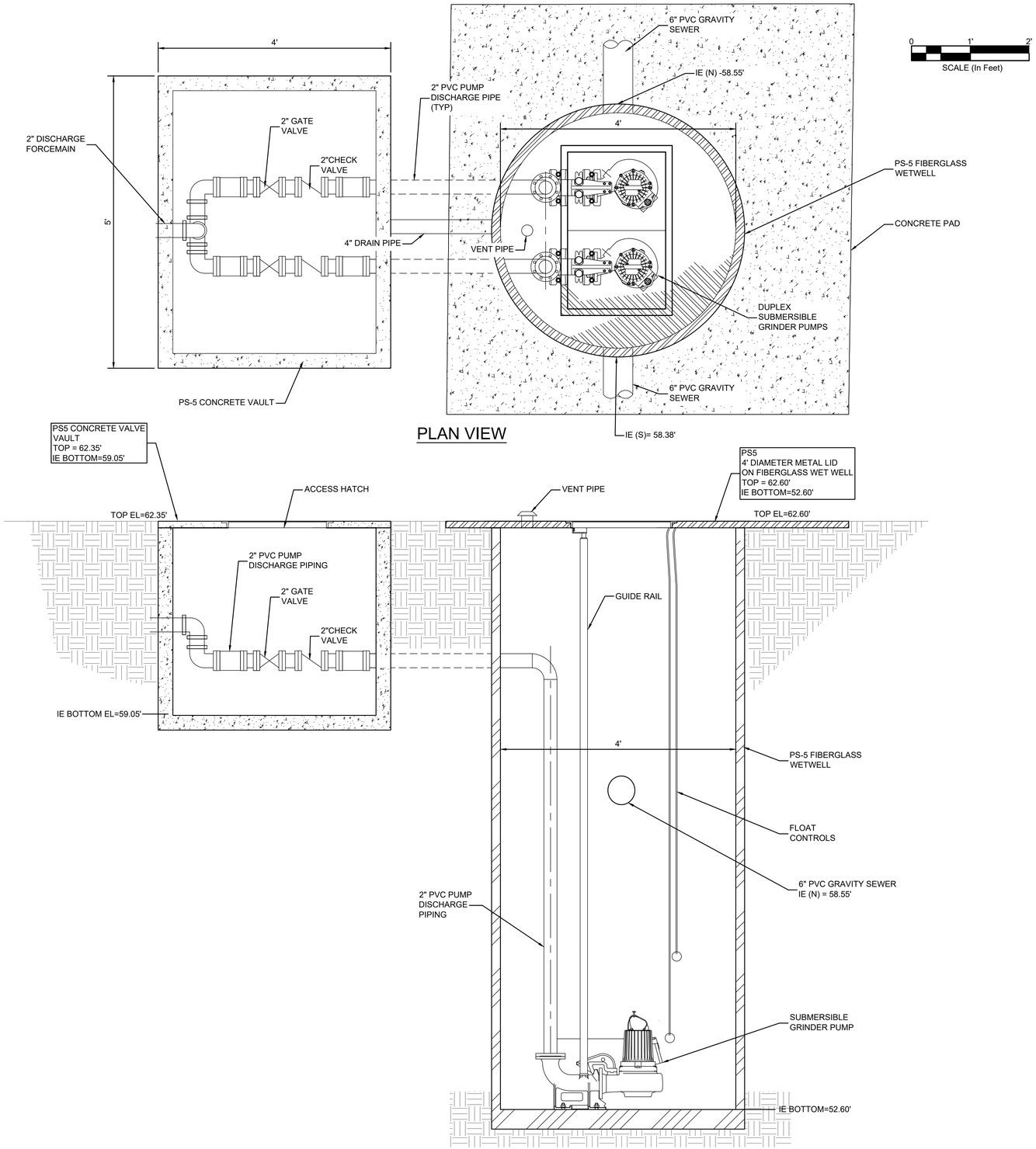
REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1				
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-5 EXISTING CONDITIONS AND KEY
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G3.1



PLAN VIEW

PROFILE

PHOTO-1
LOOKING INTO WET WELL

PHOTO-2
LOOKING INTO WET WELL

PHOTO-3
LOOKING INTO VALVE VAULT

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1				
2				
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4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-5 EXISTING CONDITIONS DETAIL

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

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DRAWING NUMBER
G3.2

PHOTO-4
LOOKING EAST AT PS-5 FROM DRIVEWAY

PHOTO-5
LOOKING EAST AT PS-5

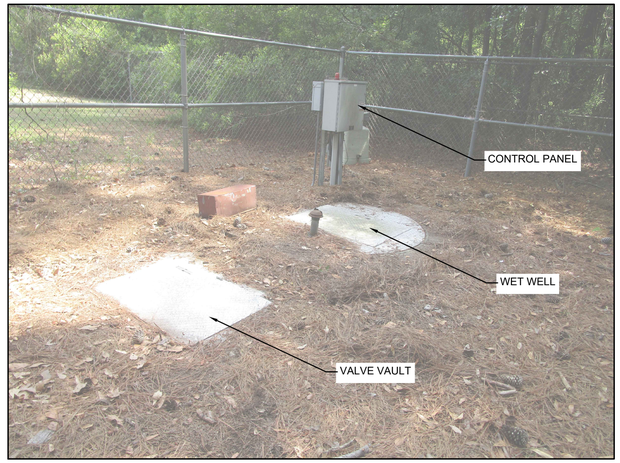

PHOTO-6
LOOKING NORTHEAST AT PUMP STATION

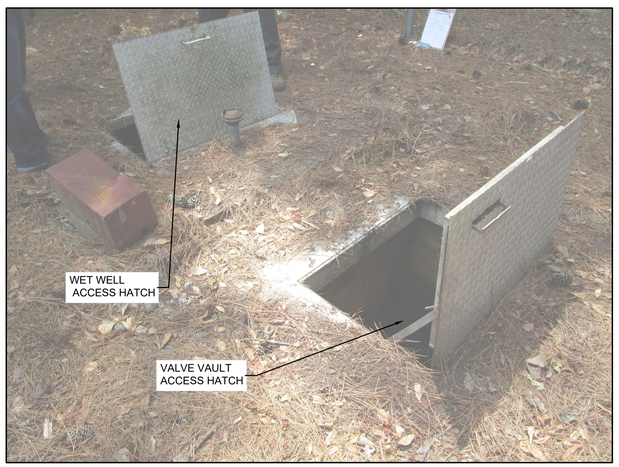

PHOTO-7
LOOKING SOUTH AT WET WELL AND VALVE VAULT

PHOTO-8
LOOKING NORTHWEST AT CONTROL PANEL

PHOTO-9
LOOKING WEST AT WET WELL

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
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No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1				
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5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-5 EXISTING CONDITIONS SITE PHOTOS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
	JOB # 17-1007	ISSUE DATE FEB 2023	
		ISSUE BID	

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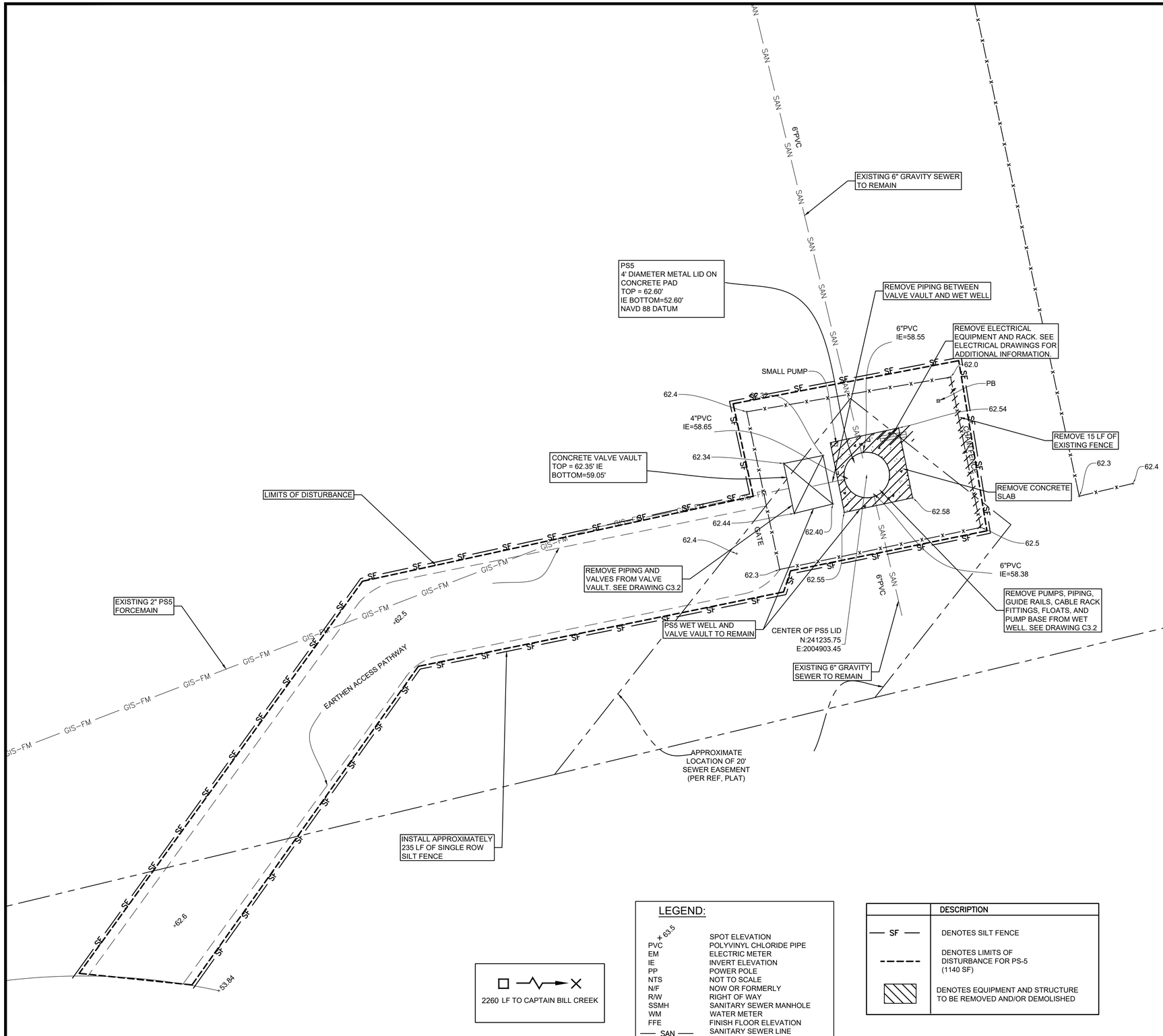
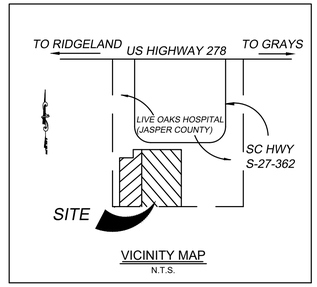
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G3.3





VICINITY MAP
N.T.S.

N

0 5' 10'

SCALE (In Feet)

1

LEGEND:

+63.5	SPOT ELEVATION
PVC	POLYVINYL CHLORIDE PIPE
EM	ELECTRIC METER
IE	INVERT ELEVATION
PP	POWER POLE
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
SSMH	SANITARY SEWER MANHOLE
WM	WATER METER
FFE	FINISH FLOOR ELEVATION
SAN	SANITARY SEWER LINE

	DESCRIPTION
SF	DENOTES SILT FENCE
	DENOTES LIMITS OF DISTURBANCE FOR PS-5 (1140 SF)
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL UPDATE
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-5 DEMOLITION PLAN SITE PLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
ISSUE	BID		

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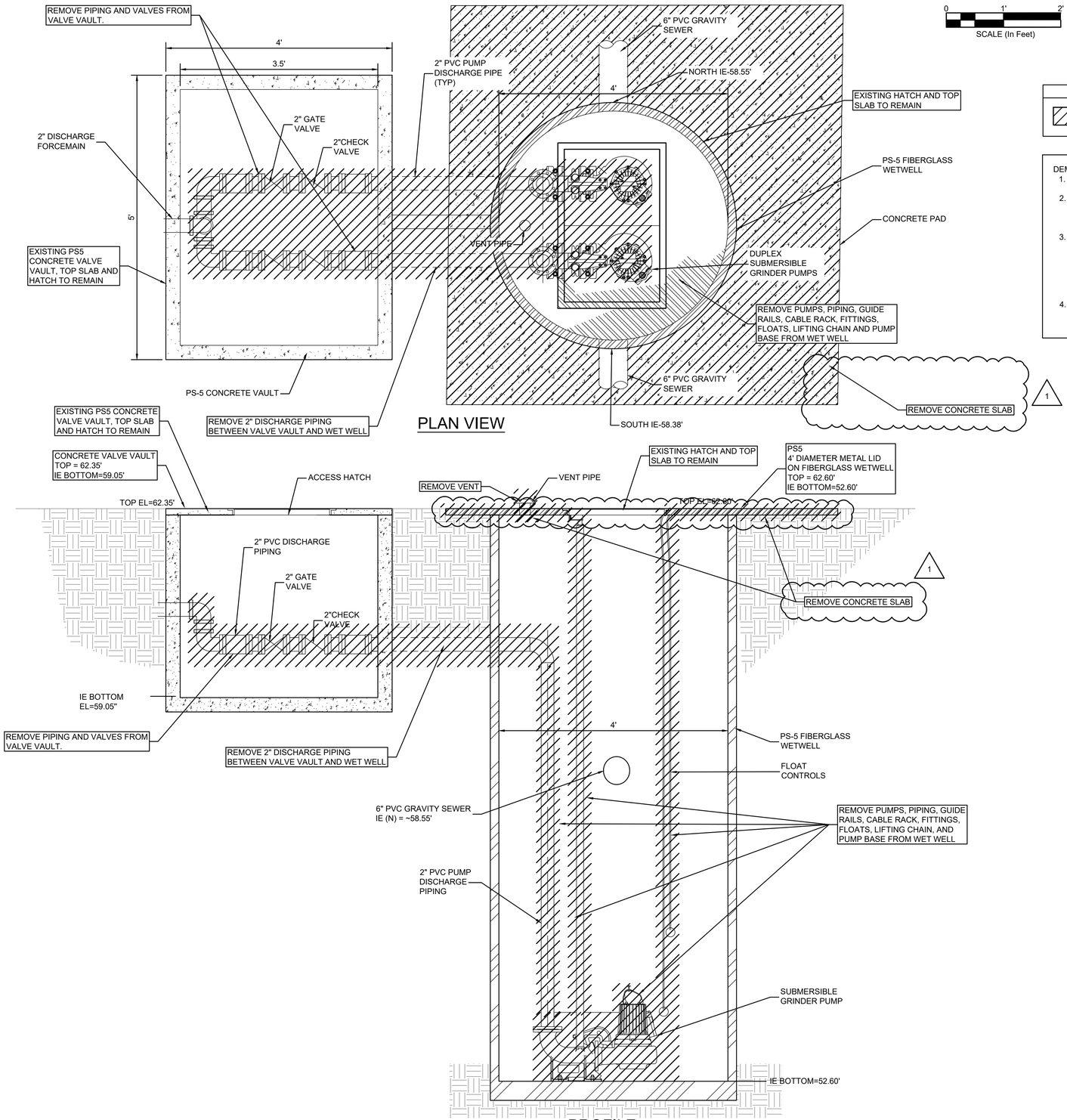
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C3.1



0 1' 2'
SCALE (In Feet)

	DESCRIPTION
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

DEMOLITION NOTES:
1. ALL NECESSARY TEMPORARY BYPASS OPERATIONS SHALL BE IN PLACE AND OPERATIONAL PRIOR TO INITIATING DEMOLITION ACTIVITIES.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. CONTRACTOR SHALL COORDINATE WITH TOWN OF RIDGELAND PROJECT REPRESENTATIVE REGARDING EQUIPMENT TO BE RETAINED BY TOWN WHICH SHALL BE DELIVERED TO THE JIMMY MIXSON WRF AT 366 PREACHER STREET. UNLESS SO IDENTIFIED, ALL OTHER EQUIPMENT AND MATERIALS TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
4. PRIOR TO DEMOLITION OR REMOVAL OF STRUCTURES USED FOR WASTEWATER, ALL WASTEWATER AND SOLIDS SHALL BE REMOVED FROM THE STRUCTURE AND PROPERLY DISPOSED.

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

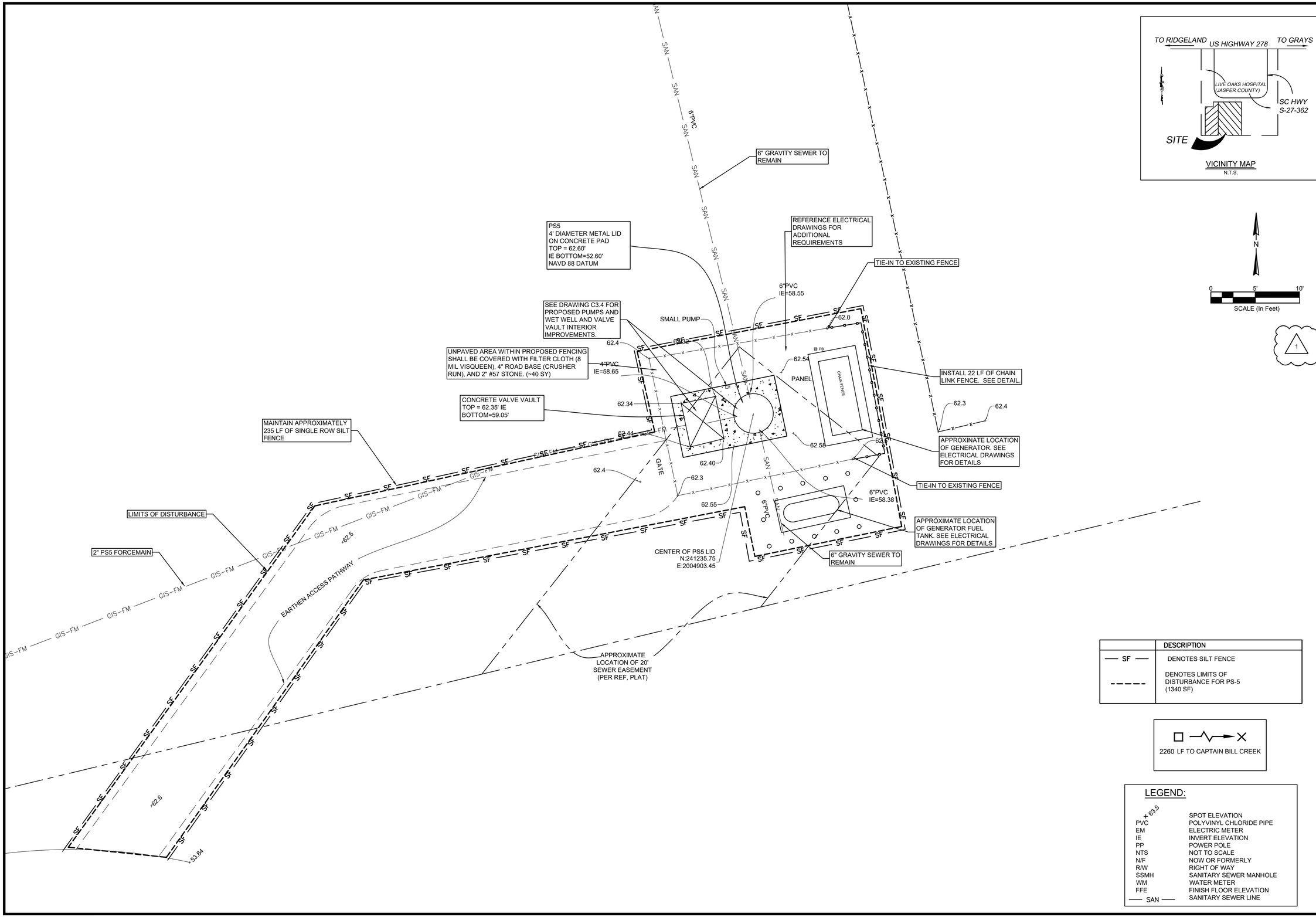
REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	SLAB REMOVAL
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-5 DEMOLITION PLAN DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C3.2



VICINITY MAP
N.T.S.

N

0 5' 10'

SCALE (In Feet)

1

	DESCRIPTION
— SF —	DENOTES SILT FENCE
- - - - -	DENOTES LIMITS OF DISTURBANCE FOR PS-5 (1340 SF)

2260 LF TO CAPTAIN BILL CREEK

LEGEND:

+ 63.5	SPOT ELEVATION
PVC	POLYVINYL CHLORIDE PIPE
EM	ELECTRIC METER
IE	INVERT ELEVATION
PP	POWER POLE
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
SSMH	SANITARY SEWER MANHOLE
WM	WATER METER
FFE	FINISH FLOOR ELEVATION
— SAN —	SANITARY SEWER LINE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL MINOR UPDATES
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

PS-5 PROPOSED IMPROVEMENTS PLAN

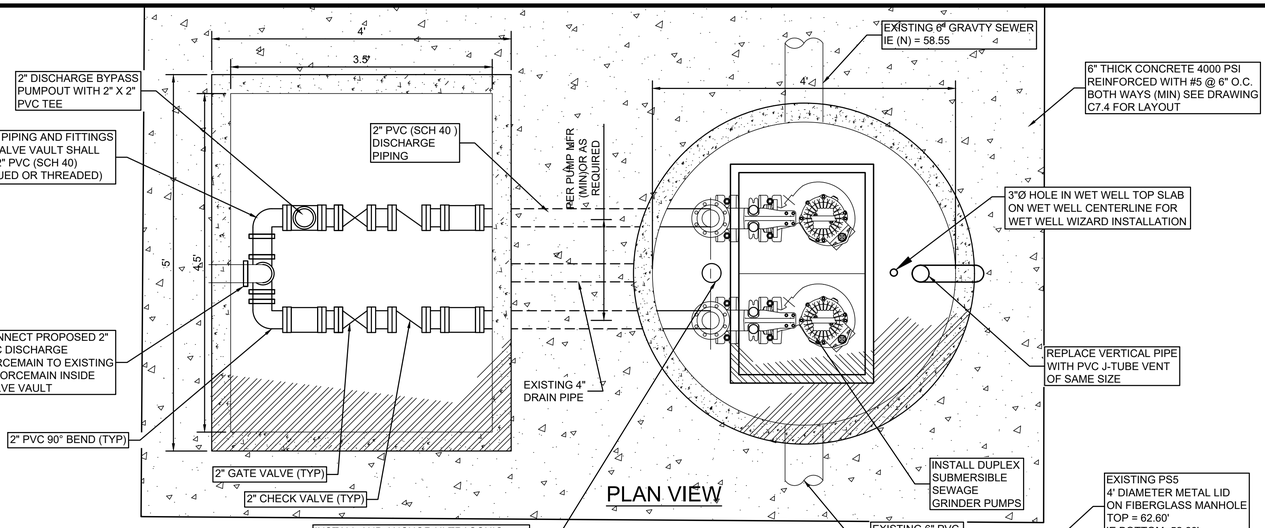
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

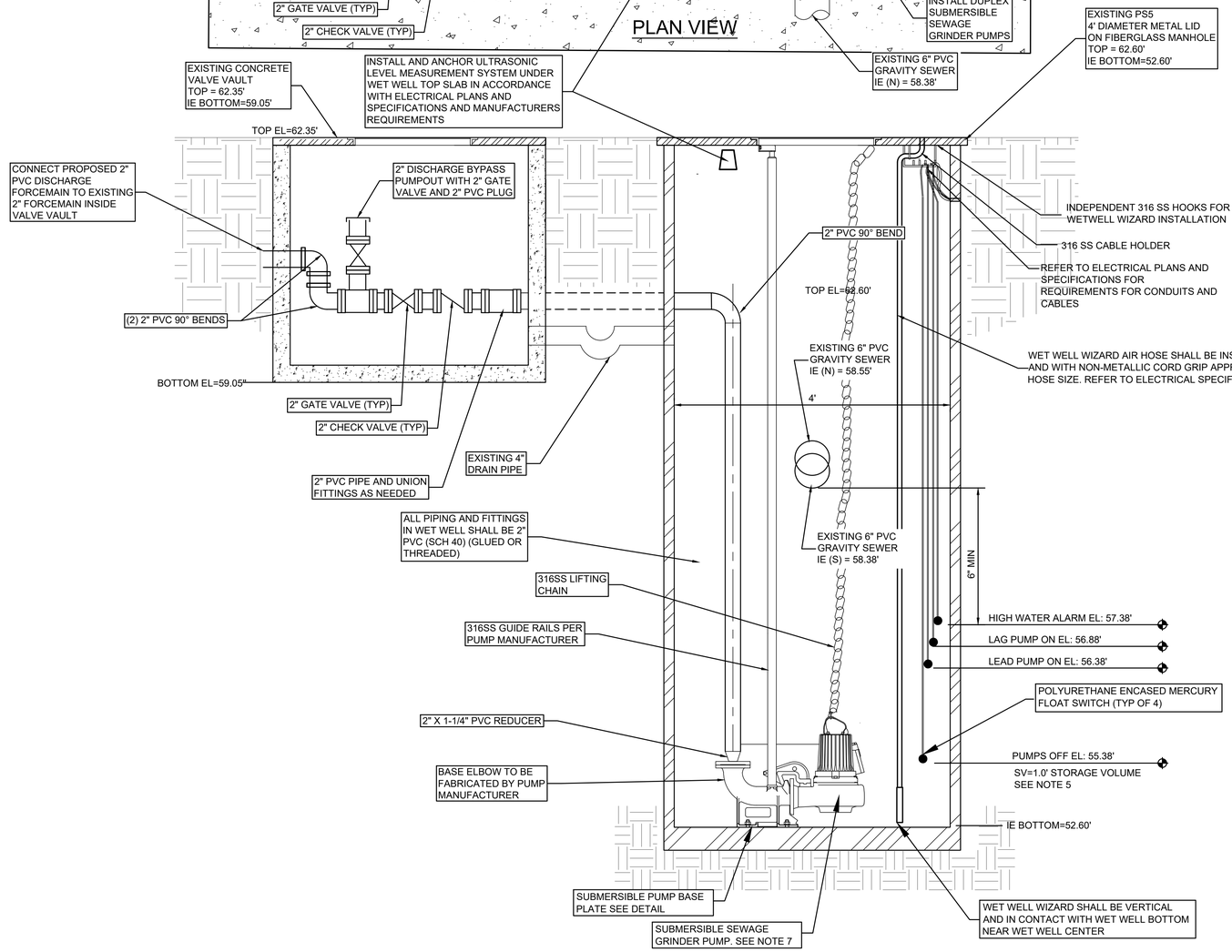
DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C3.3

0 1' 2'
SCALE (In Feet)





GENERAL NOTES

1. ALL METALS INSIDE THE WET WELL INCLUDING BUT NOT LIMITED TO GUIDE RAILS, LIFTING CHAINS, NUTS, BOLTS, CABLE HOLDERS, PIPE SUPPORTS AND BRACES, ETC., TO BE 316 STAINLESS STEEL, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. AERATION SYSTEM: WET WELL WIZARD SYSTEM AS MANUFACTURED BY RELIANT WATER TECHNOLOGIES, NEW ORLEANS, LA. WWW.RELIANTWATER.US.COM SHALL BE INSTALLED IN WET WELL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. WET WELL WIZARD SYSTEM SHALL INCLUDE (1) WET WELL WIZARD, (1) 1.5 HP BLOWER, AND ALL NECESSARY ASSOCIATED EQUIPMENT
3. LEVEL MONITORING: INSTALL ULTRASONIC LEVEL MEASUREMENT SYSTEM IN ACCORDANCE WITH ELECTRICAL PLANS AND SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS. PROVIDE FOUR BACKUP POLYURETHANE ENCASED MERCURY FLOAT SWITCHES FOR PUMPS OFF, LEAD PUMP ON, LAG PUMP ON, AND HIGH WATER ALARM.
4. EMERGENCY PUMP OUT CONNECTION: PIPE SIZE FOR EMERGENCY PUMP OUT CONNECTION SHALL MATCH PUMP DISCHARGE PIPE SIZE IN WET WELL.
5. "SV" – STORAGE VOLUME: STORAGE VOLUME PER DESIGN ENGINEER OF RECORD AND SHALL BE DESIGNED FOR A MAXIMUM SIX (6) STARTS PER HOUR, 10 MINUTE CYCLE TIME.
6. MIN. WATER LEVEL: MINIMUM WATER LEVEL IN WET WELL SHALL BE 30" MINIMUM FOR PROPER OPERATION OF THE WET WELL WIZARD, SHALL COVER TOP OF PUMP MOTOR, OR SHALL BE GREATER IF RECOMMENDED BY PUMP MANUFACTURER.
7. SUBMERSIBLE SEWAGE PUMPS:
   a. PUMPS SHALL BE SULZER ABS PUMPS SUITABLE FOR SUBMERSIBLE SEWER SERVICE. PUMPS SHALL BE 230/460 VOLTS, 3 PHASE, 60 HERTZ MOTORS.
   b. PUMP BASE ELBOW: BASE ELBOW TO BE FABRICATED BY PUMP MANUFACTURER.
8. FLOOD ZONE: DESIGN ENGINEER OF RECORD SHALL PROVIDE INFORMATION ON THE FLOOD ZONE OF THE PUMP STATION SITE AND SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WET WELL IS ABOVE THE 100 YEAR FLOOD ELEVATION AND THAT THE BOTTOM OF THE CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB AREA ALL ABOVE THE 100 YEAR FLOOD ELEVATION + 2 FEET OR THE 500 YEAR FLOOD ELEVATION, WHICHEVER IS GREATER.
9. PS-5 PROJECT SITE LOCATED IN ZONE X AREA OF MINIMAL FLOODING (NO ESTABLISHED FLOOD ELEVATION) PER FEMA FIRM MAP NO. 45053C0305D PANEL 305 OF 575 OCTOBER 18, 2019.
10. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ELEVATIONS AND DIMENSIONS CALLED OUT ON THIS PLAN SET FOR THE PUMP STATION PRIOR TO ORDERING OF ANY MATERIALS OR COMPONENTS OF THE PUMP STATION. ANY DEVIATION OF THE LAYOUTS INDICTED ON THIS PLAN MUST BE COMMUNICATED TO THE TOWN AND ENGINEER OF RECORD FOR FURTHER DIRECTION.
11. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY STABILIZATION FOR DEMOLITION AND CONSTRUCTION AND SHALL HIRE A SPECIALTY PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA TO DESIGN THE STABILIZATION SYSTEM FOR EXCAVATION AND EVALUATE THE DRAWDOWN OF THE DEWATERING OPERATIONS DURING CONSTRUCTION IN ORDER TO PROTECT THE EXISTING PS-6 STRUCTURES. DESIGN AND EVALUATION SHALL BE SIGNED AND SEALED AND SUBMITTED TO THE TOWN OF RIDGELAND AND ENGINEER OF RECORD.
12. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING OPERATIONS, THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN FOR APPROVAL AND SHALL SECURE AN SCDHEC NPDES GENERIC PERMIT WHICH COVERS STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES AND DEWATERING OF NON-CONTAMINATED GROUNDWATER.
13. PIMP STATION SITE SHALL HAVE CONCRETE SLAB AROUND WET WELL VALVE VAULT AND PANEL AREAS AS NOTED. PROVIDE 1/2" EXPANSION JOINT MATERIAL BETWEEN WET WELL AND SLAB AND VALVE VAULT AND SLAB. CONCRETE SLAB SHALL BE 4000 PSI CONCRETE WITH REINFORCEMENT AS PER DRAWINGS.
14. RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO PRE CONSTRUCTION CONDITION. HYDROSEED AND MULCH ALL UNPAVED AREAS OUTSIDE OF FENCING. REFERENCE DRAWING C3.3 FOR RESTORATION REQUIREMENTS INSIDE PUMP STATION FENCING.

1

*PUMP STATION:	Town of Ridgeland PS-5
*LOCATION:	Health Complex off Grays Highway (Hwy 278)
*PUMP MANUFACTURER:	Sulzer
*DESIGN CONDITION:	25 GPM @ 23FT TDH
*MODEL#:	PIRANHA S20/2D 5-2/3 Inch Imp
SERIAL#:	
HORSEPOWER:	2.41 Hp
VOLTAGE:	208 V
DATE INSTALLED:	
*ENGINEER:	Four Waters Engineering, Inc.
CONTRACTOR:	

*INFORMATION REQUIRED ON CONSTRUCTION PLANS. REMAINING INFORMATION REQUIRES ASBUILT

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL DESIGN UPDATES
2				
3				
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5				
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

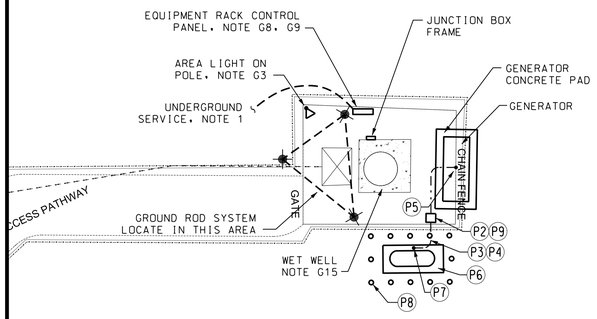
PS-5 PROPOSED IMPROVEMENTS DETAIL

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C3.4



1 E3.1 SITE PLAN PS-5 - ELECTRICAL

SCALE: 1" = 10' - 0"

PROPANE FUEL NOTES:

(P1) ALL PROPANE GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED JOINTS. ALL WORK AND MATERIALS ON THE GAS SYSTEM SHALL COMPLY WITH THE "INTERNATIONAL GAS CODE". PAINT ALL EXPOSED GAS PIPING WITH RUST INHIBITING PRIMER AND 1 COAT OF OIL BASED YELLOW ENAMEL PAINT.

(P2) PROPANE GAS PRESSURE REGULATOR SIZED FOR 219 CFH AT 11 INCH WC OUTLET PRESSURE.

(P3) PROPANE GAS LINE U/G BY CONTRACTOR. COORDINATE WITH PROPANE COMPANY.

(P4) 3" GAS DOWN TO UNDERGROUND. UNDERGROUND PIPING SHALL BE SDR 11 POLYETHLYLENE PIPE AND FITTINGS.

(P5) 3" GAS UP TO GENERATOR. PROVIDE PLUG VALVE, UNION AND DRIPLEG AT CONNECTION. COORDINATE EXACT LOCATION OF CONNECTION WITH GENERATOR.

(P6) PROVIDE A CONCRETE PAD FOR THE PROPANE TANK, 12" THICK, 24"WIDER AND 24" LONGER THAN THE PROPANE TANK. REFER TO DETAIL 1/E0.1 FOR CONSTRUCTION REQUIREMENTS.

(P7) PROVIDE 2" SCH.80 PVC RISER AT TANK MID-POINT, EXTEND TO WITHIN 5' OF GENERATOR. CONDUIT SHALL BE 30" BELOW FINISH GRADE, MINIMUM. PROVIDE DETECTABLE PLASTIC WARNING TAPE 12" BELOW FINISH GRADE.

(P8) PROVIDE STEEL PIPE BOLLARDS IN FRONT OF THE PROPANE TANK, 36" ON CENTER. SEE DETAIL THIS SHEET. BOLLARDS SHALL EXTEND BEYOND THE END OF THE PROPANE TANK.

(P9) FIELD COORDINATE INLET LOCATION ON GENERATOR AND THE REGULATOR WITH THE PROPANE PROVIDER. THE REGULATOR SHALL NOT BE WITHIN 5' OF THE GENERATOR.

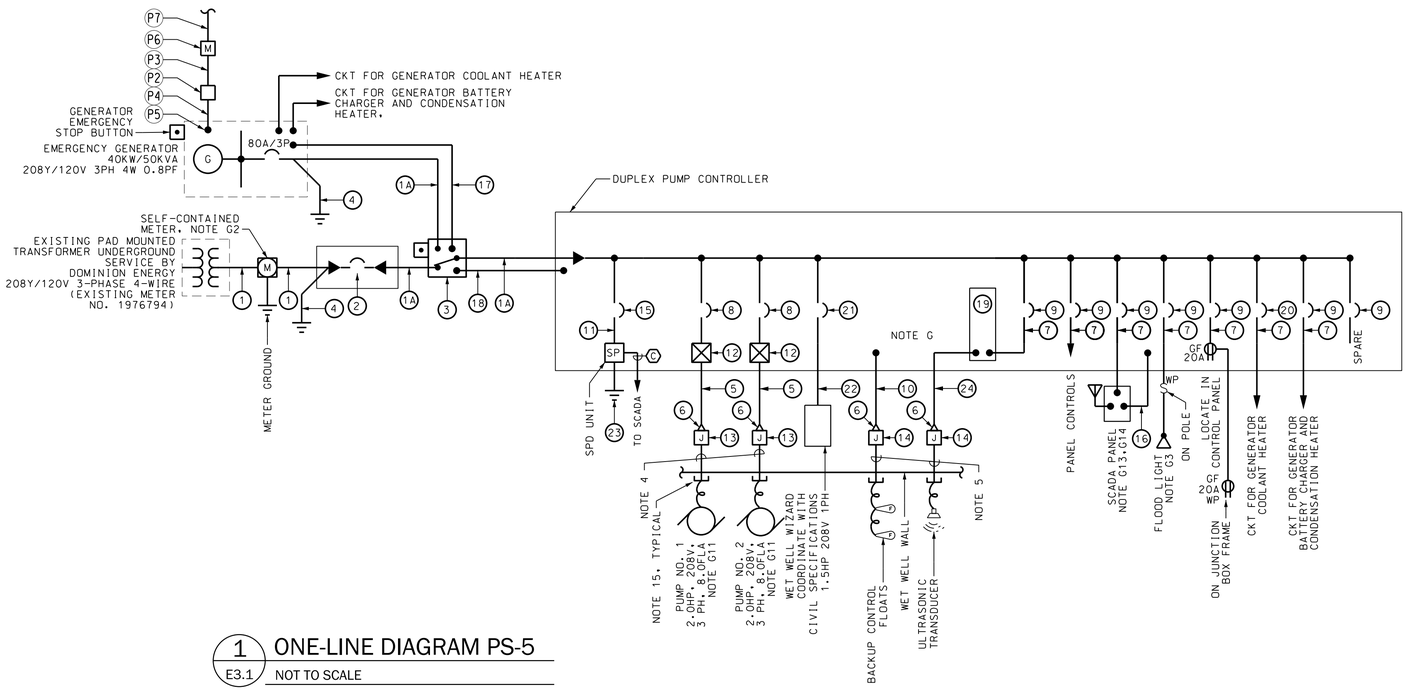
DUPLEX PUMP STATION ONE LINE SCHEDULE

ITEM# PS-5 2.0HP 208V 3PH 8.0FLA

(1)	1¼"C W/ 4 NO.3
(1A)	1¼"C W/ 4 NO.3, 1 NO.8(G)
(2)	80A/3P/4X SS ENCLOSURE UL SERVICE LABEL. POST FAULT CURRENT AVAILABLE & DATE CALCULATED 10 000 MIN A.I.C. @ 208V
(3)	125A/4P 4X STAINLESS STEEL AUTOMATIC TRANSFER SWITCH MOUNTED ON EQUIPMENT FRAME
(4)	¾" SCH.80 PVC W/1NO.6 GROUNDING ELECTRODE CONDUCTOR
(5)	2"C.W/3NO.12, 1 NO.12(G) 4NO.12(CNTLS)
(6)	SEALING HUB, C-H TYPE ES, NOTE G6
(7)	¾"C W/2NO.12, 1NO.12(G)
(8)	20A/3P MOTOR BREAKER 10 000 MIN. A.I.C. @ 208V
(9)	20A/1P CIRCUIT BREAKER, 10 000 MIN. A.I.C. @ 120V
(10)	¾"C W/4NO.12, 1NO.12(G) FOR FLOATS
(11)	3NO.10, 1NO.10(G) SHALL NOT EXCEED 18" IN LENGTH
(12)	NEMA SIZE 0 FVNR STARTER WITH SOLID STATE OVERLOAD PROTECTION
(13)	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH POWER BLOCKS AND TERMINAL STRIPS AS REQUIRED. NOTE G10
(14)	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH TERMINAL STRIPS AS REQUIRED. NOTE G11
(15)	30A/3P 10 000 MIN A.I.C. @ 208V SURGE PROTECTION DEVICE CIRCUIT BREAKER. COORDINATE WITH EQUIPMENT
(16)	2"C W/ SCADA ALARM AND STATUS CONDUCTORS
(17)	THREE 1"C W/CONDUCTORS AS REQUIRED FOR CONTROL AND ALARM ANNUNCIATION
(18)	1"C W/CONDUCTORS AS REQUIRED FOR LOAD CONTROL
(19)	ULTRASONIC LEVEL CONTROLLER: HYDRORANGER 200
(20)	20A/2P CIRCUIT BREAKER FOR GENERATOR COOLANT HEATER
(21)	10000 MIN. A.I.C. @ 208V WET WELL WIZARD BREAKER 25A/2P
(22)	¾" C W/2NO.10, 1NO.10(G)
(23)	SURGE PROTECTION DEVICE CONNECTION TO GROUNDING DELTA: ¾" SCH.80 PVC W/ 1 NO.10(G)
(24)	2"C W/ ULTRASONIC TRANSDUCER CABLE. NO SPLICES PERMITTED CABLE SHALL BE CONTINUOUS FROM WET WELL TO CONTROL PANEL

ELECTRICAL NOTES:

1. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. PROVIDE AERIAL OR UNDERGROUND SERVICE AS REQUIRED BY THE UTILITY AND PROJECT REQUIREMENTS. COORDINATE WITH DOMINION ENERGY OR PALMETTO ELECTRIC AS APPLICABLE.
2. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.
3. FOR STATIONS WITH UNDERGROUND UTILITY POWER DISTRIBUTION, MOUNT THE AREA LIGHT ON A 25' CLASS 4 PRESSURE TREATED POLE WITH AN ALUMINUM POLE CAP SECURED WITH ALUMINUM NAILS. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH YOKE MOUNT, SQ CORD, AND INTEGRAL PHOTOCELL; CATALOG NO. DSXF2 LED-3-A530/40K-WFL-MVOLT-YKC62-PE-DDBXD.
4. 3" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR PUMP CABLES.
5. 2" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR FLOATS AND TRANSDUCER CABLES.



1 E3.1 ONE-LINE DIAGRAM PS-5

NOT TO SCALE

(A) ¾"C W/ ONE CAT 6 CABLE

(B) THREE 1"C W/ CONDUCTORS AS REQUIRED

(C) ¾"C W/ 2 NO.14, 1 NO.14(G)

(D) ¾"C W/ ONE CAT 6 CABLE, 8 NO.14, 1 NO.14(G)

3 E3.1 SCADA RISER

SCALE: NONE

VICINITY MAP

N.T.S.

SOUTH CAROLINA PROFESSIONAL ENGINEER CHARLES BEVERLEY COBB No. 40028 26 May 2023

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CHATHAM ENGINEERING COMPANY LLC C04812

REV/ NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I PS-5 ELECTRICAL SITE PLAN, NOTES & DETAILS

TOWN OF RIDGELAND RIDGELAND, SOUTH CAROLINA

DESIGN CC	DRAWN CC		
JOB #	17-1007.005		
ISSUE DATE	04-2023		
ISSUE	100%		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER E3.1

CADD PLOT 29-MAY-2023 13:46 CCOBB

E:\Ridgeland Well No.2 Rehab - 21010.01\CADD\E3.1.dgn

SPECIAL NOTE:
*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #7 BELOW

NOTES:
1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
2. UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN AND ARE APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE EXACT LOCATION OF ANY UNDERGROUND UTILITY.
3. NO SUBSURFACE OR ENVIRONMENTAL INVESTIGATION OR WETLAND SURVEYS WERE PERFORMED FOR THIS PLAT. THEREFORE THIS PLAT DOES NOT REFLECT THE EXISTENCE OR NONEXISTENCE OF WETLANDS, CONTAMINATION, OR OTHER CONDITIONS WHICH MAY AFFECT THIS PROPERTY.
4. SURVEYING CONSULTANTS CERTIFIES TO THE BOUNDARY, TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS OF THE DATE OF SURVEY. IF THIS DOCUMENT IS TO BE PROVIDED AS A BASE MAP FOR OTHERS, INFORMATION ADDED AFTER THE DATE OF THIS SURVEY IS NOT THE RESPONSIBILITY OF SURVEYING CONSULTANTS.
5. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, THEREFORE THERE MAY BE OTHER EASEMENTS, RIGHT-OF-WAY, SETBACK LINES, AGREEMENTS, RESERVATIONS, RESTRICTIONS, OR OTHER SIMILAR MATTERS OF PUBLIC RECORD, NOT DEPICTED ON THIS SURVEY.
6. NO BOUNDARY LINES AND/OR ROAD RIGHT-OF-WAY LINES WERE NOT ESTABLISHED AS A PART OF THIS SURVEY.
7. THE HORIZNTAL DATUM SHOWN IS BASED ON NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES. THE VERTICAL DATUM SHOWN IS BASED ON NAVD 88 DATUM. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

LEGEND:

+ 34.5	SPOT ELEVATION
EM	ELECTRIC METER
IE	INVERT ELEVATION
LP	LIGHT POLE
NTS	NOT TO SCALE
SSMH	SANITARY SEWER MANHOLE
WS	WATER SPIGOT

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

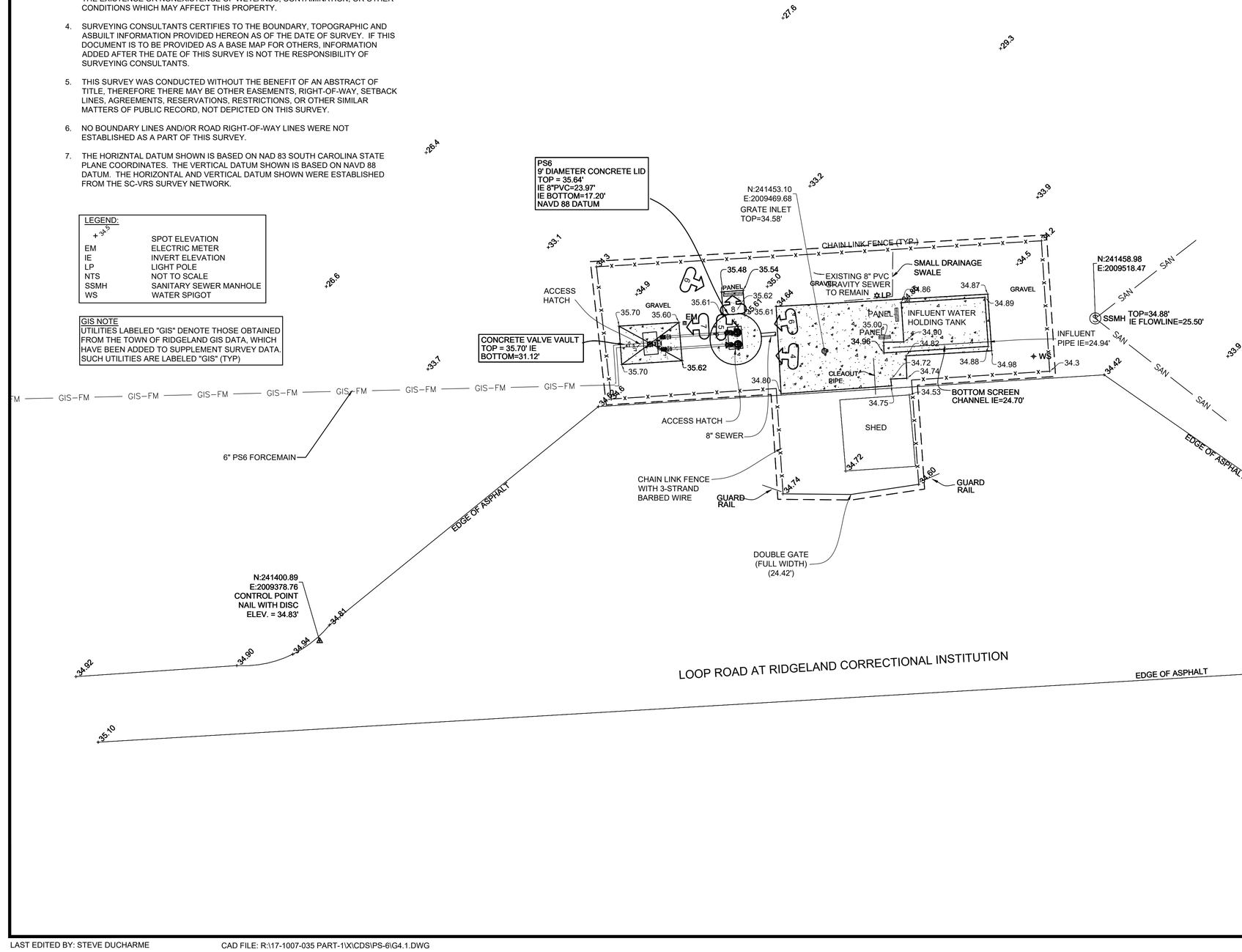
PREPARED FOR: FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

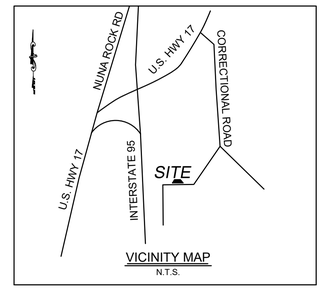
ADDRESS: #135 CORRECTIONAL ROAD
PARENT TAX PARCEL I.D. NO. 062-00-10-048

XX PHOTO LEGEND:
DENOTES PHOTO LOCATION AND DIRECTION

N

0 10' 20'
SCALE (In Feet)





VICINITY MAP
N.T.S.

ASBUILT & TOPOGRAPHIC
EXHIBIT OF

PUMP STATION #6

A PORTION OF

TAX PARCEL I.D. NO. 062-00-10-048

OFF OF

#135 CORRECTIONAL ROAD

S.C. DEPARTMENT OF CORRECTIONS

A SECTION OF

TOWN OF RIDGELAND

JASPER COUNTY, SOUTH CAROLINA

DATE: 07/29/2021 JOB NO: SC210030-PS6

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 826-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

CREW: JH/MW
CAD: AJ

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-6 EXISTING CONDITIONS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
		ISSUE	BID

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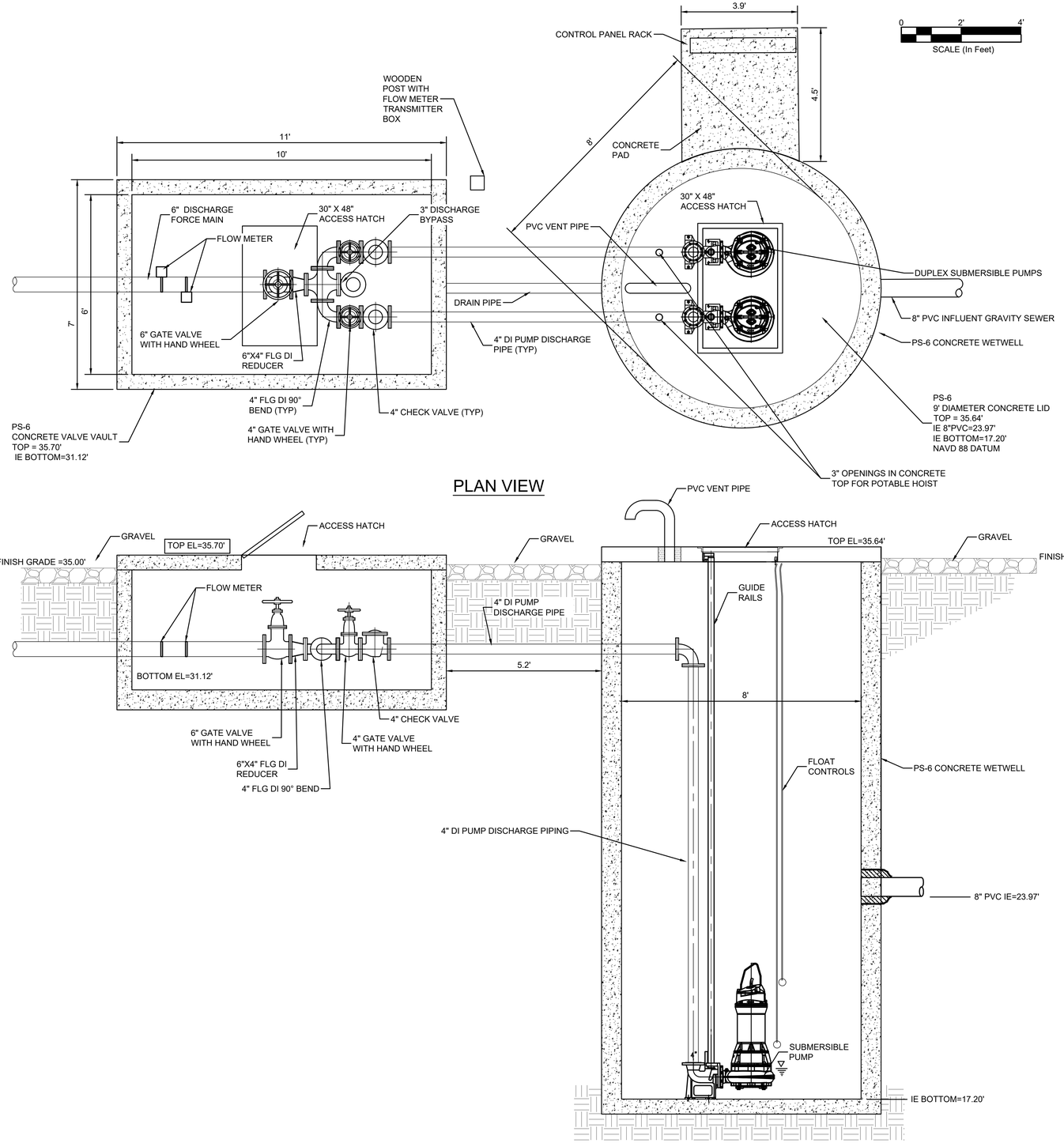

PLAN VIEW

PROFILE

PHOTO-1
LOOKING INTO WET WELL

PHOTO-2
LOOKING INTO WET WELL

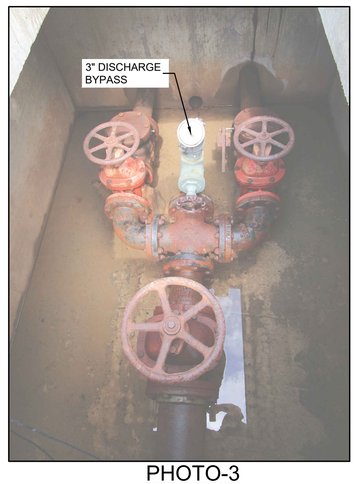

PHOTO-3
LOOKING INTO VALVE VAULT

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC. No. 5166

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1

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-6 EXISTING CONDITIONS DETAIL

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSON/VILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G4.2

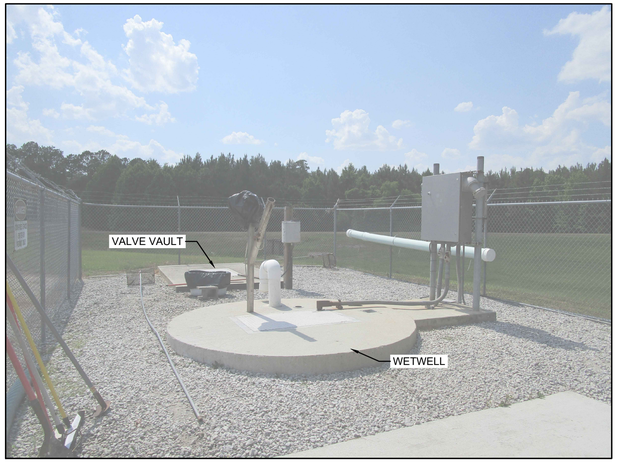

PHOTO-4

LOOKING WEST TOWARDS PUMP STATION FROM CONCRETE PAD

PHOTO-5

LOOKING EAST TOWARDS INFLUENT SCREENING FROM WET WELL

PHOTO-6

LOOKING WEST TOWARDS PUMP STATION

PHOTO-7

LOOKING WEST AT FLOW METER TRANSMITTER BOX ADJACENT TO VALVE VAULT

PHOTO-8

LOOKING NORTH AT PUMP STATION CONTROL PANEL

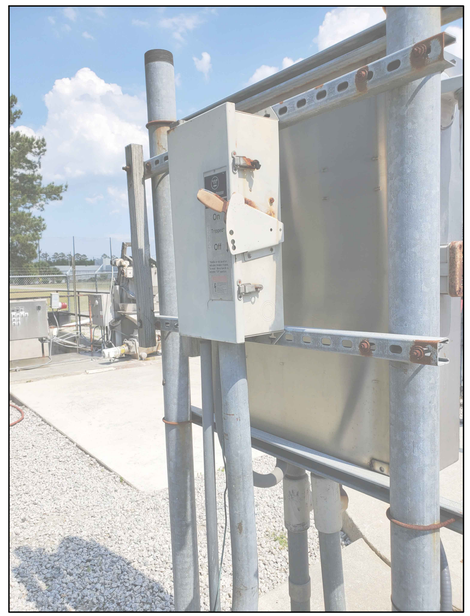

PHOTO-9

LOOKING SOUTHEAST AT BACK OF PANEL RACK

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

PS-6 EXISTING CONDITIONS SITE PHOTOS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
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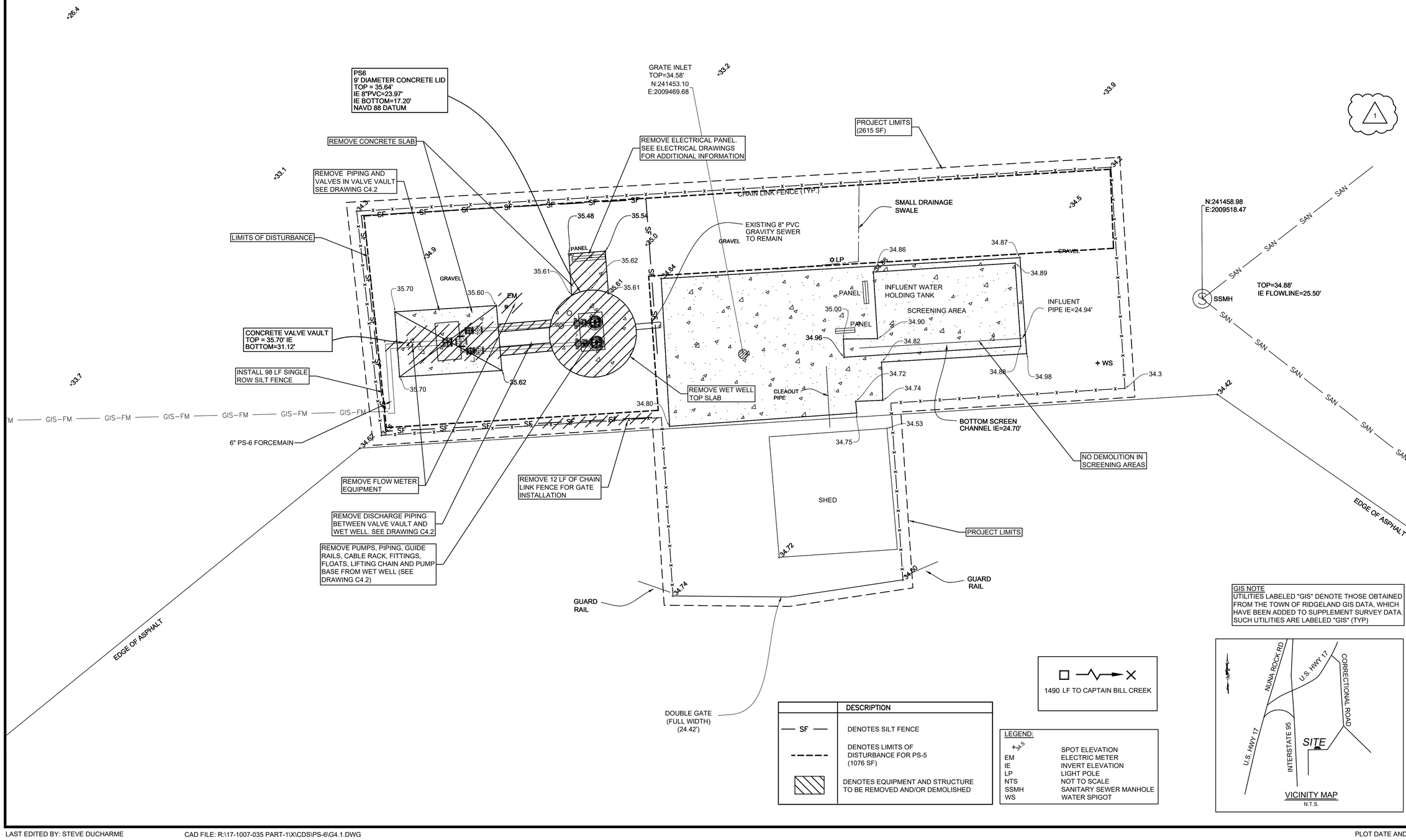

	DESCRIPTION
SF	DENOTES SILT FENCE
	DENOTES LIMITS OF DISTURBANCE FOR PS-5 (1076 SF)
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

LEGEND:

+34.5	SPOT ELEVATION
EM	ELECTRIC METER
IE	INVERT ELEVATION
LP	LIGHT POLE
NTS	NOT TO SCALE
SSMH	SANITARY SEWER MANHOLE
WS	WATER SPIGOT

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

VICINITY MAP
N.T.S.

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-6 DEMOLITION PLAN SITE PLAN
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		BID
	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE

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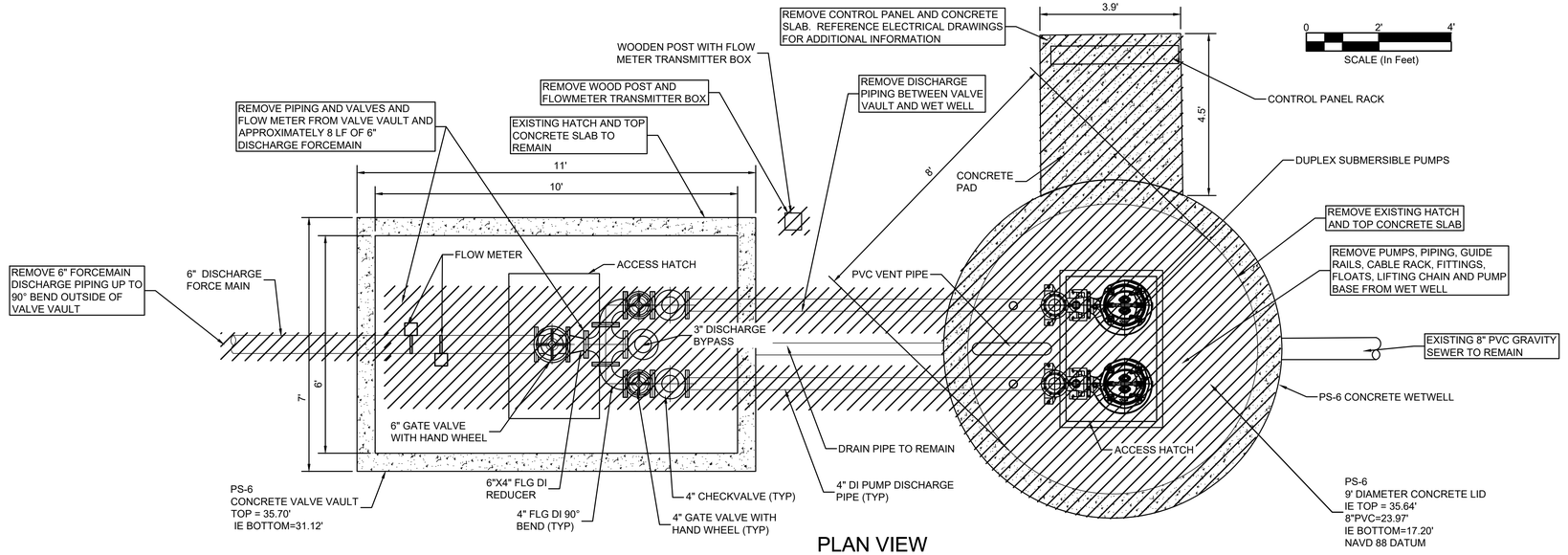
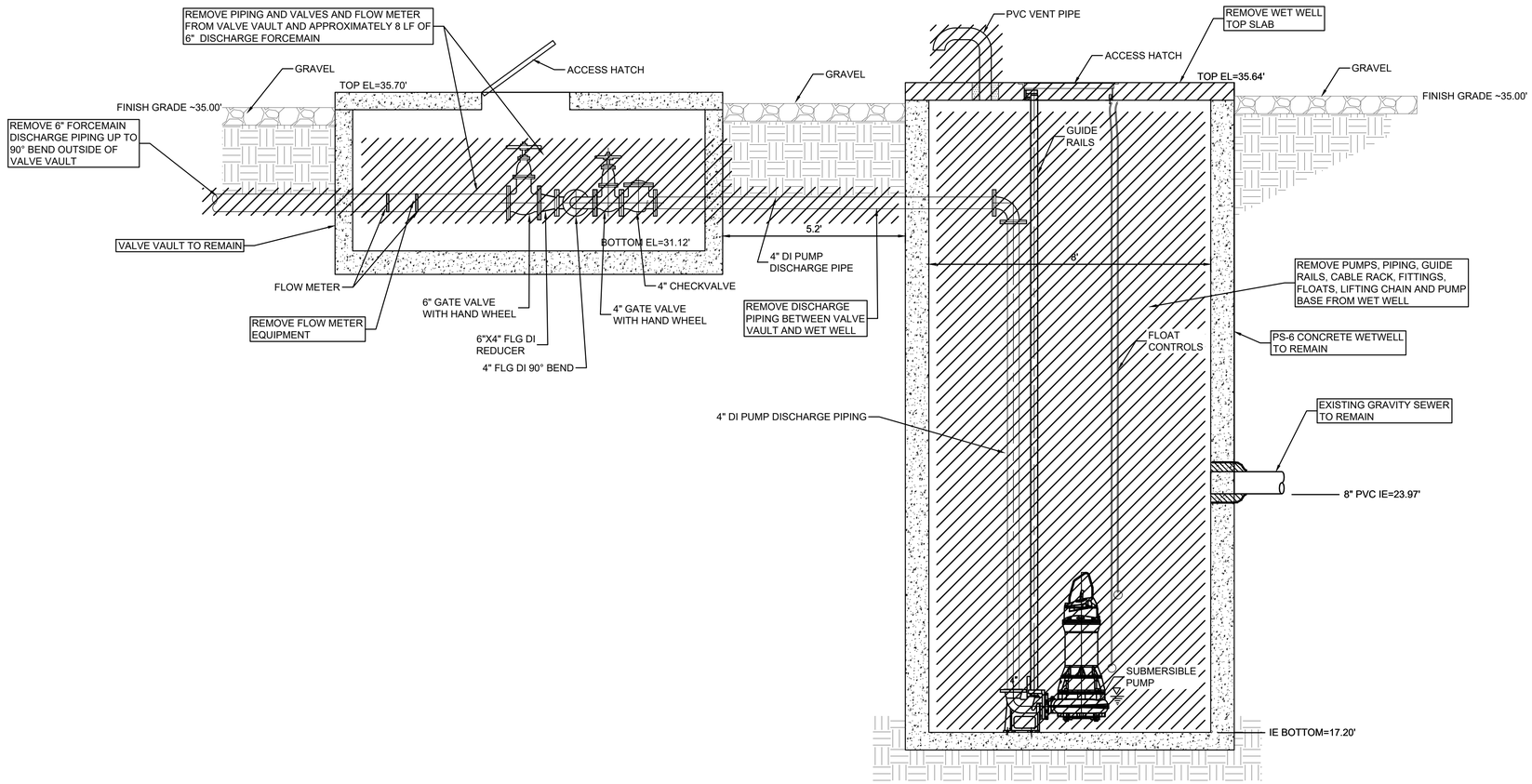
C4.1

LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-1\X\CDS\PS-6\G4.1.DWG
PLOT DATE AND TIME: 6/1/2023 7:08:02 PM



PLAN VIEW



PROFILE

DEMOLITION NOTES:

1. ALL NECESSARY TEMPORARY BYPASS OPERATIONS SHALL BE IN PLACE AND OPERATIONAL PRIOR TO INITIATING DEMOLITION ACTIVITIES.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. CONTRACTOR SHALL COORDINATE WITH TOWN OF RIDGELAND PROJECT REPRESENTATIVE REGARDING EQUIPMENT TO BE RETAINED BY TOWN WHICH SHALL BE DELIVERED TO THE JIMMY MIXSON WRF AT 366 PREACHER STREET. UNLESS SO IDENTIFIED, ALL OTHER EQUIPMENT AND MATERIALS TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
4. PRIOR TO DEMOLITION OR REMOVAL OF STRUCTURES USED FOR WASTEWATER, ALL WASTEWATER AND SOLIDS SHALL BE REMOVED FROM THE STRUCTURE AND PROPERLY DISPOSED.

	DESCRIPTION
▨	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

1

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-6 DEMOLITION PLAN DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	FEB 2023	BID

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DRAWING NUMBER
C4.2

PS6
EXISTING WETWELL TO REMAIN. CONCRETE TOP SLAB TO BE REPLACED

INSTALL NEW 9'-6" DIAMETER WETWELL PRECAST CONCRETE TOP SLAB. SEE DRAWING C4.4

SEE DRAWING C4.4 FOR VALVE VAULT INTERIOR IMPROVEMENTS

REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL IMPROVEMENTS

SEE DRAWING C4.4 FOR WET WELL INTERIOR IMPROVEMENTS

LIMITS OF DISTURBANCE

INSTALL APPROXIMATELY 98 LF OF SINGLE ROW SILT FENCE

CONCRETE VALVE VAULT TOP = 35.70' IE BOTTOM=31.12'

CONNECT 6" DISCHARGE FORCEMAIN PIPING TO EXISTING 6" 90° BEND. RESTRAIN FITTING

INSTALL 6" INSERT VALVE WITH BOX AND COVER

CONTRACTOR TO VERIFY LOCATION OF EXISTING 6" FORCEMAIN

ACCESS HATCH

CENTER OF PS6 LID
N:241455.27
E:2009453.71

INSTALL NEW 12' WIDE DOUBLE SWING GATE. SEE DETAIL DRAWING D8.2

INSTALL DISCHARGE BYPASS CONNECTION WITH 6"X6" TAPPING SLEEVE AND VALVE WITH BOX AND COVER. SEE DRAWING C4.4 FOR DETAIL

DOUBLE GATE (FULL WIDTH) (24.42')

CHAIN LINK FENCE (TYP.)

SMALL DRAINAGE SWALE

GRAVEL

LP

PANEL

INFLUENT WATER HOLDING TANK

SCREENING AREA

INFLUENT PIPE IE=24.94'

N:241453.10
E:2009469.68
GRATE INLET TOP=34.58'

EXISTING 8" PVC GRAVITY SEWER

CLEAOUT PIPE

BOTTOM SCREEN CHANNEL IE=24.70'

WS

SHED

NO CONSTRUCTION WITHIN SCREENING AREA

PROJECT LIMITS

GUARD RAIL

EDGE OF ASPHALT

EM

GIS–FM

SF

SAN

N:241458.98
E:2009518.47

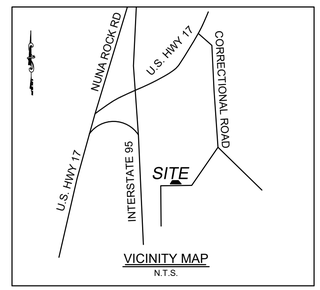
SSMH
TOP=34.88'
IE FLOWLINE=25.50'

1490 LF TO CAPTAIN BILL CREEK

	DESCRIPTION
— SF —	DENOTES SILT FENCE
- - - - -	DENOTES LIMITS OF DISTURBANCE FOR PS-5 (658 SF)

LEGEND:

+ 34.5	SPOT ELEVATION
EM	ELECTRIC METER
IE	INVERT ELEVATION
LP	LIGHT POLE
NTS	NOT TO SCALE
SSMH	SANITARY SEWER MANHOLE
WS	WATER SPIGOT



VICINITY MAP
N.T.S.

0 5' 10'
SCALE (In Feet)

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-6 PROPOSED IMPROVEMENTS PLAN
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	BID
DRAWN JMC			ISSUE

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

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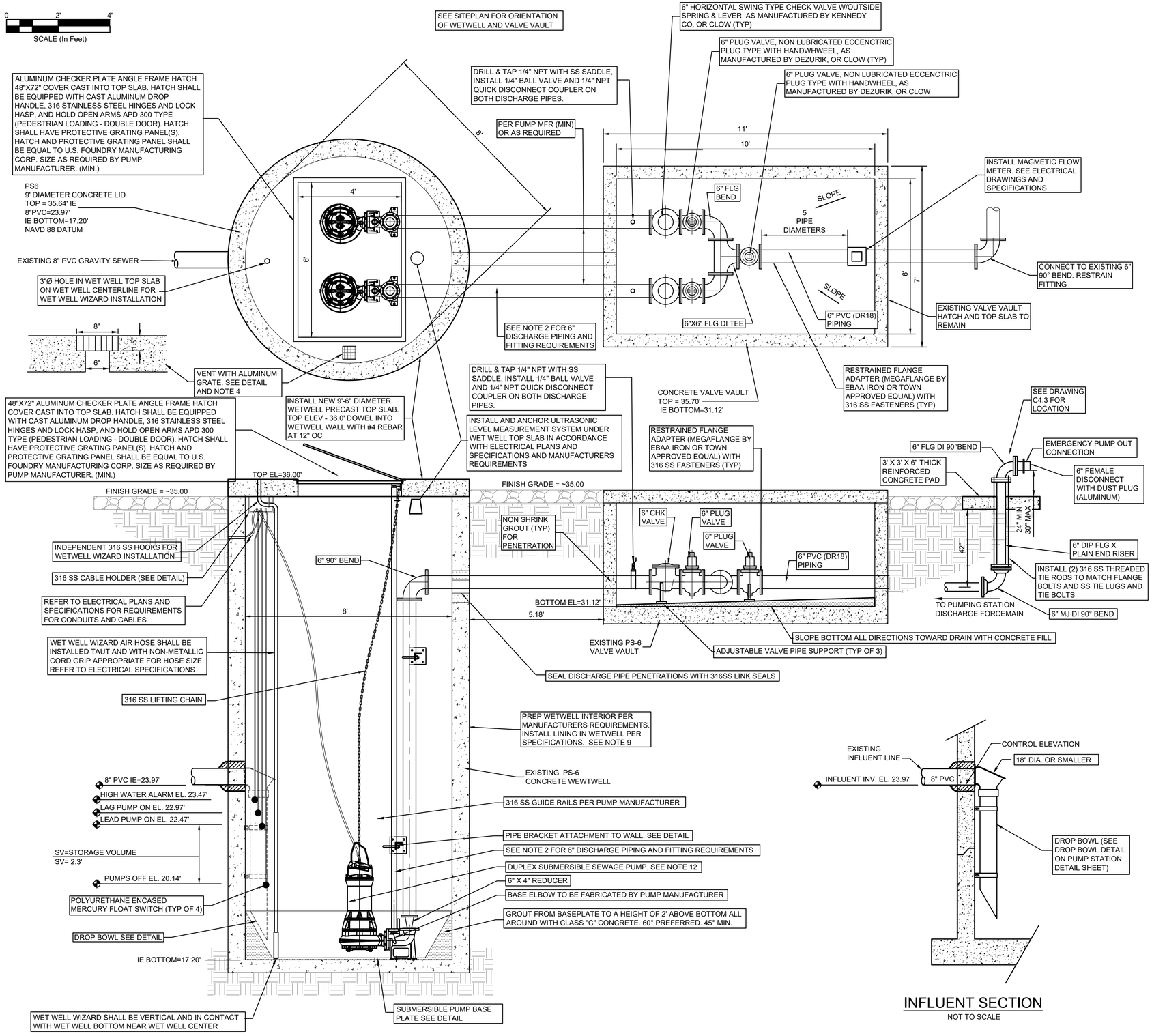
C4.3

LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-1\X\CDS\PS-6\C4.1.ETC RECOVER.DWG
PLOT DATE AND TIME: 6/1/2023 7:08:13 PM



INFLUENT SECTION

NOT TO SCALE

GENERAL NOTES

1. ALL METALS INSIDE THE WET WELL INCLUDING BUT NOT LIMITED TO GUIDE RAILS, LIFTING CHAINS, NUTS, BOLTS, CABLE HOLDERS, PIPE SUPPORTS AND BRACES, ETC., TO BE 316 STAINLESS STEEL, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. PUMP DISCHARGE PIPING AND FITTINGS: DISCHARGE PIPING AND FITTINGS FROM PUMP ELBOW THROUGH TO CHECK VALVE IN VALVE VAULT SHALL BE A MINIMUM 4" (UNLESS APPROVED OTHERWISE BY TOWN) AND SHALL BE EITHER:
   a FUSED PVC PIPE AND STAINLESS STEEL FITTINGS: PVC PIPE SHALL BE C900 DR18 AND SHALL BE FUSED AS ONE PIECE BETWEEN PUMP BASE ELBOW AND 90 DEGREE BEND IN WET WELL, AND FROM 90 DEGREE BEND IN WET WELL TO CHECK VALVE IN VALVE VAULT. 90 DEGREE BEND IN WET WELL SHALL BE FLANGED 316 STAINLESS STEEL, SCH 40. PVC PIPING ENDS SHALL UTILIZE RESTRAINED FLANGE ADAPTER (MEGAFLANGE BY EBAA IRON OR TOWN APPROVED EQUAL) WITH 316 SS FASTENERS TO CONNECT TO PUMP BASE ELBOW, 90 DEGREE BEND, AND CHECK VALVE.
3. AERATION SYSTEM: WET WELL WIZARD SYSTEM AS MANUFACTURED BY RELIANT WATER TECHNOLOGIES, NEW ORLEANS, LA. WWW.RELIANTWATER.US.COM SHALL BE INSTALLED IN WET WELL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. WET WELL WIZARD SYSTEM SHALL INCLUDE (1) WET WELL WIZARD, (1) 1.5 HP BLOWER, AND ALL NECESSARY ASSOCIATED EQUIPMENT
4. VENT: PROVIDE 6"X6" OPENING THROUGH THE CONCRETE TOP OF THE WET WELL AND INSERT 8"X 8" X 1-1/2" THICK ALUMINUM GRATE VENT CONSTRUCTED OF 1-1/2" WIDE X 1/8" MATERIAL.
5. FITTINGS: ALL DUCTILE IRON FITTINGS SHALL BE EPOXY LINED. ALL BURIED FITTINGS SHALL BE RESTRAINED.
6. LEVEL MONITORING: INSTALL ULTRASONIC LEVEL MEASUREMENT SYSTEM IN ACCORDANCE WITH ELECTRICAL PLANS AND SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS. PROVIDE FOUR BACKUP POLYURETHANE ENCASED MERCURY FLOAT SWITCHES FOR PUMPS OFF, LEAD PUMP ON, LAG PUMP ON, AND HIGH WATER ALARM.
7. WET WELL: PRECAST CONCRETE WET WELL SHALL MEET ASTM C-478 STANDARD. CONCRETE, REINFORCING STEEL, AND BUOYANCY DESIGN AND CALCULATIONS TO BE PREPARED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH THE SHOP DRAWINGS.
8. WET WELL AND MANHOLES: ALL EXTERIOR JOINTS OF PRECAST CONCRETE WET WELL AND MANHOLES SHALL BE SEALED WITH A 18" WIDE RUBBERIZED ASPHALT MEMBRANE TAPE. EXTERIOR COATING OF BITUMINOUS COATING AS SPECIFIED IN ANSI SPECIFICATIONS A21.51 SHALL BE APPLIED TO WET WELL AND MANHOLES.
9. INTERIOR PROTECTIVE COATINGS: PROTECTIVE COATING SHALL BE APPLIED TO THE INTERIOR OF WET WELLS AND RECEIVING MANHOLES. COATING SYSTEM IN WET WELL SHALL BE APPLIED TO VERTICAL WALLS AND TOP, AT A MINIMUM. PROTECTIVE COATING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND SHALL BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND BY INSTALLER CERTIFIED BY COATING SYSTEM MANUFACTURER.
10. MIN. WATER LEVEL: MINIMUM WATER LEVEL IN WET WELL SHALL BE 30" MINIMUM FOR PROPER OPERATION OF THE WET WELL WIZARD, SHALL COVER TOP OF PUMP MOTOR, OR SHALL BE GREATER IF RECOMMENDED BY PUMP MANUFACTURER.
11. "SV" – STORAGE VOLUME: STORAGE VOLUME PER DESIGN ENGINEER OF RECORD AND SHALL BE DESIGNED FOR A MAXIMUM SIX (6) STARTS PER HOUR, 10 MINUTE CYCLE TIME.
12. SUBMERSIBLE SEWAGE PUMPS:
    a PUMPS SHALL BE SULZER ABS PUMPS SUITABLE FOR SUBMERSIBLE SEWER SERVICE. PUMPS SHALL BE 230/460 VOLTS, 3 PHASE, 60 HERTZ MOTORS.
    b PUMP BASE ELBOW: BASE ELBOW TO BE FABRICATED BY PUMP MANUFACTURER.
13. FLOOD ZONE: DESIGN ENGINEER OF RECORD SHALL PROVIDE INFORMATION ON THE FLOOD ZONE OF THE PUMP STATION SITE AND SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WET WELL IS ABOVE THE 100 YEAR FLOOD ELEVATION AND THAT THE BOTTOM OF THE CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB AREA ALL ABOVE THE 100 YEAR FLOOD ELEVATION + 2 FEET OR THE 500 YEAR FLOOD ELEVATION, WHICHEVER IS GREATER.
14. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ELEVATIONS AND DIMENSIONS CALLED OUT ON THIS PLAN SET FOR THE PUMP STATION PRIOR TO ORDERING OF ANY MATERIALS OR COMPONENTS OF THE PUMP STATION. ANY DEVIATION OF THE LAYOUTS INDICTED ON THIS PLAN MUST BE COMMUNICATED TO THE TOWN AND ENGINEER OF RECORD FOR FURTHER DIRECTION.
15. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY STABILIZATION FOR DEMOLITION AND CONSTRUCTION AND SHALL HIRE A SPECIALTY PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA TO DESIGN THE STABILIZATION SYSTEM FOR EXCAVATION AND EVALUATE THE DRAWDOWN OF THE DEWATERING OPERATIONS DURING CONSTRUCTION IN ORDER TO PROTECT THE EXISTING PS-6 STRUCTURES. DESIGN AND EVALUATION SHALL BE SIGNED AND SEALED AND SUBMITTED TO THE TOWN OF RIDGELAND AND ENGINEER OF RECORD.
16. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING OPERATIONS, THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN FOR APPROVAL AND SHALL SECURE AN SCDHEC NPDES GENERIC PERMIT WHICH COVERS STORMWATER DISCHARGE FROM LARGE AND SMALL CONSTRUCTION ACTIVITIES AND DEWATERING OF NON-CONTAMINATED GROUNDWATER.
17. PS-6 SITE LOCATED IN ZONE X AREA OF MINIMAL FLOODING (NO ESTABLISHED FLOOD ELEVATION), PER NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP PANEL 305 OF 575 JASPER COUNTY, SOUTH CAROLINA AND INCORPORATED AREAS NUMBER 45053 PANEL 0305 SUFFIX D.
18. RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO PRE-CONSTRUCTION CONDITION. HYDRASEED AND MULCH ALL UNPAVED AREAS OUTSIDE OF FENCING. INSIDE OF PUMP STATION FENCING PROVIDE 2" OF #57 STONE.

1

*PUMP STATION: TOWN OF RIDGELAND PS-6
*LOCATION: RIDGELAND CORRECTIONAL INSTITUTE
*PUMP MANUFACTURER: SULZER
*DESIGNLOW 350 GPM @ 88FT TDH
*MODEL#: XFP100G CB1 10" IMP
SERIAL#:
HORSEPOWER: 20.1 HP
VOLTAGE:
DATE INSTALLED:
*ENGINEER: FOUR WATERS ENGINEERING, INC.
CONTRACTOR:

*INFORMATION REQUIRED ON CONSTRUCTION PLANS. REMAINING INFORMATION REQUIRES ASBUILT

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-6 PROPOSED IMPROVEMENTS DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
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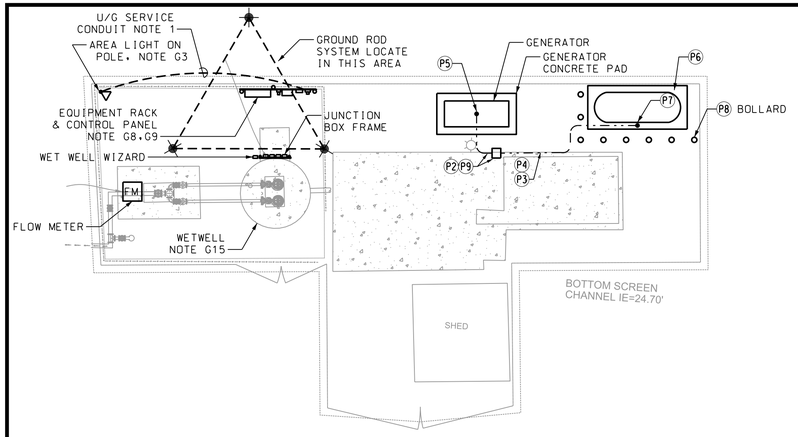
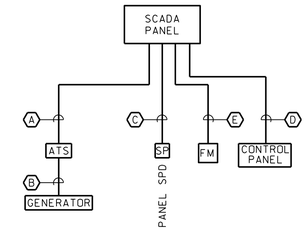


1 E4.1 SITE PLAN PS-6 - ELECTRICAL

SCALE: 1" = 10' - 0"



(A) $^3/_4$"C W/ ONE CAT 6 CABLE

(B) THREE 1"C W/ CONDUCTORS AS REQUIRED

(C) $^3/_4$"C W/ 2 NO.14, 1 NO.14(G)

(D) $^3/_4$"C W/ ONE CAT 6 CABLE, 8 NO.14, 1 NO.14(G)

(E) $^3/_4$"C W/TWO BELDEN 5240F1 CABLES (16AWG T.S. PAIR)

3 E4.1 SCADA RISER

SCALE: NONE

PROPANE FUEL NOTES:

(P1) ALL PROPANE GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED JOINTS. ALL WORK AND MATERIALS ON THE GAS SYSTEM SHALL COMPLY WITH THE "INTERNATIONAL GAS CODE". PAINT ALL EXPOSED GAS PIPING WITH RUST INHIBITING PRIMER AND 1 COAT OF OIL BASED YELLOW ENAMEL PAINT.

(P2) PROPANE GAS PRESSURE REGULATOR SIZED FOR 410 CFH AT 11 INCH WC OUTLET PRESSURE.

(P3) PROPANE GAS LINE U/G BY CONTRACTOR. COORDINATE WITH PROPANE COMPANY.

(P4) 3" GAS DOWN TO UNDERGROUND. UNDERGROUND PIPING SHALL BE SDR 11 POLYETHLYLENE PIPE AND FITTINGS.

(P5) 3" GAS UP TO GENERATOR. PROVIDE PLUG VALVE, UNION AND DRIPLEG AT CONNECTION. COORDINATE EXACT LOCATION OF CONNECTION WITH GENERATOR.

(P6) PROVIDE A CONCRETE PAD FOR THE PROPANE TANK, 12" THICK, 24"WIDER AND 24" LONGER THAN THE PROPANE TANK. REFER TO DETAIL 1/E0.1 FOR CONSTRUCTION REQUIREMENTS.

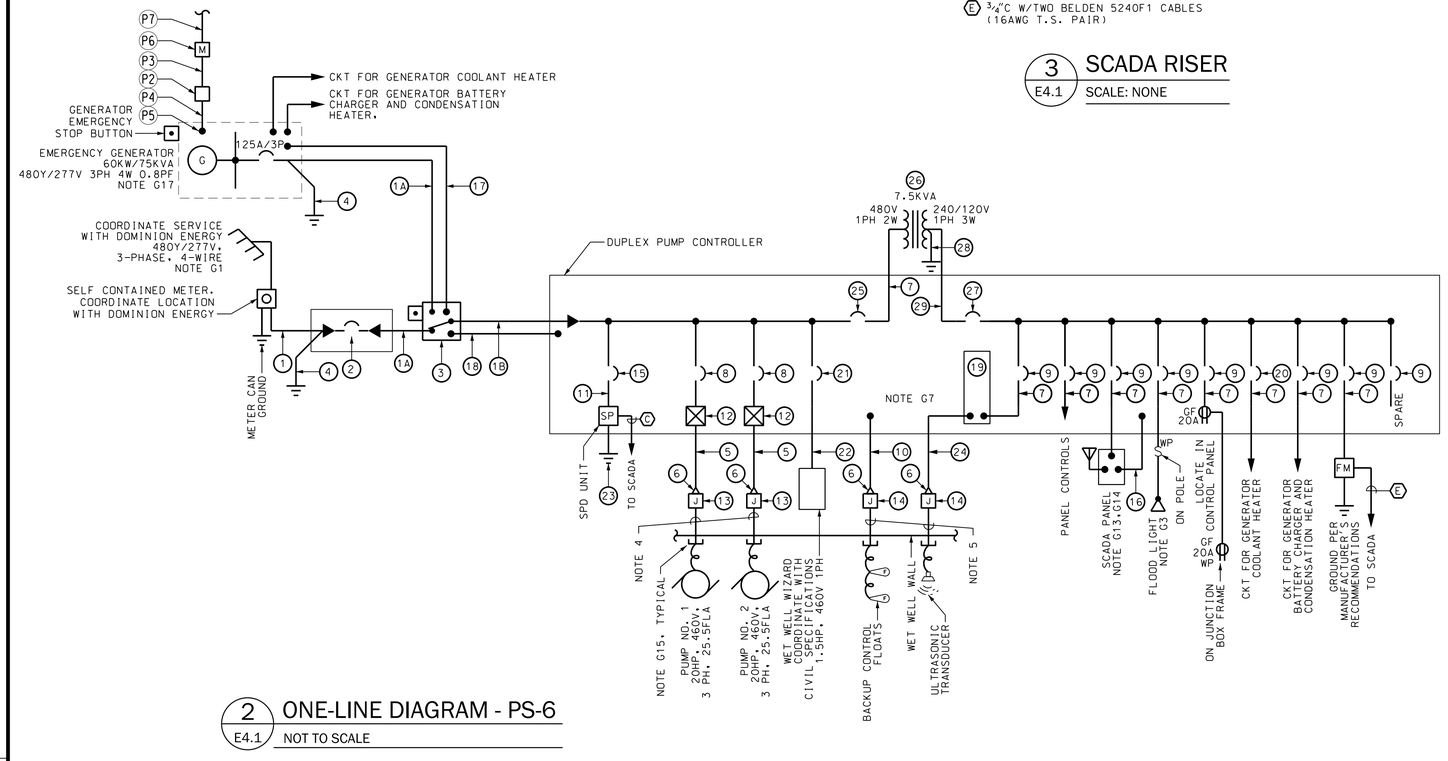
(P7) PROVIDE 2" SCH.80 PVC RISER AT TANK MID-POINT. EXTEND TO WITHIN 5' OF GENERATOR. CONDUIT SHALL BE 30" BELOW FINISH GRADE, MINIMUM. PROVIDE DETECTABLE PLASTIC WARNING TAPE 12" BELOW FINISH GRADE.

(P8) PROVIDE STEEL PIPE BOLLARDS IN FRONT OF THE PROPANE TANK, 36" ON CENTER. SEE DETAIL THIS SHEET. BOLLARDS SHALL EXTEND BEYOND THE END OF THE PROPANE TANK.

(P9) FIELD COORDINATE INLET LOCATION ON GENERATOR AND THE REGULATOR WITH THE PROPANE PROVIDER. THE REGULATOR SHALL NOT BE WITHIN 5' OF THE GENERATOR.

DUPLEX PUMP STATION ONE LINE SCHEDULE

ITEM#	20HP 460V 3PH 25.5FLA
1	2"C W/ 4 NO.1
1A	2"C W/ 4 NO.1, 1 NO.6(G)
1B	2"C W/ 3 NO.1, 1 NO.4(G)
2	ENCLOSED BREAKER, 125A/3P/4X SS ENCLOSURE UL SERVICE LABEL, POST FAULT CURRENT AVAILABLE & DATE CALCULATED 18000 MIN A.I.C @ 480V
3	125A/4P 4X STAINLESS STEEL AUTOMATIC TRANSFER SWITCH MOUNTED ON EQUIPMENT FRAME
4	$^3/_4$" SCH.80 PVC W/1NO.6(G) GROUNDING ELECTRODE CONDUCTOR
5	2"C.W/3NO.8, 1 NO.8(G) 4NO.12(CNTLS)
6	SEALING HUB, C-H TYPE ES, NOTE G6
7	$^3/_4$"C W/2NO.12, 1NO.12(G)
8	70A/3P MOTOR BREAKER 18 000 MIN. A.I.C. @ 480V
9	20A/1P CIRCUIT BREAKER, 10 000 MIN. A.I.C. @ 120V
10	$^3/_4$"C W/4NO.12, 1NO.12(G) FOR FLOATS
11	3NO.10, 1NO.10(G) SHALL NOT EXCEED 18" IN LENGTH
12	MOTOR CONTROLLER: REDUCED VOLTAGE SOLID STATE STARTER WITH SHORTING CONTACTOR FOR 20HP 460V 3PH 25.5FLA MOTOR
13	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH POWER BLOCKS AND TERMINAL STRIPS AS REQUIRED, NOTE G10
14	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH TERMINAL STRIPS AS REQUIRED. NOTE G11,G12
15	30A/3P SURGE PROTECTION DEVICE CIRCUIT BREAKER, COORDINATE WITH EQUIPMENT 18 000 MIN A.I.C. @ 480V
16	2"C W/ SCADA ALARM AND STATUS CONDUCTORS
17	THREE 1"C W/CONDUCTORS AS REQUIRED FOR CONTROL AND ALARM ANNUNCIATION
18	1"C W/CONDUCTORS AS REQUIRED FOR LOAD CONTROL
19	ULTRASONIC LEVEL CONTROLLER HYDRORANGER 200
20	20A/2P CIRCUIT BREAKER FOR GENERATOR COOLANT HEATER, 10000 MIN. A.I.C. @ 240 V
21	WET WELL WIZARD BREAKER 15A/2P 18 000 MIN. A.I.C. @ 480V
22	$^3/_4$"C W/2NO.10, 1NO.10(G)
23	SURGE PROTECTION DEVICE CONNECTION TO GROUNDING DELTA: $^3/_4$" SCH.80 PVC W/ 1 NO.10(G)
24	2"C W/LEVEL TRANSDUCER CABLE
25	20A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER PRIMARY, 18000 MIN. A.I.C. @ 480V
26	7.5KVA NEMA 3X TRANSFORMER W/ STAINLESS STEEL ENCLOSURE FOR 480V SYSTEM CONTROL POWER & AUXILIARY LOADS
27	40A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER SECONDARY, 10000 MIN. A.I.C. @ 240V
28	$^3/_4$"SCH.80 PVC W/ 1 NO.8(G)
29	1"C W/3NO.8, 1NO.10(G)

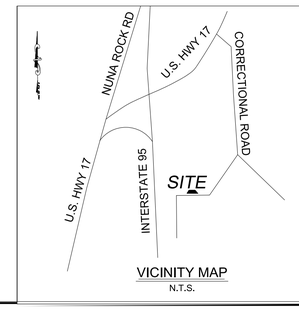


2 E4.1 ONE-LINE DIAGRAM - PS-6

NOT TO SCALE

ELECTRICAL NOTES:

1. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. PROVIDE AERIAL SERVICE AS REQUIRED BY THE UTILITY AND PROJECT REQUIREMENTS. COORDINATE WITH DOMINION ENERGY: CONTACT PARKS MOSS, CUSTOMER SERVICE ENGINEER 843-815-8808
2. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.
3. MOUNT THE AREA LIGHT ON THE 35' CLASS 4 PRESSURE TREATED SERVICE POLE. REFER TO DETAIL 5/E0.1. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH YOKE MOUNT, SO CORD, AND INTEGRAL PHOTOCELL; CATALOG NO. DSXF2 LED-3-A530/40K-WFL-MVOLT-YKC62-PE-DDBXD.
   A. MOUNT THE FLOOD LIGHT TO THE TOP OF THE SERVICE POLE BELOW THE SERVICE DROP RACK.
   B. PROVIDE A WEATHERPROOF SWITCH ON THE POLE, 48" ABOVE FINISH GRADE.
4. 3" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR PUMP CABLES.
5. 2" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR FLOATS AND TRANSDUCER CABLES.



VICINITY MAP

N.T.S.

SOUTH CAROLINA PROFESSIONAL ENGINEER CHARLES BEVERLEY COBB No. 40028 26 May 2023

SOUTH CAROLINA CHATHAM ENGINEERING COMPANY LLC C04812 CERTIFICATE OF AUTHORIZATION

REV' NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I PS-6 ELECTRICAL SITE PLAN, NOTES & ONE-LINE DIAGRAM

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN
CC	CC

JOB #	ISSUE DATE	
17-1007-035	04-2023	100%
	ISSUE	

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
E4.1

CADD PLOT
29-MAY-2023
13:46
CCOBB

E:\Ridgeland Well No.2 Rehab - 21010.01\CADD\E4.1.dgn

SPECIAL NOTE:
*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #7 BELOW

NOTES:
1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
2. UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN AND ARE APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE EXACT LOCATION OF ANY UNDERGROUND UTILITY.
3. NO SUBSURFACE OR ENVIRONMENTAL INVESTIGATION OR WETLAND SURVEYS WERE PERFORMED FOR THIS PLAT. THEREFORE THIS PLAT DOES NOT REFLECT THE EXISTENCE OR NONEXISTENCE OF WETLANDS, CONTAMINATION, OR OTHER CONDITIONS WHICH MAY AFFECT THIS PROPERTY.
4. SURVEYING CONSULTANTS CERTIFIES TO THE TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS OF THE DATE OF SURVEY. IF THIS DOCUMENT IS TO BE PROVIDED AS A BASE MAP FOR OTHERS, INFORMATION ADDED AFTER THE DATE OF THIS SURVEY IS NOT THE RESPONSIBILITY OF SURVEYING CONSULTANTS.
5. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, THEREFORE THERE MAY BE OTHER EASEMENTS, RIGHT-OF-WAY, SETBACK LINES, AGREEMENTS, RESERVATIONS, RESTRICTIONS, OR OTHER SIMILAR MATTERS OF PUBLIC RECORD, NOT DEPICTED ON THIS SURVEY.
6. THE EASEMENT LINES, BOUNDARY LINES AND/OR ROAD RIGHT-OF-WAY LINES WERE TAKEN FROM REFERENCE PLAT AND SHOULD BE CONSIDERED APPROXIAMTE. A BOUNDARY SURVEY WAS NOT PERFORMED AT THIS TIME
7. THE HORIZNTAL DATUM SHOWN IS BASED ON NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES. THE VERTICAL DATUM SHOWN IS BASED ON NAVD 88 DATUM. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

LEGEND:

+ 84.5	SPOT ELEVATION
RCP	REINFORCED CONCRETE PIPE
IE	INVERT ELEVATION
SSMH	SANITARY SEWER MANHOLE
NTS	NOT TO SCALE
PP	POWER POLE
OHP	OVERHEAD POWER LINE
WV	WATER VALVE
FH	FIRE HYDRANT
EM	ELECTRIC METER

REFERENCE PLAT:

1) PLAT PREPARED AT THE REQUEST OF JASPER COUNTY, A RIGHT OF WAY SURVEY ON A PORTION OF TAX MAP #048-00-01-009,A PORTION OF TAX MAP #048-00-01-028, & A PORTION OF CYPRESS RIDGE DRIVE, CYPRESS RIDGE INDUSTRIAL PARK, NEAR RIDGELAND, JASPER COUNTY, SC, BY: THOMAS G. STANLEY, S.C.R.L.S. NO. 18269, DATED: 11/10/2011, RECORDED: P.B. 32, PAGE 467, 3/13/2012.

TAX MAP # 048-01-00-009

ASBUILT & TOPOGRAPHIC
EXHIBIT OF

PUMP STATION #8

TAX PARCEL I.D. NO. 048-00-01-011

#4399 GRAYS HIGHWAY

A PORTION OF

CYPRESS RIDGE INDUSTRIAL PARK,

OWNED BY THE

TOWN OF RIDGELAND

JASPER COUNTY, SOUTH CAROLINA

DATE: 07/29/2021 JOB NO: SC210030-PS8

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 826-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

CREW: JH/MW CAD: AJ

PREPARED FOR: FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

ADDRESS: #4399 GRAYS HIGHWAY TAX PARCEL I.D. NO. 048-00-01-011

PHOTO LEGEND:
DENOTES PHOTO LOCATION AND DIRECTION

STATE PLANE S.C. GRID

U.S HWY 278- GRAYS HIGHWAY R/W VERIES

AREA 5 R/W (PER REF. PLAT)
AREA 4 R/W (PER REF. PLAT)
AREA 3 R/W (PER REF. PLAT)
TAX MAP # 048-01-00-011 (PER REF. PLAT)
*EASEMENT, BOUNDARY & R/W LINES ARE APPROXIMATE PER REF. PLAT (SEE NOTE #6)
EDGE OF PAVEMENT
TOP OF DITCH BANK
EOP
FORMER R/W LINE
R/W LINE OF U.S HWY 278
DITCH
GRASS
GRAVEL
ASPHALT APRON
ACCESS HATCH
CHAIN-LINK FENCE (TYP.)
CONC. PAD
HOIST
VENT
ANTENNA
PANEL
VALVE
PS8
METAL & CONCRETE LID
WET WELL TOP = 84.76'
IE 8"PVC=70.19'
IE BOTTOM=64.89'
NAVD 88 DATUM
N:253990.33
E:1996298.21
SSMH
TOP=84.85'
IE 8"PVC TO WET WELL=70.76'
N:253983.96
E:1996289.48
N:253976.52
E:1996296.08
METAL VALVE
VAULT TOP = 84.68'
IE BOTTOM = 79.87'
N:253982.52
E:1996344.94
CONTROL POINT
NAIL WITH DISC
ELEV. = 84.60'
18"RCP IE=81.9'
18"RCP IE=81.8'
18"RCP
4" FORCEMAIN
12" WATER MAIN
EXISTING 12' WIDE DOUBLE SWING GATE
SSMH
TOP=84.41'
IE FLOWLINE=71.14'
40' TOWN OF RIDGELAND UTILITY EASEMENT (PER REF. PLAT)
WV
FH
EM
PP
OHP
SAN
STM
GIS-WAT
GIS-FM

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

N
0 5' 10'
SCALE (In Feet)

VICINITY MAP
N.T.S.
GRAYS HIGHWAY, LIGHWY 278
CYPRESS RIDGE DR
CAROLINA CHERRY
SITE
TO RIDGELAND

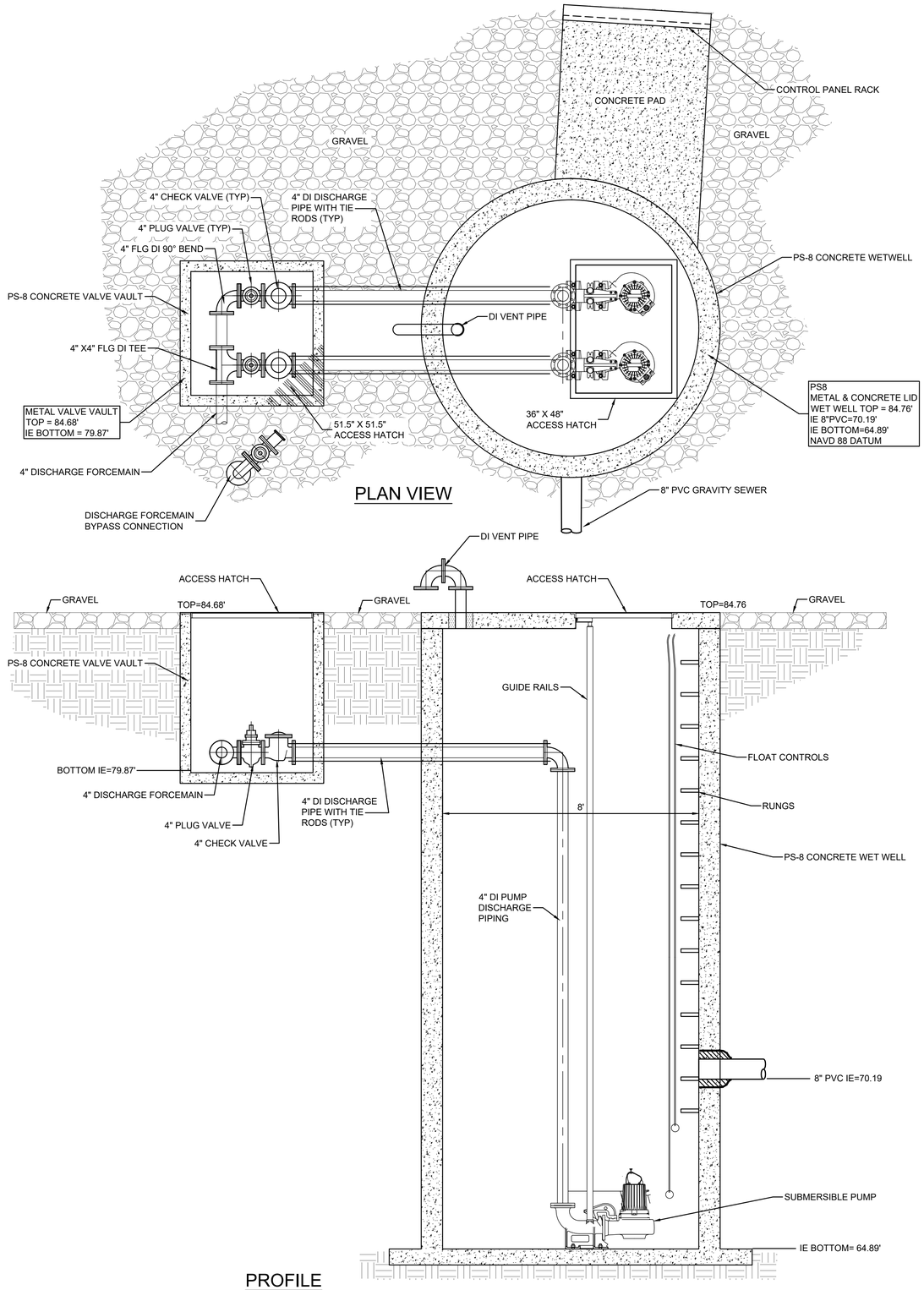
REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL MINOR UPDATES
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-8 EXISTING CONDITIONS AND KEY
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G5.1



0 2' 4'
SCALE (In Feet)

PHOTO-1
LOOKING DOWN INTO WET WELL

PHOTO-2
LOOKING DOWN INTO WET WELL

PHOTO-3
LOOKING DOWN INTO VALVE VAULT

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1				
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-8 EXISTING CONDITIONS DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		BID
ISSUE			

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G5.2

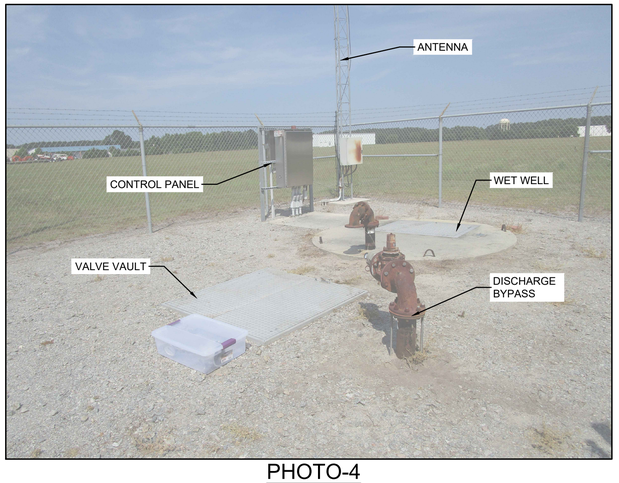

PHOTO-4

LOOKING NORTHEAST AT PUMP STATION SITE

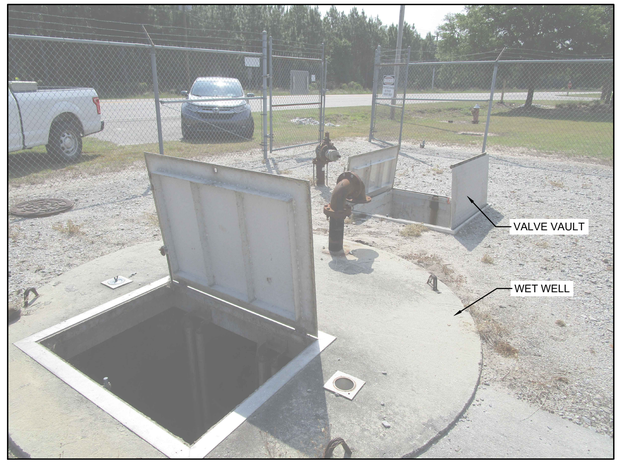

PHOTO-5

LOOKING SOUTHEAST ACROSS WETWELL

PHOTO-6

LOOKING INTO WET WELL

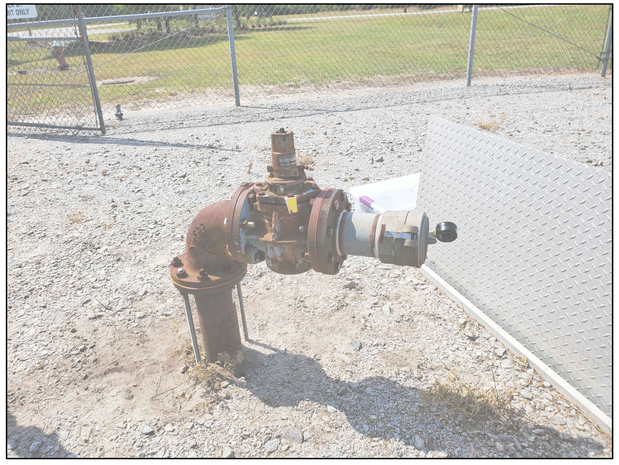

PHOTO-7

DISCHARGE FORCEMAIN BYPASS CONNECTION

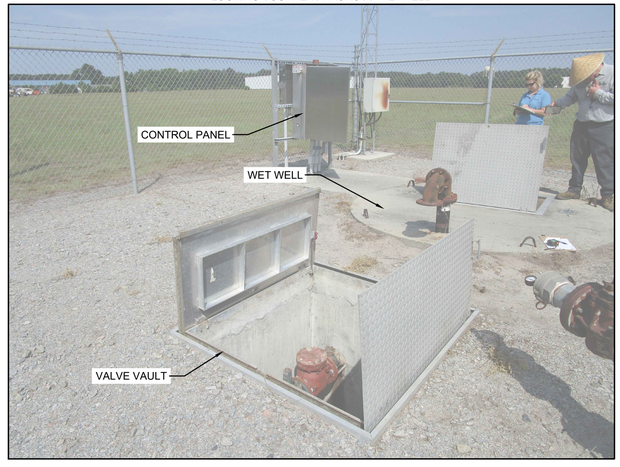

PHOTO-8

LOOKING NORTHWEST ACROSS VALVE VAULT

PHOTO-9

VALVE VAULT

PHOTO-10

LOOKING NORTHWEST ALONG BACK OF PANEL RACK

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1				
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-8 EXSTING CONDITIONS SITE PHOTOS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
ISSUE			BID

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G5.3

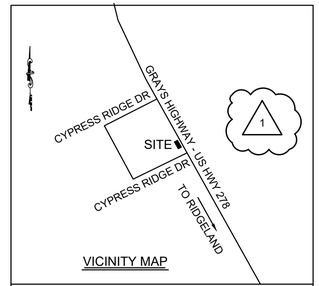
N

0 20' 40'

SCALE (In Feet)

LEGEND:

+ 84.5	SPOT ELEVATION
RCP	REINFORCED CONCRETE PIPE
IE	INVERT ELEVATION
SSMH	SANITARY SEWER MANHOLE
NTS	NOT TO SCALE
PP	POWER POLE
OHP	OVERHEAD POWER LINE
WV	WATER VALVE
FH	FIRE HYDRANT
EM	ELECTRIC METER



VICINITY MAP

N.T.S.

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

15495 LF TO CAPTAIN BILL CREEK

	DESCRIPTION
– – – – –	DENOTES LIMITS OF DISTURBANCE FOR PS-8 (6033 SF)
— SF —	SILT FENCE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL UPDATES
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-8 ACCESS SITE PLAN
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C5.1

PS8
METAL & CONCRETE LID
WET WELL TOP = 84.76'
IE 8"PVC=70.19'
IE BOTTOM=64.89'
NAVD 88 DATUM

REMOVE CONCRETE SLAB

REMOVE CONCRETE PAD

LIMITS OF DISTURBANCE

REFERENCE ELECTRICAL DRAWINGS FOR DEMOLITION REQUIREMENTS

ANTENNA

REMOVE CONTROL PANEL

INSTALL APPROXIMATELY 170 LF OF SINGLE ROW SILT FENCE

REMOVE 4" DISCHARGE PIPING FROM BETWEEN WET WELL AND VALVE VAULT

METAL VALVE
VAULT TOP = 84.68'
IE BOTTOM = 79.87'

REMOVE 35 LF OF CHAIN LINK FENCING

ACCESS HATCH

REMOVE DISCHARGE PIPING, FITTINGS, CABLE RACK AND FLOATS RUNGS IN WET WELL. SEE DRAWING C5.3

N:253990.33
E:1996298.21

SSMH
TOP=84.85'
IE 8"PVC TO WET WELL=70.76'

REMOVE EXISTING DISCHARGE BYPASS FITTINGS AND VALVE ABOVE GRADE

EXISTING 12' WIDE DOUBLE SWING GATE

REMOVE PIPING AND VALVES IN VALVE VAULT. SEE DRAWING C5.3

N:253983.96
E:1996289.48

N:253976.52
E:1996296.08

CONC. PAD

HOIST

VENT

PANEL

VALVE

CHAIN-LINK FENCE (TYP.)

GRAVEL

GRASS

*EASEMENT, BOUNDARY & R/W LINES ARE APPROXIMATE PER REF. PLAT (SEE NOTE #6)

TAX MAP # 048-01-00-011
(PER REF. PLAT)

TAX MAP # 048-01-00-009

AREA 5 R/W
(PER REF. PLAT)

AREA 4 R/W
(PER REF. PLAT)

AREA 3 R/W
(PER REF. PLAT)

R/W LINE OF U.S. HWY 278

FORMER R/W LINE

EDGE OF PAVEMENT

TOP OF DITCH BANK

DITCH

EOP

U.S. HWY 278 - GRAYS HIGHWAY R/W VERIDS

TTC: 610-205-00
RIGHT SHOULDER CLOSURE
(CASE I/CASE II)
PRIMARY ROUTES

18"RCP
IE=81.9'

18"RCP
IE=81.8'

18"RCP

ASPHALT APRON

12" WATER MAIN

4" FORCEMAIN

SSMH
TOP=84.41'
IE FLOWLINE=71.14'

N:253982.52
E:1996344.94
CONTROL POINT
NAIL WITH DISC
ELEV. = 84.60'

40' TOWN OF RIDGELAND UTILITY EASEMENT (PER REF. PLAT)

EM

PP

WV

FH

OHP

SAN

STM

GIS-WAT

GIS-FM

GIS-SAN

SF

84.5 84.7 84.4 84.1 84.3 84.58 84.38 84.06 84.29 84.47 84.01 83.9 84.0 84.6 84.2 84.7 84.0 84.1 84.2 83.7

0 5' 10'
SCALE (In Feet)

N

LEGEND:

RCP +84.5	SPOT ELEVATION
IE	REINFORCED CONCRETE PIPE
SSMH	INVERT ELEVATION
NTS	SANITARY SEWER MANHOLE
PP	NOT TO SCALE
OHP	POWER POLE
WV	OVERHEAD POWER LINE
FH	WATER VALVE
EM	FIRE HYDRANT
	ELECTRIC METER

CYPRESS RIDGE DR
SITE
GRAYS HIGHWAY - US HWY 278
CYPRESS RIDGE DR
TO RIDGELAND

VICINITY MAP

N.T.S.

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

15495 LF TO CAPTAIN BILL CREEK

	DESCRIPTION
SF	SILT FENCE
	DENOTES LIMITS OF DISTURBANCE FOR PS-8 (6033 SF)
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

1

STATE PLANE
S.C. GRID

SOUTH CAROLINA
PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA
FOUR WATERS ENGINEERING, INC.
No. 5166
CERTIFICATE OF AUTHORIZATION

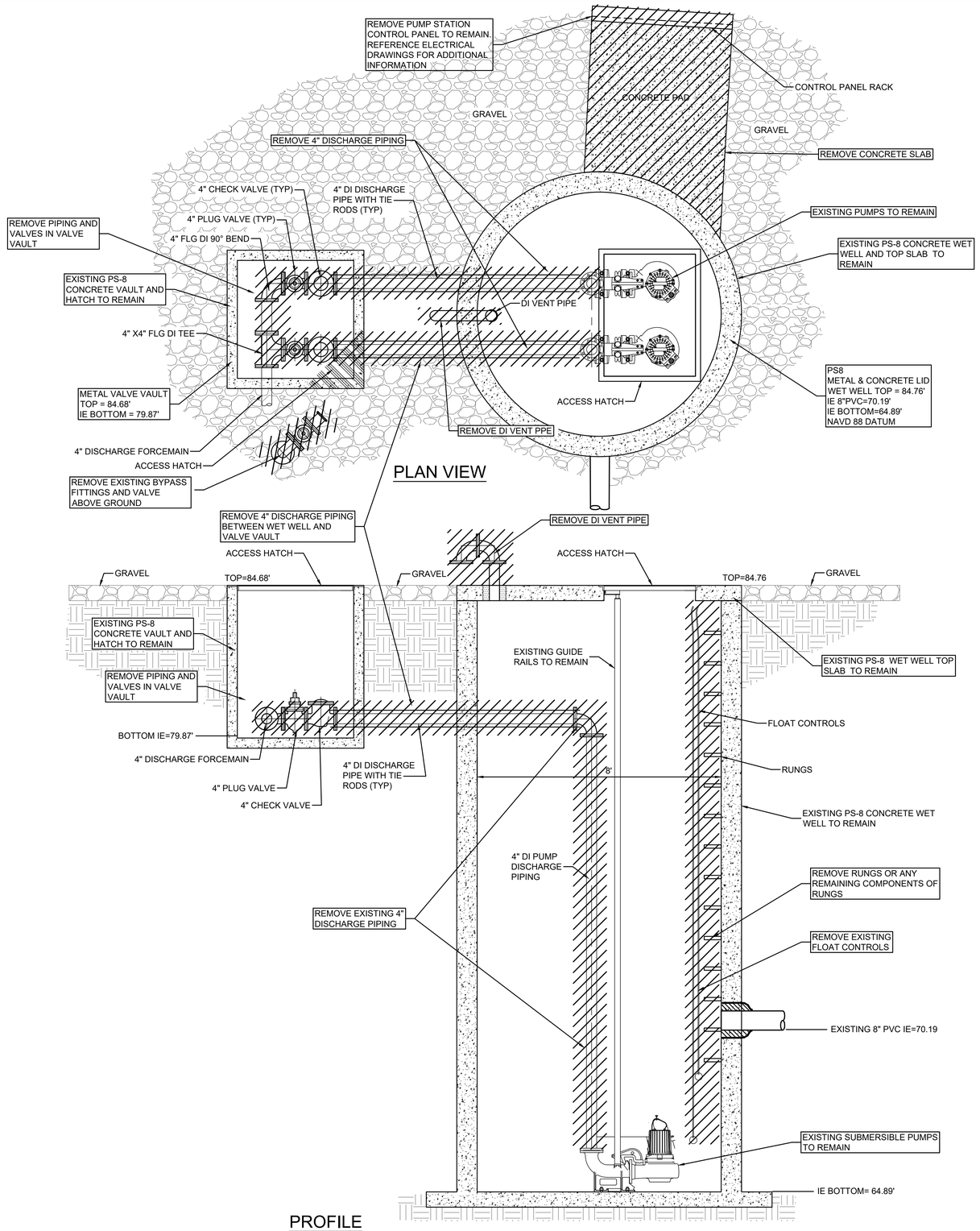
REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL UPDATES
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-8 DEMOLITION PLAN SITE PLAN
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C5.2



	DESCRIPTION
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

DEMOLITION NOTES:

1. ALL NECESSARY TEMPORARY BYPASS OPERATIONS SHALL BE IN PLACE AND OPERATIONAL PRIOR TO INITIATING DEMOLITION ACTIVITIES.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. CONTRACTOR SHALL COORDINATE WITH TOWN OF RIDGELAND PROJECT REPRESENTATIVE REGARDING EQUIPMENT TO BE RETAINED BY TOWN WHICH SHALL BE DELIVERED TO THE JIMMY MIXSON WRF AT 366 PREACHER STREET. UNLESS SO IDENTIFIED, ALL OTHER EQIUPMENT AND MATERIALS TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
4. PRIOR TO DEMOLITION OR REMOVAL OF STRUCTURES USED FOR WASTEWATER, ALL WASTEWATER AND SOLIDS SHALL BE REMOVED FROM THE STRUCTURE AND PROPERLY DISPOSED.

0 2' 4'
SCALE (In Feet)

1

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

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1	5/23	SD	AB	GENERAL OVERALL UPDATES
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-8 DEMOLITION PLAN DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

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DRAWING NUMBER
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STATE PLANE
S.C. GRID

VICINITY MAP
N.T.S.
CYPRESS RIDGE DR
GRAYS HIGHWAY - US HWY 278
SITE
CYPRESS RIDGE DR
TO RIDGELAND

LEGEND:

+ 84.5	SPOT ELEVATION
RCP	REINFORCED CONCRETE PIPE
IE	INVERT ELEVATION
SSMH	SANITARY SEWER MANHOLE
NTS	NOT TO SCALE
PP	POWER POLE
OHP	OVERHEAD POWER LINE
WV	WATER VALVE
FH	FIRE HYDRANT
EM	ELECTRIC METER

N

0 5' 10'
SCALE (In Feet)

15495 LF TO CAPTAIN BILL CREEK

	DESCRIPTION
- - - - -	DENOTES LIMITS OF DISTURBANCE FOR PS-8 (6033 SF)

U.S HWY 278 - GRAYS HIGHWAY
R/W VARIES

LIMITS OF DISTURBANCE

TTC: 610-205-00
RIGHT SHOULDER CLOSURE
(CASE I/CASE II)
PRIMARY ROUTES

FORMER R/W LINE

R/W LINE OF U.S HWY 278

EDGE OF PAVEMENT

TOP OF DITCH BANK

AREA 5 R/W
(PER REF. PLAT)

AREA 4 R/W
(PER REF. PLAT)

AREA 3 R/W
(PER REF. PLAT)

TAX MAP #
048-01-00-011
(PER REF. PLAT)

TAX MAP #
048-01-00-009

*EASEMENT, BOUNDARY & R/W LINES ARE APPROXIMATE PER REF. PLAT (SEE NOTE #6)

PS8
METAL & CONCRETE LID
WET WELL TOP = 84.76'
IE 8"PVC=70.19'
IE BOTTOM=64.89'
NAVD 88 DATUM

GENERATOR

GENERATOR CONCRETE PAD

REFERENCE ELECTRICAL DRAWINGS FOR PROPOSE ELECTRICAL IMPROVEMENTS

ACCESS HATCH

EXISTING 8" PVC GRAVITY SEWER
N:253991.90
E:1996290.35

N:253990.33
E:1996298.21

SSMH
TOP=84.85'
IE 8"PVC TO WET WELL=70.76'

SEE DRAWING C5.5 FOR WET WELL INTERIOR IMPROVEMENTS

CHAIN-LINK FENCE (TYP.)

GRAVEL

N:253982.86
E:1996270.28

N:253984.76
E:1996281.53

ANTENNA

VENT

VALVE

DISCHARGE BYPASS PUMPOUT IMPROVEMENTS. SEE DRAWING C5.5

8" PVC

GATE AREA

N:253983.96
E:1996289.48
GRAVEL

N:253976.52
E:1996296.08

N:253977.25
E:1996302.19

SEE DRAWING C5.5 FOR VALVE VAULT INTERIOR IMPROVEMENTS

INSTALL APPROXIMATELY 170 LF OF SINGLE ROW SILT FENCE

INSTALL 41 LF OF CHAIN LINK FENCE AND FENCE POSTS. CONNECT TO EXISTING FENCE. SEE DETAIL.

METAL VALVE
VAULT TOP = 84.68'
IE BOTTOM = 79.87'

CONCRETE 4000 PSI REINFORCED WITH #5 @ 6" O.C. BOTH WAYS (MIN) SEE DRAWING C5.5

N:253970.12
E:1996293.37

N:253954.01
E:1996290.79

GRASS

18"RCP
IE=81.9'

18"RCP
IE=81.8'

4" FORCEMAIN

12" WATER MAIN

ASPHALT APRON

CONTRACTOR TO LOCATE 4" FORCEMAIN AND INSTALL 4" INSERT VALVE WITH BOX AND COVER. (CAN BE ELIMINATED IF THERE IS EXISTING VALVE ON 8" FORCEMAIN ACROSS GRAYS HIGHWAY)

CONTROL POINT
NAIL WITH DISC
ELEV. = 84.60'
N:253982.52
E:1996344.94

N:253957.47
E:1996320.83

SSMH
TOP=84.41'
IE FLOWLINE=71.14'

EM

PP

WV

FH

DITCH

40' TOWN OF RIDGELAND UTILITY EASEMENT (PER REF. PLAT)

OHP

SAN

STM

SF

GIS-WAT

GIS-FM

X

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-8 PROPOSED IMPROVEMENTS PLANS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	JOB #	17-1007
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		ISSUE	BID

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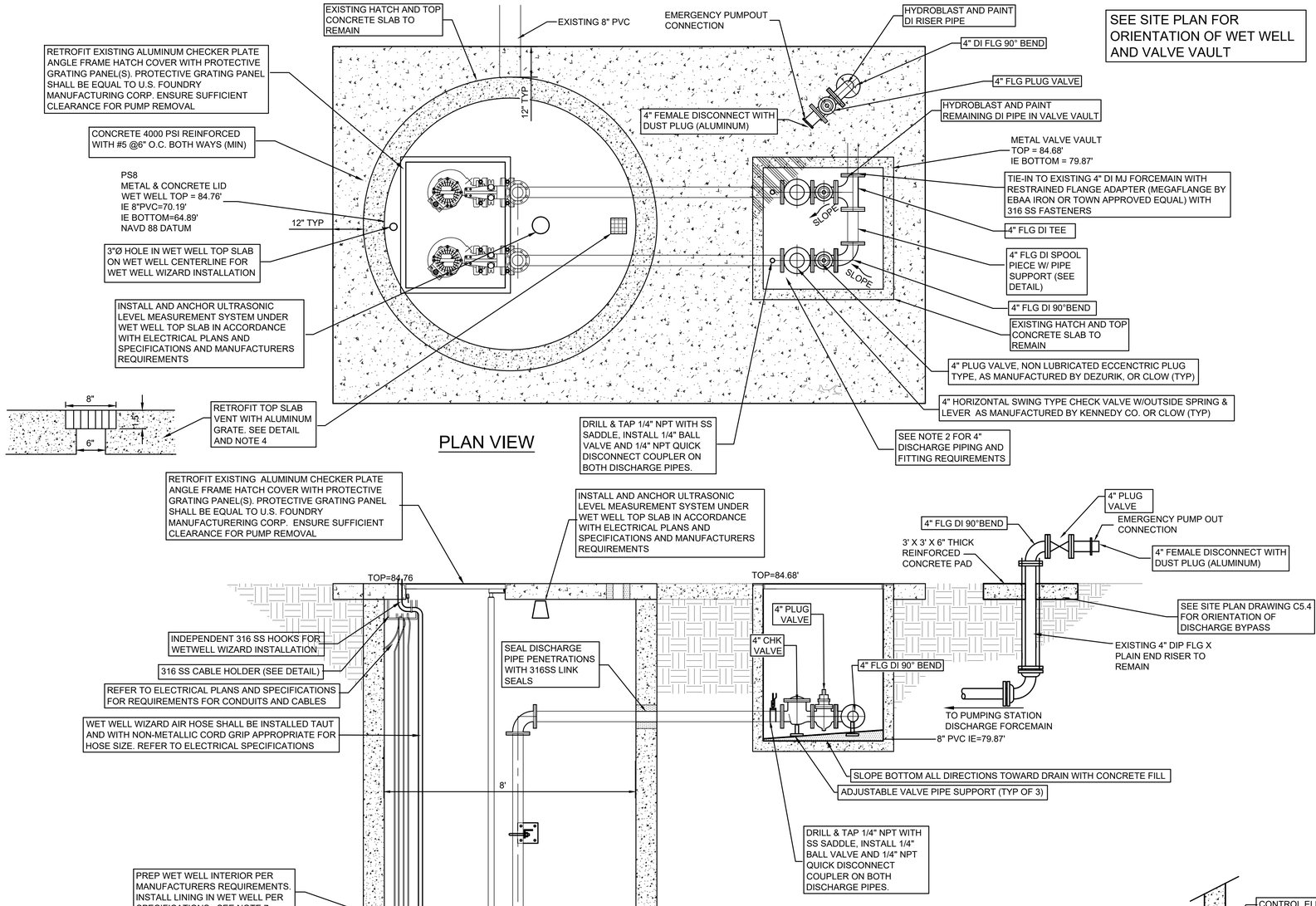

PLAN VIEW

SEE SITE PLAN FOR ORIENTATION OF WET WELL AND VALVE VAULT

PROFILE

INFLUENT SECTION
NOT TO SCALE

1

SCALE (In Feet)
0 2' 4'

GENERAL NOTES

1. ALL METALS INSIDE THE WET WELL INCLUDING BUT NOT LIMITED TO GUIDE RAILS, LIFTING CHAINS, NUTS, BOLTS, CABLE HOLDERS, PIPE SUPPORTS AND BRACES, ETC., TO BE 316 STAINLESS STEEL, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. PUMP DISCHARGE PIPING AND FITTINGS: DISCHARGE PIPING AND FITTINGS FROM PUMP ELBOW THROUGH TO CHECK VALVE IN VALVE VAULT SHALL BE A MINIMUM 4" (UNLESS APPROVED OTHERWISE BY TOWN) AND SHALL BE:
   a. FUSED PVC PIPE AND STAINLESS STEEL FITTINGS: PVC PIPE SHALL BE C900 DR18 AND SHALL BE FUSED AS ONE PIECE BETWEEN PUMP BASE ELBOW AND 90 DEGREE BEND IN WET WELL, AND FROM 90 DEGREE BEND IN WET WELL TO CHECK VALVE IN VALVE VAULT. 90 DEGREE BEND IN WET WELL SHALL BE FLANGED 316 STAINLESS STEEL, SCH 40. PVC PIPING ENDS SHALL UTILIZE RESTRAINED FLANGE ADAPTER (MEGAFLANGE BY EBAA IRON OR TOWN APPROVED EQUAL) WITH 316 SS FASTENERS TO CONNECT TO PUMP BASE ELBOW, 90 DEGREE BEND, AND CHECK VALVE.
3. AERATION SYSTEM: WET WELL WIZARD SYSTEM AS MANUFACTURED BY RELIANT WATER TECHNOLOGIES, NEW ORLEANS, LA. WWW.RELIANTWATER.US.COM SHALL BE INSTALLED IN WET WELL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. WET WELL WIZARD SYSTEM SHALL INCLUDE (1) WET WELL WIZARD, (1) 1.5 HP BLOWER AND ALL NECESSARY ASSOCIATED EQUIPMENT.
4. VENT: PROVIDE 6"X6" OPENING THROUGH THE CONCRETE TOP OF THE WET WELL AND INSERT 8"X 8" X 1-1/2" THICK ALUMINUM GRATE VENT CONSTRUCTED OF 1-1/2" WIDE X 1/8" MATERIAL.
5. FITTINGS: ALL DUCTILE IRON FITTINGS SHALL BE EPOXY LINED. ALL BURIED FITTINGS SHALL BE RESTRAINED.
6. LEVEL MONITORING: INSTALL ULTRASONIC LEVEL MEASUREMENT SYSTEM IN ACCORDANCE WITH ELECTRICAL PLANS AND SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS. PROVIDE FOUR BACKUP POLYURETHANE ENCASED MERCURY FLOAT SWITCHES FOR PUMPS OFF, LEAD PUMP ON, LAG PUMP ON, AND HIGH WATER ALARM.
7. INTERIOR PROTECTIVE COATINGS: PROTECTIVE COATING SHALL BE APPLIED TO THE INTERIOR OF WET WELLS AND RECEIVING MANHOLES. COATING SYSTEM IN WET WELL SHALL BE APPLIED TO VERTICAL WALLS AND TOP, AT A MINIMUM. PROTECTIVE COATING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND SHALL BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND BY INSTALLER CERTIFIED BY COATING SYSTEM MANUFACTURER.
8. EMERGENCY PUMP OUT CONNECTION PIPE SIZE FOR EMERGENCY PUMP OUT CONNECTION SHALL MATCH PUMP DISCHARGE PIPE SIZE IN WET WELL.
9. MIN. WATER LEVEL: MINIMUM WATER LEVEL IN WET WELL SHALL BE 30" MINIMUM FOR PROPER OPERATION OF THE WET WELL WIZARD, SHALL COVER TOP OF PUMP MOTOR, OR SHALL BE GREATER IF RECOMMENDED BY PUMP MANUFACTURER.
10. FLOOD ZONE: DESIGN ENGINEER OF RECORD SHALL PROVIDE INFORMATION ON THE FLOOD ZONE OF THE PUMP STATION SITE AND SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WET WELL IS ABOVE THE 100 YEAR FLOOD ELEVATION AND THAT THE BOTTOM OF THE CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB AREA ALL ABOVE THE 100 YEAR FLOOD ELEVATION + 2 FEET OR THE 500 YEAR FLOOD ELEVATION, WHICHEVER IS GREATER.
11. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ELEVATIONS AND DIMENSIONS CALLED OUT ON THIS PLAN SET FOR THE PUMP STATION PRIOR TO ORDERING OF ANY MATERIALS OR COMPONENTS OF THE PUMP STATION. ANY DEVIATION OF THE LAYOUTS INDICTED ON THIS PLAN MUST BE COMMUNICATED TO THE TOWN AND ENGINEER OF RECORD FOR FURTHER DIRECTION.
12. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY STABILIZATION FOR DEMOLITION AND CONSTRUCTION AND SHALL HIRE A SPECIALTY PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA TO DESIGN THE STABILIZATION SYSTEM FOR EXCAVATION AND EVALUATE THE DRAWDOWN OF THE DEWATERING OPERATIONS DURING CONSTRUCTION IN ORDER TO PROTECT THE EXISTING PS-8 STRUCTURES. DESIGN AND EVALUATION SHALL BE SIGNED AND SEALED AND SUBMITTED TO THE TOWN OF RIDGELAND AND ENGINEER OF RECORD.
13. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING OPERATIONS, THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN FOR APPROVAL AND SHALL SECURE ANY NECESSARY SCDHEC
14. PS-8 SITE LOCATED IN ZONE X AREA OF MINIMAL FLOODING (NO ESTABLISHED FLOOD ELEVATION), PER NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP PANEL 305 OF 575 JASPER COUNTY, SOUTH CAROLINA AND INCORPORATED AREA MAP NUMBER 45053C0305D.
15. PUMP STATION SHALL HAVE CONCRETE SLABS AROUND WET WELL. VALVE VAULT AND PANEL AREAS AS NOTED. PROVIDE 1/2" EXPANSION JOINT MATERIAL BETWEEN WET WELL AND SLAB AND VALVE VAULT AND SLAB. CONCRETE SLAB SHALL BE 4000 PSI CONCRETE WITH REINFORCEMENT AS PER DETAILS
16. RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO PRE-CONSTRUCTION CONDITION. HYDRASEED AND MULCH ALL UNPAVED AREAS OUTSIDE OF FENCING. INSIDE OF PUMP STATION FENCING PROVIDE 2" OF #57 STONE.

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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

PS-8 PROPOSED IMPROVEMENTS DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	JOB #	17-1007
DRAWN	JMC	ISSUE DATE	FEB 2023
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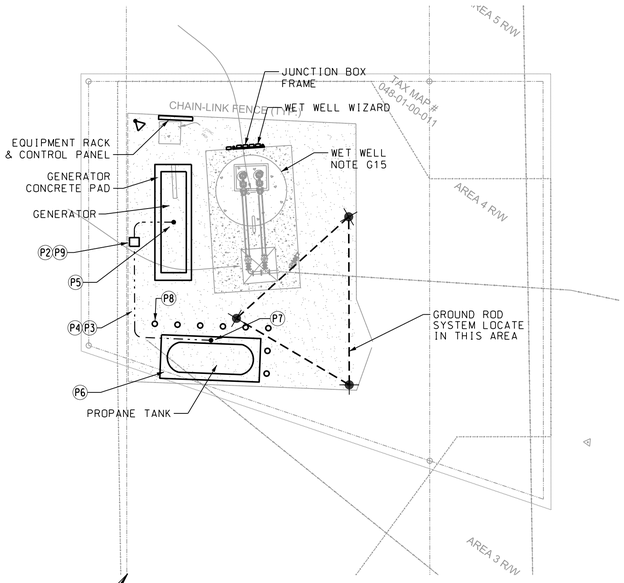


1 E5.1 SITE PLAN PS-8 - ELECTRICAL

SCALE: 1" = 10' - 0"

PROPANE FUEL NOTES:

(P1) ALL PROPANE GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED JOINTS. ALL WORK AND MATERIALS ON THE GAS SYSTEM SHALL COMPLY WITH THE "INTERNATIONAL GAS CODE". PAINT ALL EXPOSED GAS PIPING WITH RUST INHIBITING PRIMER AND 1 COAT OF OIL BASED YELLOW ENAMEL PAINT.

(P2) PROPANE GAS PRESSURE REGULATOR SIZED FOR 337 CFH AT 11 INCH WC OUTLET PRESSURE.

(P3) PROPANE GAS LINE U/G BY CONTRACTOR. COORDINATE WITH PROPANE COMPANY.

(P4) 3" GAS DOWN TO UNDERGROUND. UNDERGROUND PIPING SHALL BE SDR 11 POLYETHLYLENE PIPE AND FITTINGS.

(P5) 3" GAS UP TO GENERATOR. PROVIDE PLUG VALVE, UNION AND DRIPLEG AT CONNECTION. COORDINATE EXACT LOCATION OF CONNECTION WITH GENERATOR.

(P6) PROVIDE A CONCRETE PAD FOR THE PROPANE TANK. 12" THICK, 24"WIDER AND 24" LONGER THAN THE PROPANE TANK. REFER TO DETAIL 1/EO.1 FOR CONSTRUCTION REQUIREMENTS.

(P7) PROVIDE 2" SCH.80 PVC RISER AT TANK MID-POINT. EXTEND TO WITHIN 5' OF GENERATOR. CONDUIT SHALL BE 30" BELOW FINISH GRADE, MINIMUM. PROVIDE DETECTABLE PLASTIC WARNING TAPE 12" BELOW FINISH GRADE.

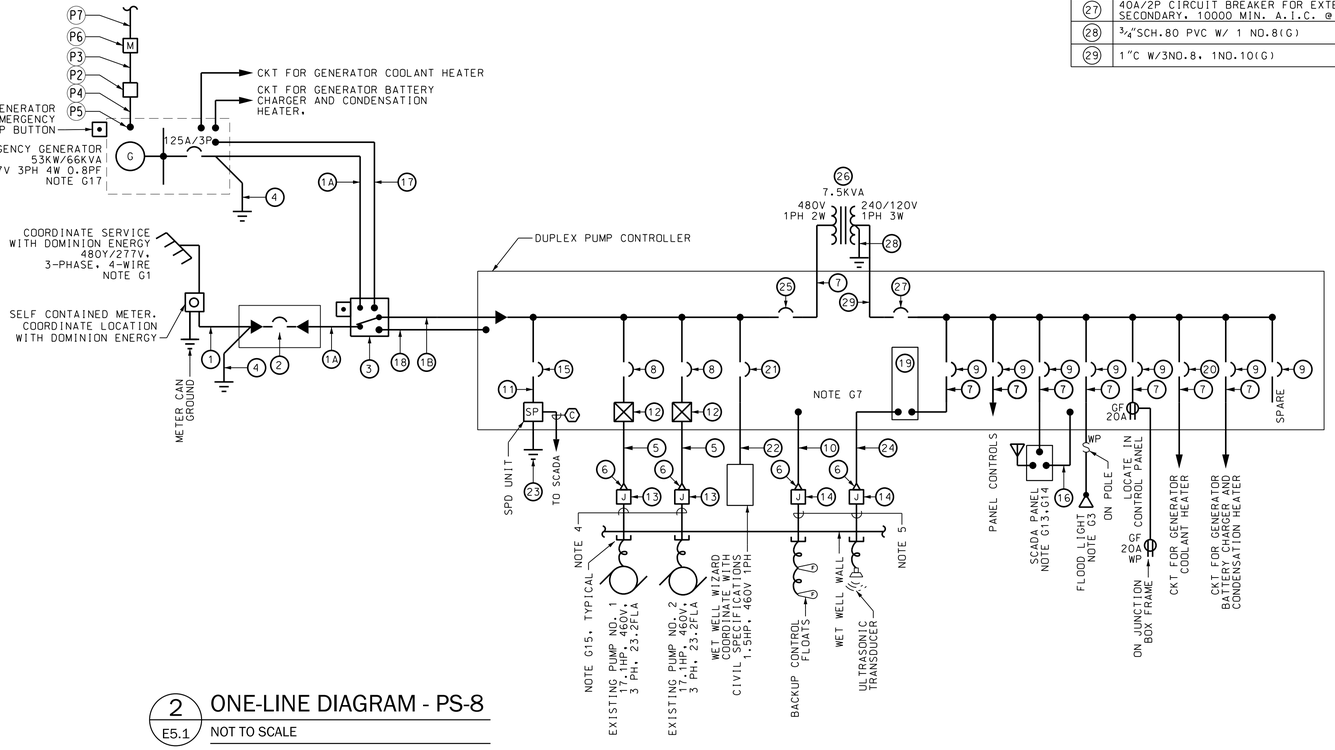
(P8) PROVIDE STEEL PIPE BOLLARDS IN FRONT OF THE PROPANE TANK, 36" ON CENTER. SEE DETAIL THIS SHEET. BOLLARDS SHALL EXTEND BEYOND THE END OF THE PROPANE TANK.

(P9) FIELD COORDINATE INLET LOCATION ON GENERATOR AND THE REGULATOR WITH THE PROPANE PROVIDER. THE REGULATOR SHALL NOT BE WITHIN 5' OF THE GENERATOR.

DUPLEX PUMP STATION ONE LINE SCHEDULE	
ITEM#	PS-8 17.1HP 460V 3PH 23.2FLA
1	2"C W/ 4 NO.1
1A	2"C W/ 4 NO.1, 1 NO.6(G)
1B	2"C W/ 3 NO.1, 1 NO.6(G)
2	ENCLOSED BREAKER, 125A/3P/4X SS ENCLOSURE UL SERVICE LABEL, POST FAULT CURRENT AVAILABLE & DATE CALCULATED 18000 MIN A.I.C @ 480V
3	125A/4P 4X STAINLESS STEEL AUTOMATIC TRANSFER SWITCH MOUNTED ON EQUIPMENT FRAME
4	3/4" SCH.80 PVC W/1NO.6(G) GROUNDING ELECTRODE CONDUCTOR
5	2"C.W/3NO.8, 1 NO.8(G) 4NO.12(CNTLS)
6	SEALING HUB, C-H TYPE ES, NOTE G6
7	3/4"C W/2NO.12, 1NO.12(G)
8	70A/3P MOTOR BREAKER 18 000 MIN. A.I.C. @ 480V
9	20A/1P CIRCUIT BREAKER. 10 000 MIN. A.I.C. @ 120V
10	3/4"C W/4NO.12, 1NO.12(G) FOR FLOATS
11	3NO.10, 1NO.10(G) SHALL NOT EXCEED 18" IN LENGTH
12	MOTOR CONTROLLER: REDUCED VOLTAGE SOLID STATE STARTER WITH SHORTING CONTACTOR FOR 17.1HP 460V 3PH 23.2FLA MOTOR
13	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH POWER BLOCKS AND TERMINAL STRIPS AS REQUIRED. NOTE G10
14	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH TERMINAL STRIPS AS REQUIRED. NOTE G11,G12
15	30A/3P SURGE PROTECTION DEVICE CIRCUIT BREAKER. COORDINATE WITH EQUIPMENT 18 000 MIN A.I.C. @ 480V
16	2"C W/ SCADA ALARM AND STATUS CONDUCTORS
17	THREE 1"C W/CONDUCTORS AS REQUIRED FOR CONTROL AND ALARM ANNUNCIATION
18	1"C W/CONDUCTORS AS REQUIRED FOR LOAD CONTROL
19	ULTRASONIC LEVEL CONTROLLER HYDRORANGER 200
20	20A/2P CIRCUIT BREAKER FOR GENERATOR COOLANT HEATER. 10000 MIN. A.I.C. @ 240 V
21	WET WELL WIZARD BREAKER 15A/2P 18 000 MIN. A.I.C. @ 480V
22	3/4"C W/2NO.10, 1NO.10(G)
23	SURGE PROTECTION DEVICE CONNECTION TO GROUNDING DELTA: 3/4" SCH.80 PVC W/ 1 NO.10(G)
24	2"C W/LEVEL TRANSDUCER CABLE
25	20A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER PRIMARY. 18000 MIN. A.I.C. @ 480V
26	7.5KVA NEMA 3X TRANSFORMER W/ STAINLESS STEEL ENCLOSURE FOR 480V SYSTEM CONTROL POWER & AUXILIARY LOADS
27	40A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER SECONDARY. 10000 MIN. A.I.C. @ 240V
28	3/4"SCH.80 PVC W/ 1 NO.8(G)
29	1"C W/3NO.8, 1NO.10(G)

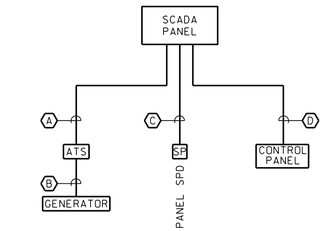
ELECTRICAL NOTES:

1. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. PROVIDE AERIAL SERVICE AS REQUIRED BY THE UTILITY AND PROJECT REQUIREMENTS. COORDINATE WITH DOMINION ENERGY: CONTACT PARKS MOSS. CUSTOMER SERVICE ENGINEER 843-815-8808
2. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.
3. MOUNT THE AREA LIGHT ON THE 35' CLASS 4 PRESSURE TREATED SERVICE POLE. REFER TO DETAIL 5/EO.1. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH YOKE MOUNT. 50 CORD. AND INTEGRAL PHOTOCELL; CATALOG NO. DSXF2 LED-3-A530/40K-WFL-MVOLT-YKC62-PE-DDBXD.
   A. MOUNT THE FLOOD LIGHT TO THE TOP OF THE SERVICE POLE BELOW THE SERVICE DROP RACK.
   B. PROVIDE A WEATHERPROOF SWITCH ON THE POLE, 48" ABOVE FINISH GRADE.
4. 3" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR PUMP CABLES.
5. 2" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR FLOATS AND TRANSDUCER CABLES.



2 E5.1 ONE-LINE DIAGRAM - PS-8

NOT TO SCALE



(A) 3/4"C W/ ONE CAT 6 CABLE

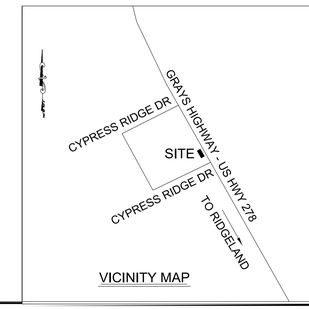
(B) THREE 1"C W/ CONDUCTORS AS REQUIRED

(C) 3/4"C W/ 2 NO.14, 1 NO.14(G)

(D) 3/4"C W/ ONE CAT 6 CABLE, 8 NO.14, 1 NO.14(G)

3 E5.1 SCADA RISER

SCALE: NONE



VICINITY MAP

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 40028 26 May 2023 CHARLES BEVERLEY COBB

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION CHATHAM ENGINEERING COMPANY LLC C04812

REV/ NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I PS-8 ELECTRICAL SITE PLAN, NOTES & ONE-LINE DIAGRAM

TOWN OF RIDGELAND RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
CC	LC	17-1007.005	12-2022	

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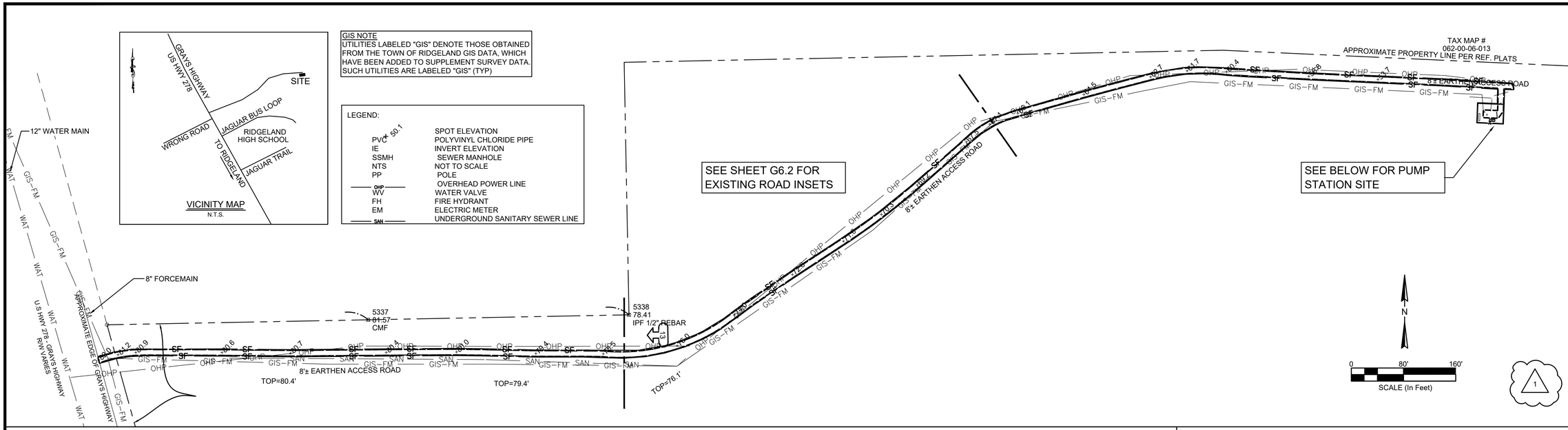
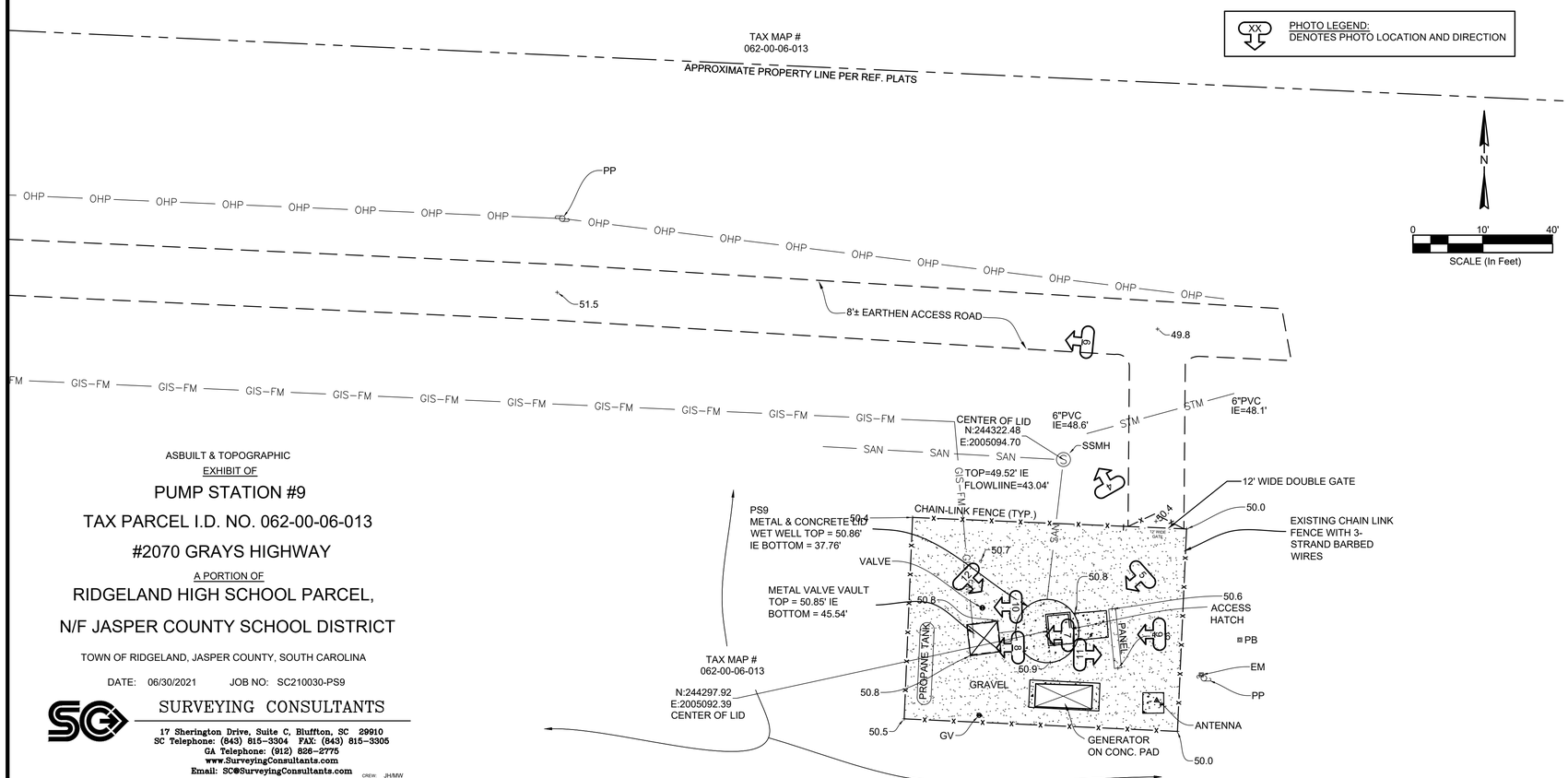
DRAWING NUMBER E5.1

CADD PLOT 29-MAY-2023 13:48 CCOBB

E:\Ridgeland Well No.2 Rehab - 21010.01\CADD\E5.1.dgn





ASBUILT & TOPOGRAPHIC
EXHIBIT OF

PUMP STATION #9

TAX PARCEL I.D. NO. 062-00-06-013

#2070 GRAYS HIGHWAY

A PORTION OF

RIDGELAND HIGH SCHOOL PARCEL,

N/F JASPER COUNTY SCHOOL DISTRICT

TOWN OF RIDGELAND, JASPER COUNTY, SOUTH CAROLINA

DATE: 06/30/2021 JOB NO: SC210030-PS9

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 826-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

CREW: JH/MW
CAD: AT

PREPARED FOR: FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

ADDRESS: #2070 GRAYS HIGHWAY TAX PARCEL I.D. NO. 062-00-06-013

REFERENCE PLAT:

1) A BOUNDARY SURVEY OF 122.87 ACRES, U.S. HIGHWAY 278, PREPARED FOR: JASPER COUNTY SCHOOLS, RIDGELAND, JASPER COUNTY, SOUTH CAROLINA, DATED: 11/10/2011, BY: DONALD R. COOK, S.C.R.L.S. NO. 19010, WARD EDWARDS, INC., RECORDED: P.B. 27, PAGE 63.

2) AS-BUILT SURVEY OF A PORTION OF TAX MAP# 062-00-06-003, NEAR RIDGELAND, JASPER COUNTY, SC, PREPARED AT REQUEST OF: CLARK LAWSON & DIANE LAWSON, DATED: 12/08/1998, BY: THOMAS G. STANLEY, S.C.R.L.S. NO. 18269, RECORDED: P.B. 23, PAGE 331.

SPECIAL NOTE:
*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #7 BELOW

NOTES:

1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
2. UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN AND ARE APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE EXACT LOCATION OF ANY UNDERGROUND UTILITY.
3. NO SUBSURFACE OR ENVIRONMENTAL INVESTIGATION OR WETLAND SURVEYS WERE PERFORMED FOR THIS PLAT. THEREFORE THIS PLAT DOES NOT REFLECT THE EXISTENCE OR NONEXISTENCE OF WETLANDS, CONTAMINATION, OR OTHER CONDITIONS WHICH MAY AFFECT THIS PROPERTY.
4. SURVEYING CONSULTANTS CERTIFIES TO THE TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS OF THE DATE OF SURVEY. IF THIS DOCUMENT IS TO BE PROVIDED AS A BASE MAP FOR OTHERS, INFORMATION ADDED AFTER THE DATE OF THIS SURVEY IS NOT THE RESPONSIBILITY OF SURVEYING CONSULTANTS.
5. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, THEREFORE THERE MAY BE OTHER EASEMENTS, RIGHT-OF-WAY, SETBACK LINES, AGREEMENTS, RESERVATIONS, RESTRICTIONS, OR OTHER SIMILAR MATTERS OF PUBLIC RECORD, NOT DEPICTED ON THIS SURVEY.
6. THE BOUNDARY LINES SHOWN ARE BASED ON MONUMENT FOUND AND THIER RELATIONSHIP TO THE REFERENCE PLATS AND SHOULD BE CONSIDERED APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE BOUNDARY LINES SHOWN.
7. THE HORIZNTAL DATUM SHOWN IS BASED ON NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES. THE VERTICAL DATUM SHOWN IS BASED ON NAVD 88 DATUM. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC. No. 5166

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1	5/23	SD	AB	MINOR OVERALL UPDATES
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-9 EXISTING CONDITIONS AND KEY
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		BID
ISSUE			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G6.1

N:243982.80
E:2003372.15

5337
81.57
CMF

5338
78.41
IPF 1/2" REBAR

8" FORCEMAIN

APPROXIMATE EDGE OF GRAYS HIGHWAY

8'± EARTHEN ACCESS ROAD

SSMH
TOP=80.4'

6" PS9
FORCEMAIN

TOP=79.4'
SSMH

MATCHLINE - SEE BELOW LEFT

APPROXIMATE BOUNDARY LINES
PER REFERENCE PLAT

12" WATER MAIN

N

VICINITY MAP
N.T.S.

GRAYS HIGHWAY
US HWY 278

SITE

JAGUAR BUS LOOP

WRONG ROAD

RIDGELAND
HIGH SCHOOL

TO RIDGELAND

JAGUAR TRAIL

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

0 80' 160'
SCALE (In Feet)

1

N:243990.43
E:2003771.81

5338
78.41
IPF 1/2" REBAR

MATCHLINE - SEE ABOVE RIGHT

TOP=76.1'
SSMH

6" PS9
FORCEMAIN

MATCHLINE - SEE BELOW LEFT

8'± EARTHEN ACCESS ROAD

MATCHLINE - SEE ABOVE RIGHT

6" PS9
FORCEMAIN

TAX MAP #
062-00-06-013

APPROXIMATE PROPERTY LINE PER REF. PLATS

8'± EARTHEN ACCESS ROAD

51.5

49.8

N:244322.48
E:2005034.70

SSMH

PS9 SITE

VALVE

N:244297.92
E:2005092.39

GV

PB
EM
PP
ANTENNA

50.4
50.0
50.8
50.6
50.5

SOUTH CAROLINA
PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
PS-9 EXISTING CONDITIONS
ROADWAY INSETS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

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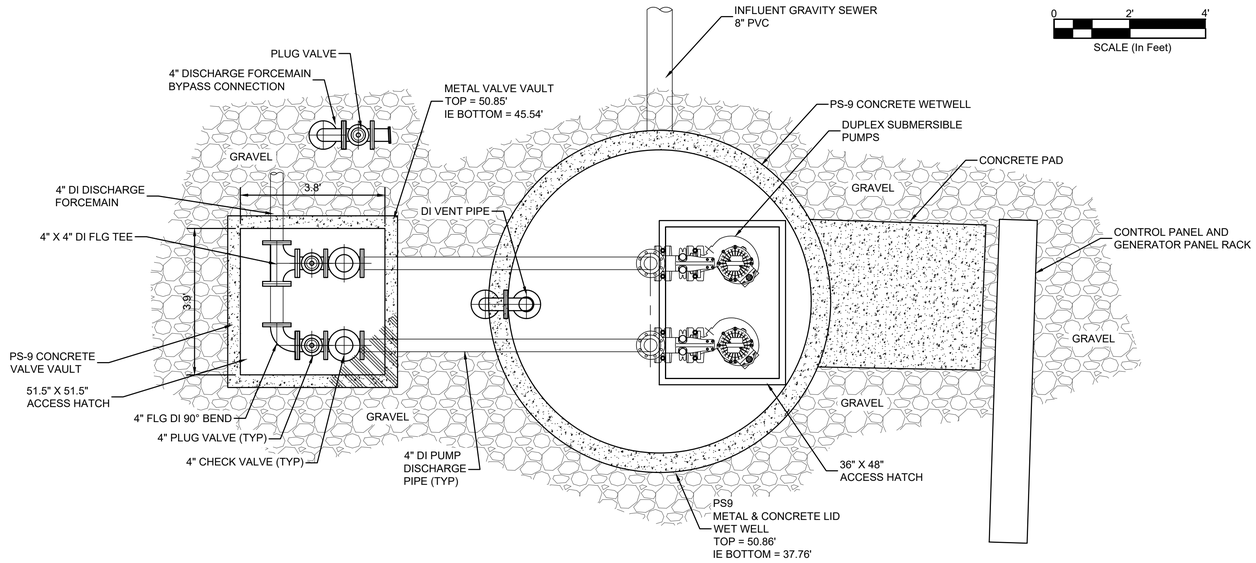
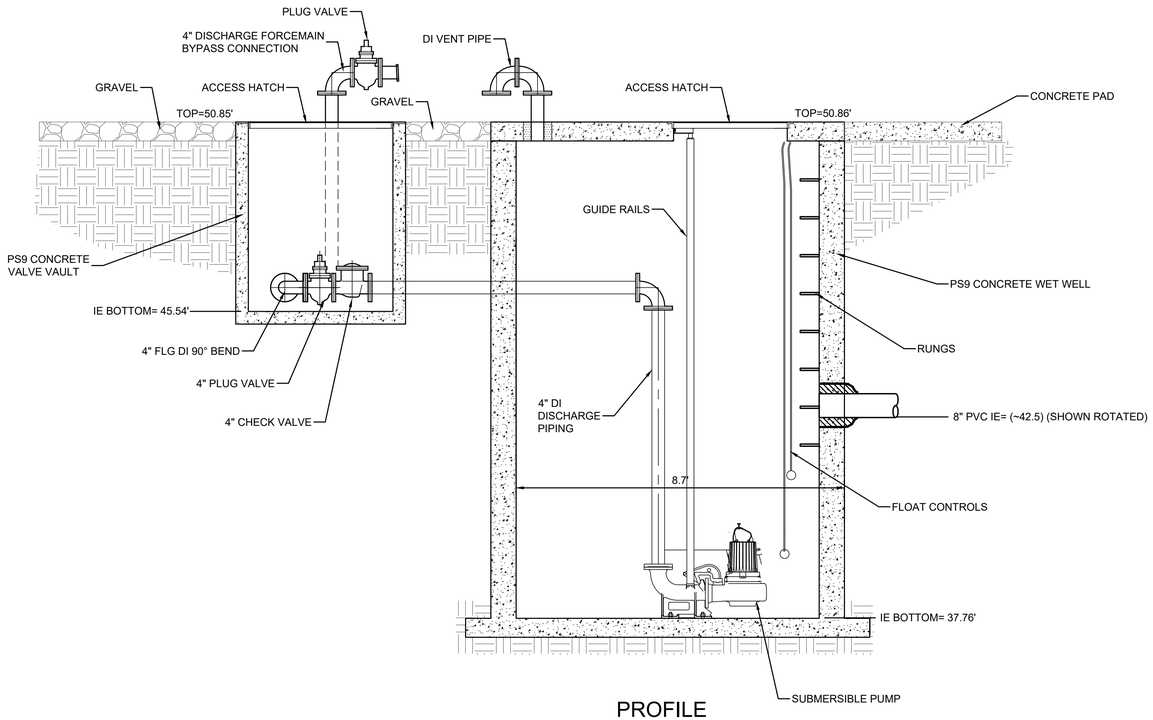
DRAWING NUMBER
G6.2



PLAN VIEW



PROFILE

PHOTO-1

LOOKING INTO WET WELL

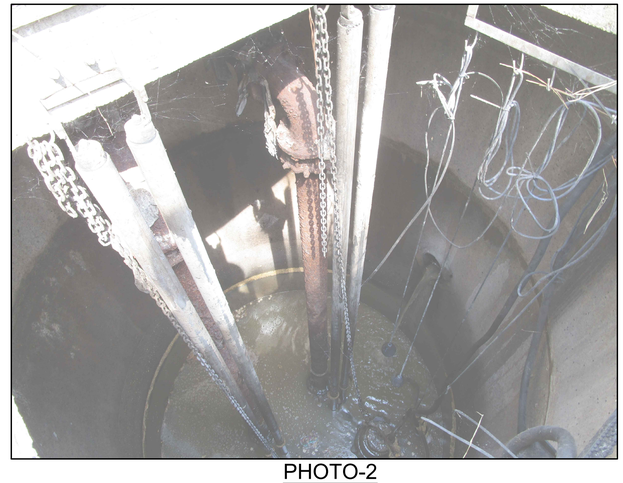


PHOTO-2

LOOKING INTO WET WELL

PHOTO-3

LOOKING INTO VALVE VAULT

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-9 EXSTING CONDITIONS DETAIL

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
		ISSUE	BID

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DRAWING NUMBER
G6.3

PHOTO-4

LOOKING NORTHWEST FROM PUMP STATION SITE ACROSS JUNCTION/RECEIVING MANHOLE

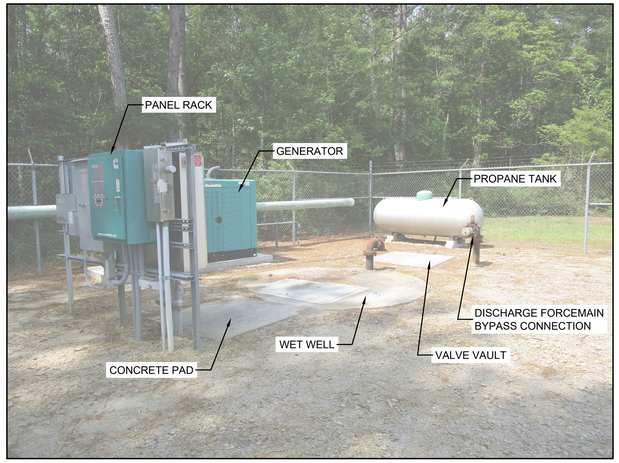

PHOTO-5

LOOKING SOUTHWEST INSIDE SITE

PHOTO-6

LOOKING WEST AT SITE AND ACCESS ROAD

PHOTO-7

LOOKING WEST ACROSS WET WELL

PHOTO-8

LOOKING WEST AT PROPANE TANK

PHOTO-9

LOOKING WEST AT GENERATOR EQUIPMENT PANELS

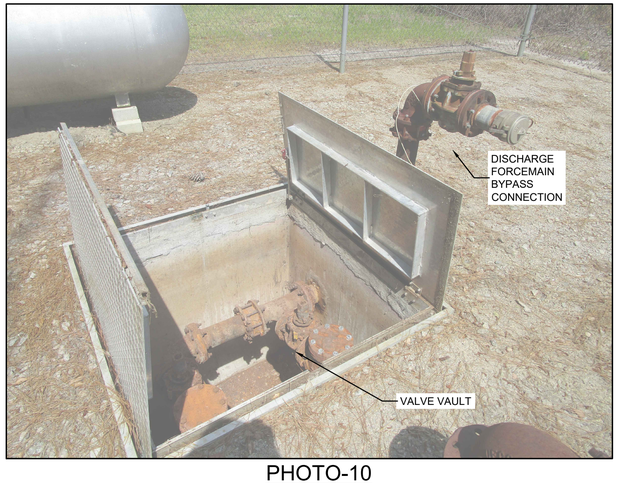

PHOTO-10

LOOKING WEST AT VALVE VAULT

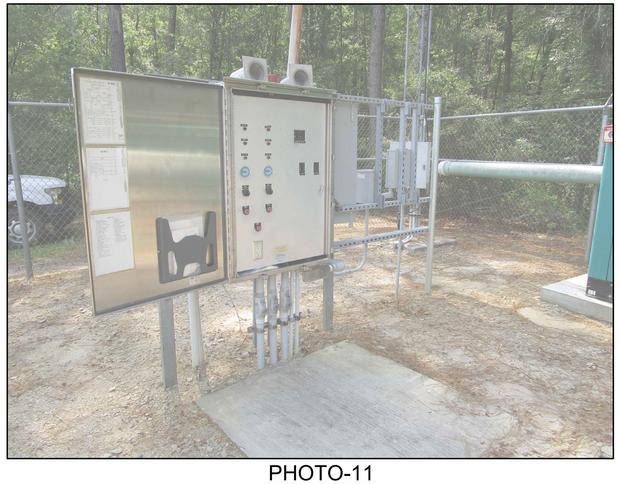

PHOTO-11

LOOKING EAST AT PUMP STATION CONTROL PANEL

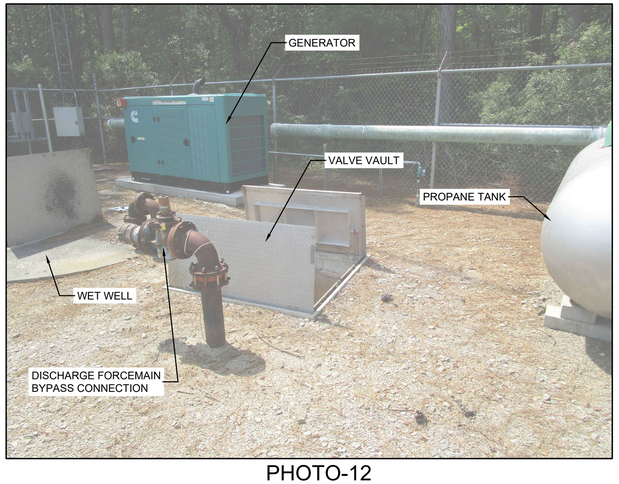

PHOTO-12

LOOKING SOUTHEAST AT PUMP STATION SITE

PHOTO-13

LOOKING WEST ALONG ACCESS ROAD

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No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-9 EXISTING CONDITIONS SITE PHOTOS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

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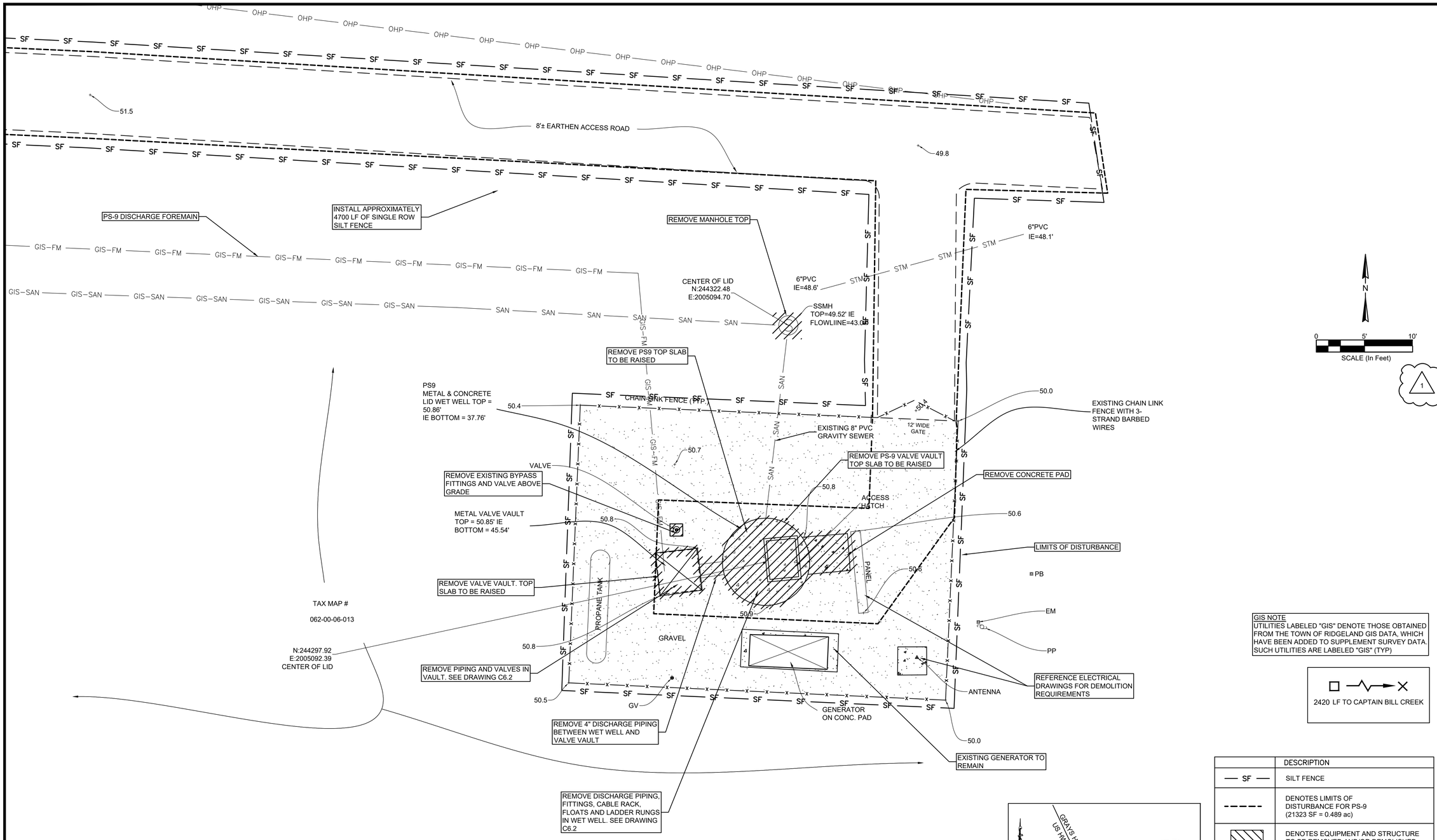
G6.4



	DESCRIPTION
— SF —	SILT FENCE
- - - - -	DENOTES LIMITS OF DISTURBANCE FOR PS-9 (21323 SF = 0.489 ac)
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

LEGEND:

+ 50.1	SPOT ELEVATION
PVC	POLYVINYL CHLORIDE PIPE
IE	INVERT ELEVATION
SSMH	SEWER MANHOLE
NTS	NOT TO SCALE
PP	POLE
OHP	OVERHEAD POWER LINE
WV	WATER VALVE
FH	FIRE HYDRANT
EM	ELECTRIC METER
SAN	UNDERGROUND SANITARY SEWER LINE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

PS-9 DEMOLITION PLAN SITE PLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	BID
DRAWN JMC			ISSUE

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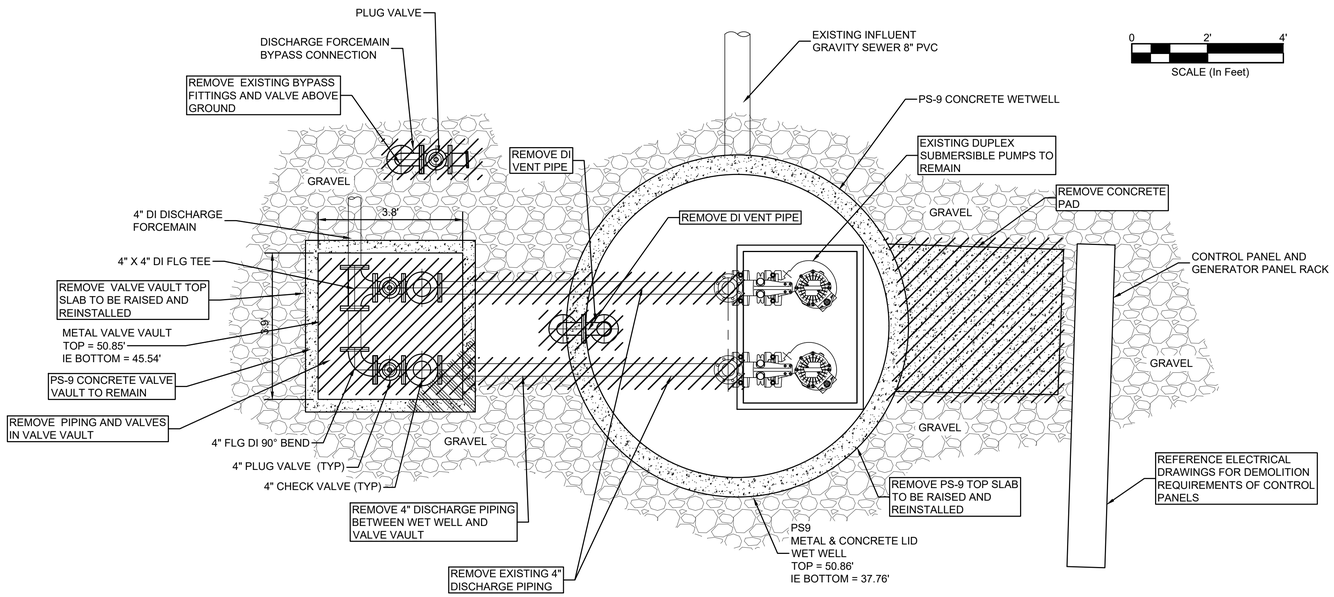
DRAWING NUMBER
C6.1

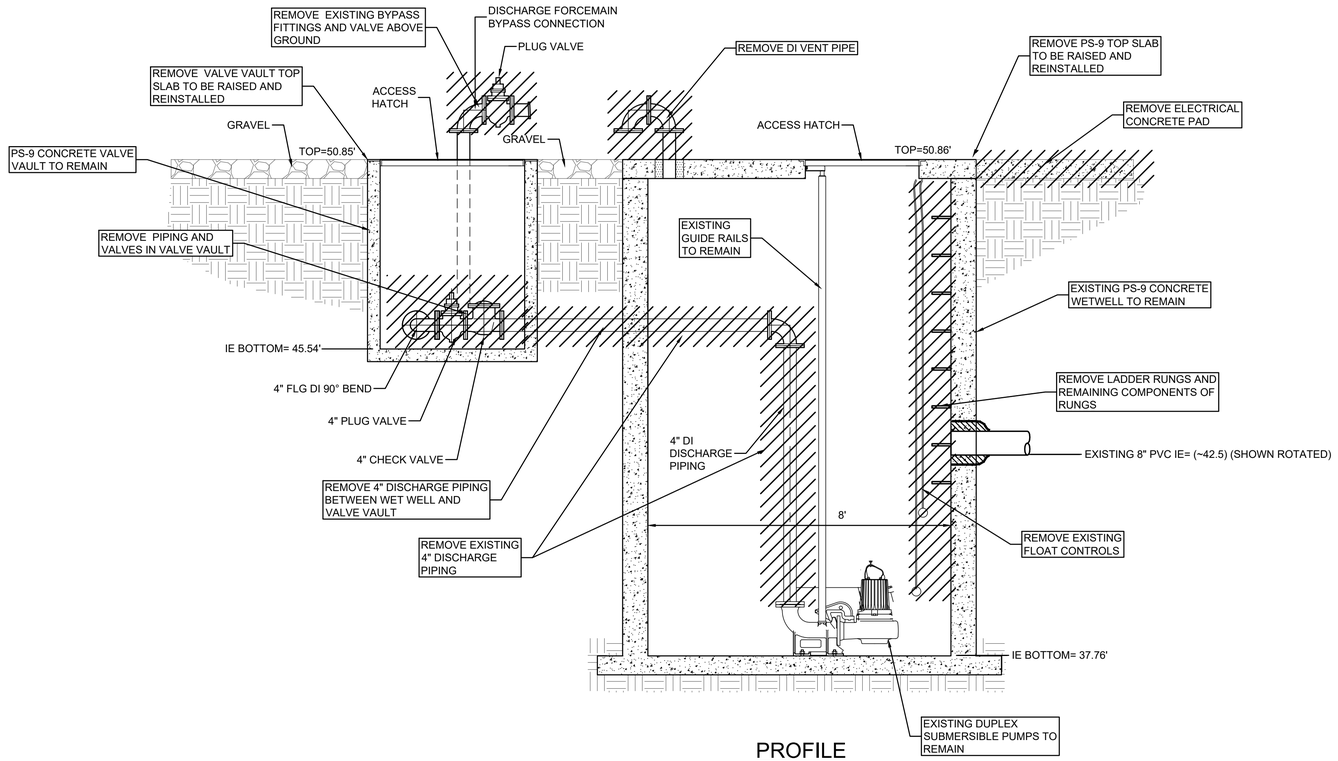


PLAN VIEW

DEMOLITION NOTES:

1. ALL NECESSARY TEMPORARY BYPASS OPERATIONS SHALL BE IN PLACE AND OPERATIONAL PRIOR TO INITIATING DEMOLITION ACTIVITIES.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. CONTRACTOR SHALL COORDINATE WITH TOWN OF RIDGELAND PROJECT REPRESENTATIVE REGARDING EQUIPMENT TO BE RETAINED BY TOWN WHICH SHALL BE DELIVERED TO THE JIMMY MIXSON WRF AT 366 PREACHER STREET. UNLESS SO IDENTIFIED, ALL OTHER EQUIPMENT AND MATERIALS TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
4. PRIOR TO DEMOLITION OR REMOVAL OF STRUCTURES USED FOR WASTEWATER, ALL WASTEWATER AND SOLIDS SHALL BE REMOVED FROM THE STRUCTURE AND PROPERLY DISPOSED.

	DESCRIPTION
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED



PROFILE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL UPDATES
2				
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7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-9 DEMOLITION PLAN DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C6.2

TTC: 610-205-00
RIGHT SHOULDER CLOSURE
(CASE I/CASE II)
PRIMARY ROUTES

GRADE TO MATCH EXISTING GRAY'S HIGHWAY (HWY 278) EDGE OF PAVEMENT ELEVATION

APPROXIMATE EDGE OF GRAYS HIGHWAY

ACCESS ROAD IMPROVEMENTS WITH 8" SCDOT CRUSHED AGGREGATE OR CRUSH CRETE. SEE DETAIL DRAWING D8.1

8'± EARTHEN ACCESS ROAD

INSTALL APPROXIMATELY 4700 LF OF SINGLE ROW SILT FENCE

APPROXIMATE BOUNDARY LINES PER REFERENCE PLAT

N:243982.80
E:2003372.15

5337
91.57
CMF

5338
78.41
IPF 1/2" REBAR

SEE BELOW LEFT

SSMH
TOP=80.4'

N:243990.43
E:2003771.81

5338
78.41
IPF 1/2" REBAR

SEE ABOVE RIGHT

SSMH
TOP=76.1'

ACCESS ROAD IMPROVEMENTS WITH 8" SCDOT CRUSHED AGGREGATE OR CRUSH CRETE. SEE DETAIL DRAWING D8.1

TOTAL 2070 SQUARE YARDS ACCESS ROAD IMPROVEMENTS

SEE BELOW LEFT

SEE ABOVE RIGHT

ACCESS ROAD IMPROVEMENTS WITH 8" SCDOT CRUSHED AGGREGATE OR CRUSH CRETE. SEE DETAIL DRAWING D8.1

TAX MAP #
062-00-06-013

APPROXIMATE PROPERTY LINE PER REF. PLATS

8'± EARTHEN ACCESS ROAD

PS-9 SITE

N:244322.48
E:2005094.70

N:244322.02
E:2005092.39

SSMH

VALVE

PB

EM

PP

ANTENNA

51.4'

51.0'

GIS NOTE
UTILITIES LABELED "GIS" DENOTE THOSE OBTAINED FROM THE TOWN OF RIDGELAND GIS DATA, WHICH HAVE BEEN ADDED TO SUPPLEMENT SURVEY DATA. SUCH UTILITIES ARE LABELED "GIS" (TYP)

VICINITY MAP
N.T.S.

GRAYS HIGHWAY
US HWY 278

SITE

JAGUAR BUS LOOP

WRONG ROAD

TO RIDGELAND

RIDGELAND HIGH SCHOOL

JAGUAR TRAIL

	DESCRIPTION
— SF —	SILT FENCE
- - - - -	DENOTES LIMITS OF DISTURBANCE FOR PS-9 (21323 SF = 0.489 ac)

LEGEND:

+ 50.1	SPOT ELEVATION
PVC	POLYVINYL CHLORIDE PIPE
IE	INVERT ELEVATION
SSMH	SEWER MANHOLE
NTS	NOT TO SCALE
PP	POLE
— OHP —	OVERHEAD POWER LINE
WV	WATER VALVE
FH	FIRE HYDRANT
EM	ELECTRIC METER
— SAN —	UNDERGROUND SANITARY SEWER LINE

0 80' 160'
SCALE (In Feet)

1

SOUTH CAROLINA
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
PS-9 PROPOSED ENTRANCE ROAD IMPROVEMENTS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	BID
DRAWN JMC			ISSUE

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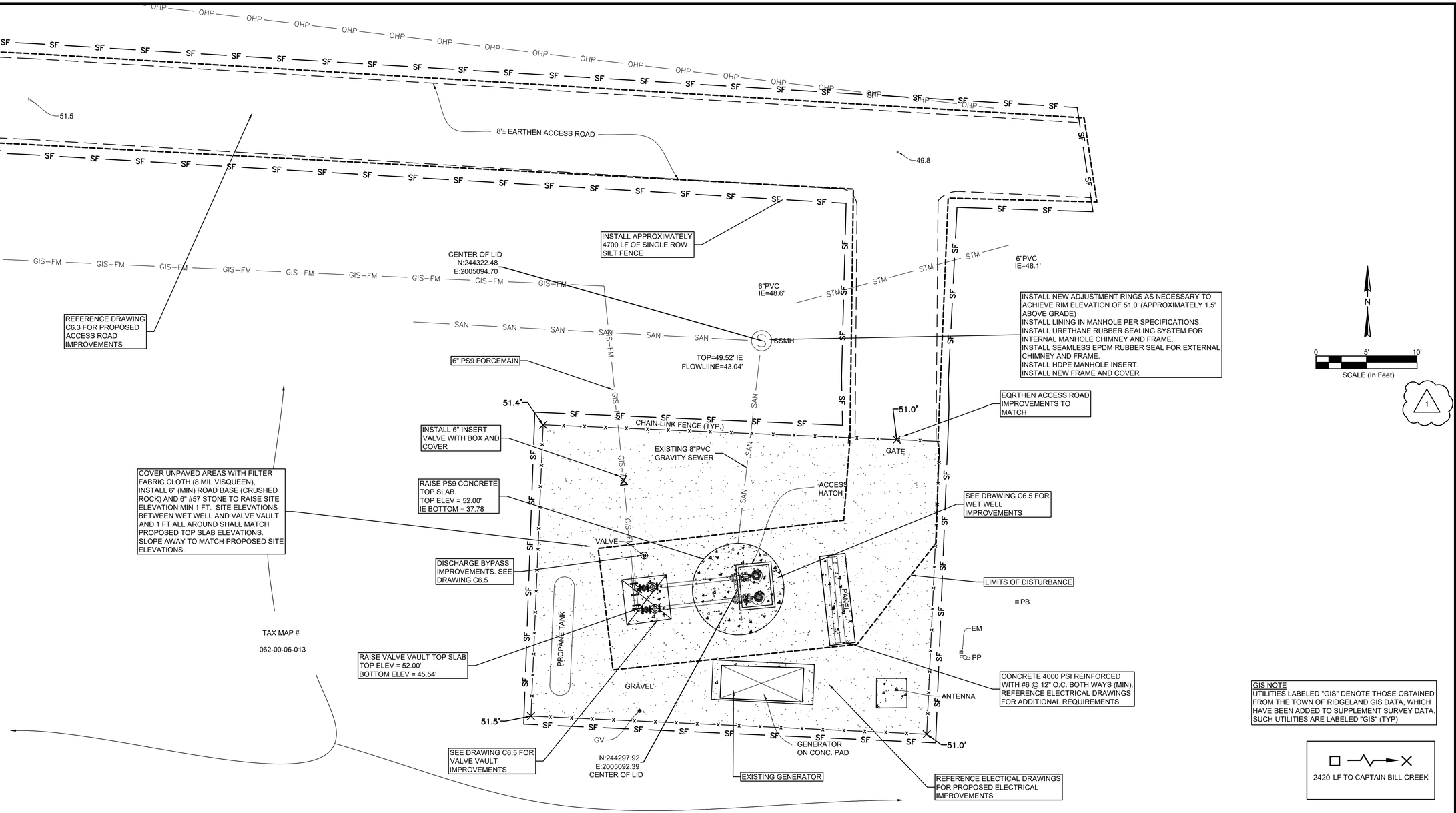

	DESCRIPTION
— SF —	SILT FENCE
- - - - -	DENOTES LIMITS OF DISTURBANCE FOR PS-9 (21323 SF = 0.489 ac)

LEGEND:

+ 50.1	SPOT ELEVATION
PVC	POLYVINYL CHLORIDE PIPE
IE	INVERT ELEVATION
SSMH	SEWER MANHOLE
NTS	NOT TO SCALE
PP	POLE
— OHP —	OVERHEAD POWER LINE
WV	WATER VALVE
FH	FIRE HYDRANT
EM	ELECTRIC METER
— SAN —	UNDERGROUND SANITARY SEWER LINE

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I

PS-9 PROPOSED IMPROVEMENTS PLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	JOB #	17-1007
DRAWN	JMC	ISSUE DATE	FEB 2023
		ISSUE	BID

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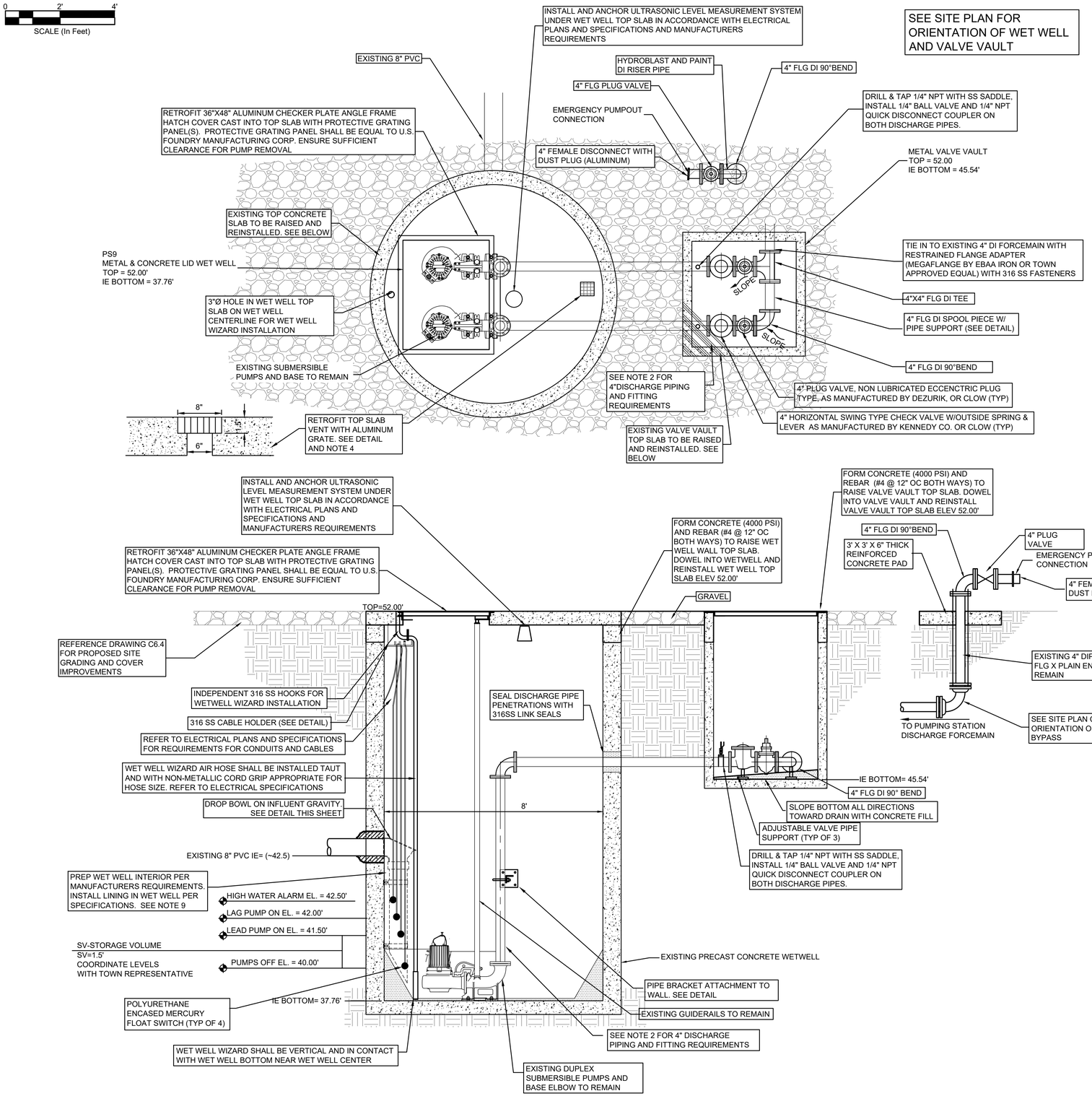
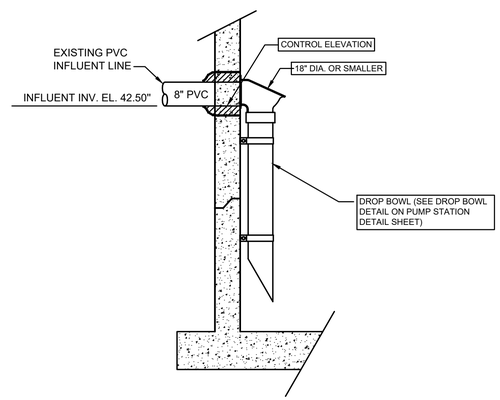


GENERAL NOTES

1. ALL METALS INSIDE THE WET WELL INCLUDING BUT NOT LIMITED TO GUIDE RAILS, LIFTING CHAINS, NUTS, BOLTS, CABLE HOLDERS, PIPE SUPPORTS AND BRACES, ETC., TO BE 316 STAINLESS STEEL, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. PUMP DISCHARGE PIPING AND FITTINGS: DISCHARGE PIPING AND FITTINGS FROM PUMP ELBOW THROUGH TO CHECK VALVE IN VALVE VAULT SHALL BE A MINIMUM 4" (UNLESS APPROVED OTHERWISE BY TOWN) AND SHALL BE:
   a. FUSED PVC PIPE AND STAINLESS STEEL FITTINGS: PVC PIPE SHALL BE C900 DR18 AND SHALL BE FUSED AS ONE PIECE BETWEEN PUMP BASE ELBOW AND 90 DEGREE BEND IN WET WELL, AND FROM 90 DEGREE BEND IN WET WELL TO CHECK VALVE IN VALVE VAULT. 90 DEGREE BEND IN WET WELL SHALL BE FLANGED 316 STAINLESS STEEL, SCH 40. PVC PIPING ENDS SHALL UTILIZE RESTRAINED FLANGE ADAPTER (MEGAFLANGE BY EBAA IRON OR TOWN APPROVED EQUAL) WITH 316 SS FASTENERS TO CONNECT TO PUMP BASE ELBOW, 90 DEGREE BEND, AND CHECK VALVE.
3. AERATION SYSTEM: WET WELL WIZARD SYSTEM AS MANUFACTURED BY RELIANT WATER TECHNOLOGIES, NEW ORLEANS, LA. WWW.RELIANTWATER.US.COM SHALL BE INSTALLED IN WET WELL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. WET WELL WIZARD SYSTEM SHALL INCLUDE (1) WET WELL WIZARD, (1) 1.5 HP BLOWER AND ALL NECESSARY ASSOCIATED EQUIPMENT.
4. VENT: PROVIDE 6"X6" OPENING THROUGH THE CONCRETE TOP OF THE WET WELL AND INSERT 8"X 8" X 1-1/2" THICK ALUMINUM GRATE VENT CONSTRUCTED OF 1-1/2" WIDE X 1/8" MATERIAL.
5. FITTINGS: ALL DUCTILE IRON FITTINGS SHALL BE EPOXY LINED. ALL BURIED FITTINGS SHALL BE RESTRAINED.
6. LEVEL MONITORING: INSTALL ULTRASONIC LEVEL MEASUREMENT SYSTEM IN ACCORDANCE WITH ELECTRICAL PLANS AND SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS. PROVIDE FOUR BACKUP POLYURETHANE ENCASED MERCURY FLOAT SWITCHES FOR PUMPS OFF, LEAD PUMP ON, LAG PUMP ON, AND HIGH WATER ALARM.
7. WET WELL: PRECAST CONCRETE WET WELL SHALL MEET ASTM C-478 STANDARD. CONCRETE, REINFORCING STEEL, AND BUOYANCY DESIGN AND CALCULATIONS TO BE PREPARED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH THE SHOP DRAWINGS.
8. WET WELL AND MANHOLES: ALL EXTERIOR JOINTS OF PRECAST CONCRETE WET WELL AND MANHOLES SHALL BE SEALED WITH A 18" WIDE RUBBERIZED ASPHALT MEMBRANE TAPE. EXTERIOR COATING OF BITUMINOUS COATING AS SPECIFIED IN ANSI SPECIFICATIONS A21.51 SHALL BE APPLIED TO WET WELL AND MANHOLES.
9. INTERIOR PROTECTIVE COATINGS: PROTECTIVE COATING SHALL BE APPLIED TO THE INTERIOR OF WET WELLS AND RECEIVING MANHOLES. COATING SYSTEM IN WET WELL SHALL BE APPLIED TO VERTICAL WALLS AND TOP, AT A MINIMUM. PROTECTIVE COATING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND SHALL BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND BY INSTALLER CERTIFIED BY COATING SYSTEM MANUFACTURER.
10. EMERGENCY PUMP OUT CONNECTION. PIPE SIZE FOR EMERGENCY PUMP OUT CONNECTION SHALL MATCH PUMP DISCHARGE PIPE SIZE IN WET WELL.
11. MIN. WATER LEVEL: MINIMUM WATER LEVEL IN WET WELL SHALL BE 30" MINIMUM FOR PROPER OPERATION OF THE WET WELL WIZARD, SHALL COVER TOP OF PUMP MOTOR, OR SHALL BE GREATER IF RECOMMENDED BY PUMP MANUFACTURER.
12. FLOOD ZONE: DESIGN ENGINEER OF RECORD SHALL PROVIDE INFORMATION ON THE FLOOD ZONE OF THE PUMP STATION SITE AND SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WET WELL IS ABOVE THE 100 YEAR FLOOD ELEVATION AND THAT THE BOTTOM OF THE CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB AREA ALL ABOVE THE 100 YEAR FLOOD ELEVATION + 2 FEET OR THE 500 YEAR FLOOD ELEVATION, WHICHEVER IS GREATER.
13. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ELEVATIONS AND DIMENSIONS CALLED OUT ON THIS PLAN SET FOR THE PUMP STATION PRIOR TO ORDERING OF ANY MATERIALS OR COMPONENTS OF THE PUMP STATION. ANY DEVIATION OF THE LAYOUTS INDICTED ON THIS PLAN MUST BE COMMUNICATED TO THE TOWN AND ENGINEER OF RECORD FOR FURTHER DIRECTION.
14. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY STABILIZATION FOR DEMOLITION AND CONSTRUCTION AND SHALL HIRE A SPECIALTY PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA TO DESIGN THE STABILIZATION SYSTEM FOR EXCAVATION AND EVALUATE THE DRAWDOWN OF THE DEWATERING OPERATIONS DURING CONSTRUCTION IN ORDER TO PROTECT THE EXISTING PS-9 STRUCTURES. DESIGN AND EVALUATION SHALL BE SIGNED AND SEALED AND SUBMITTED TO THE TOWN OF RIDGELAND AND ENGINEER OF RECORD.
15. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING OPERATIONS, THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN FOR APPROVAL AND SHALL SECURE ANY NECESSARY SCDHEC PERMIT.
16. PS-9 SITE LOCATED IN ZONE X AREA OF MINIMAL FLOODING (NO ESTABLISHED FLOOD ELEVATION), PER NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP PANEL 225 OF 575 JASPER COUNTY, SOUTH CAROLINA AND INCORPORATED AREAS MAP NUMBER 45053C0225D OCTOBER 18. 2019
17. RESTORE ALL AREAS DISTURBED BY CONSTRUCTION TO PRE-CONSTRUCTION CONDITION. HYDRASEED AND MULCH ALL UNPAVED AREAS OUTSIDE OF FENCING. REFERENCE C6.4 FOR REQUIREMENTS INSIDE FENCING

1



INFLUENT SECTION

NOT TO SCALE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL UPDATES
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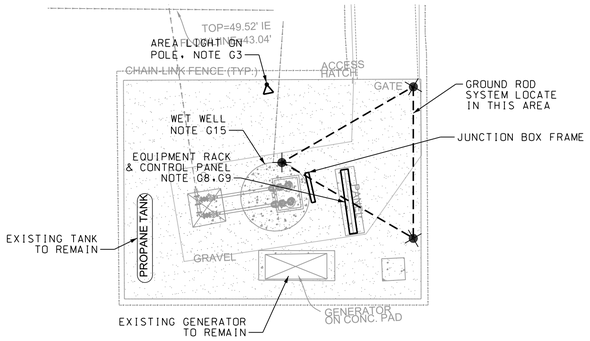
WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-9 PROPOSED IMPROVEMENTS DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DRAWN JMC	17-1007	FEB 2023	BID
DESIGN ABB	JOB #	ISSUE DATE	ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C6.5



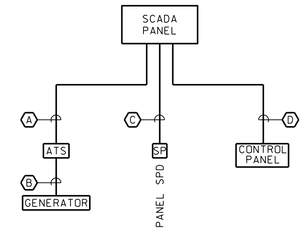
1 / E6.1 SITE PLAN PS-9 - ELECTRICAL

SCALE: 1" = 10' - 0"

DUPLEX PUMP STATION ONE LINE SCHEDULE	
ITEM#	PS-9 23HP 460V 3PH 34FLA
1	2"C W/ 4 NO.1/0
1A	2"C W/ 4 NO.1/0, 1 NO.6(G)
1B	2"C W/ 3 NO.1/0, 1 NO.6(G)
2	ENCLOSED BREAKER, 150A/3P/4X SS ENCLOSURE UL SERVICE LABEL, POST FAULT CURRENT AVAILABLE & DATE CALCULATED 18000 MIN A.I.C @ 480V
3	150A/4P 4X STAINLESS STEEL AUTOMATIC TRANSFER SWITCH MOUNTED ON EQUIPMENT FRAME
4	3/4" SCH.80 PVC W/1NO.6(G) GROUNDING ELECTRODE CONDUCTOR
5	2"C.W/3NO.8, 1 NO.8(G) 4NO.12(CNTLS)
6	SEALING HUB, C-H TYPE ES, NOTE G6
7	3/4"C W/2NO.12, 1NO.12(G)
8	90A/3P MOTOR BREAKER 18 000 MIN. A.I.C. @ 480V
9	20A/1P CIRCUIT BREAKER. 10 000 MIN. A.I.C. @ 120V
10	3/4"C W/4NO.12, 1NO.12(G) FOR FLOATS
11	3NO.10, 1NO.10(G) SHALL NOT EXCEED 18" IN LENGTH
12	MOTOR CONTROLLER: REDUCED VOLTAGE SOLID STATE STARTER WITH SHORTING CONTACTOR FOR 23HP 460V 3PH 34FLA MOTOR
13	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH POWER BLOCKS AND TERMINAL STRIPS AS REQUIRED. NOTE G10
14	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH TERMINAL STRIPS AS REQUIRED. NOTE G11,G12
15	30A/3P SURGE PROTECTION DEVICE CIRCUIT BREAKER. COORDINATE WITH EQUIPMENT 18 000 MIN A.I.C. @ 480V
16	2"C W/ SCADA ALARM AND STATUS CONDUCTORS
17	THREE 1"C W/CONDUCTORS AS REQUIRED FOR CONTROL AND ALARM ANNUNCIATION
18	1"C W/CONDUCTORS AS REQUIRED FOR LOAD CONTROL
19	ULTRASONIC LEVEL CONTROLLER HYDRORANGER 200
20	20A/2P CIRCUIT BREAKER FOR GENERATOR COOLANT HEATER. 10000 MIN. A.I.C. @ 240 V
21	WET WELL WIZARD BREAKER 15A/2P 18 000 MIN. A.I.C. @ 480V
22	3/4"C W/2NO.10, 1NO.10(G)
23	SURGE PROTECTION DEVICE CONNECTION TO GROUNDING DELTA: 3/4" SCH.80 PVC W/ 1 NO.10(G)
24	2"C W/LEVEL TRANSDUCER CABLE
25	20A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER PRIMARY, 18000 MIN. A.I.C. @ 480V
26	7.5KVA NEMA 3X TRANSFORMER W/ STAINLESS STEEL ENCLOSURE FOR 480V SYSTEM CONTROL POWER & AUXILIARY LOADS
27	40A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER SECONDARY, 10000 MIN. A.I.C. @ 240V
28	3/4"SCH.80 PVC W/ 1 NO.8(G)
29	1"C W/3NO.8, 1NO.10(G)

ELECTRICAL NOTES:

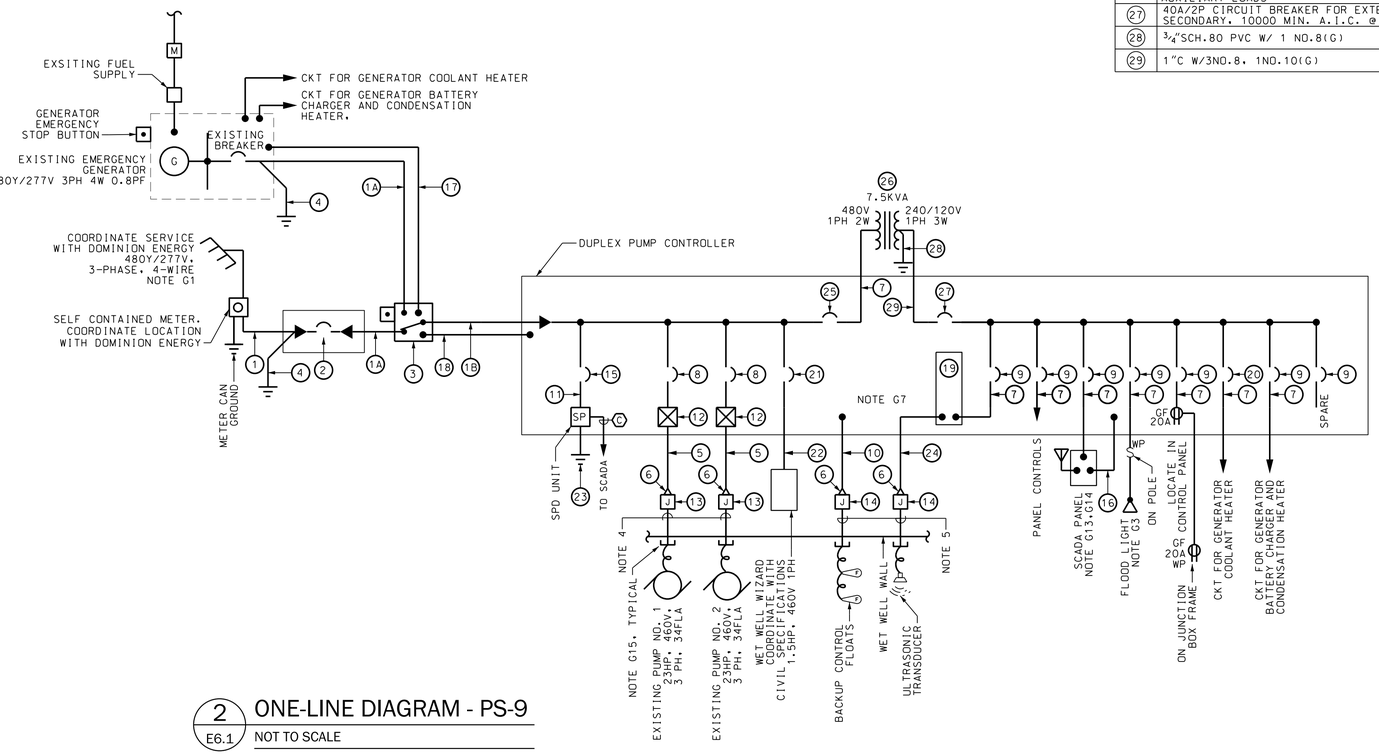
1. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. PROVIDE AERIAL SERVICE AS REQUIRED BY THE UTILITY AND PROJECT REQUIREMENTS. COORDINATE WITH DOMINION ENERGY: CONTACT PARKS MOSS. CUSTOMER SERVICE ENGINEER 843-815-8808
2. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.
3. MOUNT THE AREA LIGHT ON THE 35' CLASS 4 PRESSURE TREATED SERVICE POLE. REFER TO DETAIL 5/E0.1. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH YOKE MOUNT. SO CORD. AND INTEGRAL PHOTOCELL; CATALOG NO. DSXF2 LED-3-A530/40K-WFL-MVOLT-YKC62-PE-DDBXD.
   A. MOUNT THE FLOOD LIGHT TO THE TOP OF THE SERVICE POLE BELOW THE SERVICE DROP RACK.
   B. PROVIDE A WEATHERPROOF SWITCH ON THE POLE, 48" ABOVE FINISH GRADE.
4. 3" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR PUMP CABLES.
5. 2" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR FLOATS AND TRANSDUCER CABLES.



A 3/4"C W/ ONE CAT 6 CABLE
B THREE 1"C W/ CONDUCTORS AS REQUIRED
C 3/4"C W/ 2 NO.14, 1 NO.14(G)
D 3/4"C W/ ONE CAT 6 CABLE, 8 NO.14, 1 NO.14(G)

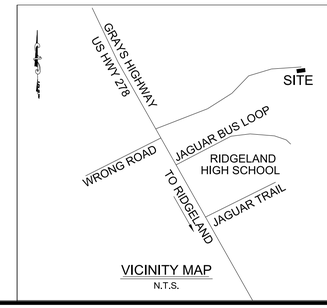
3 / E6.1 SCADA RISER

SCALE: NONE



2 / E6.1 ONE-LINE DIAGRAM - PS-9

NOT TO SCALE



VICINITY MAP

N.T.S.

SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 40028
26 May 2023
CHARLES BEVERLEY COBB

SOUTH CAROLINA
CHATHAM ENGINEERING COMPANY LLC
C04812
CERTIFICATE OF AUTHORIZATION

REV/ NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1		CC	PM	ADDENDUM NO.1
2				
3				
4				
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
PS-9 ELECTRICAL SITE PLAN, NOTES & ONE-LINE DIAGRAM

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

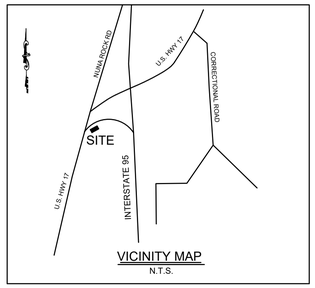
DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
CC	LC	17-1007.005	12-2022	

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
E6.1

CADD PLOT
29-MAY-2023
13:49
CCOBB

E:\Ridgeland Well No.2 Rehab - 21010.01\CADD\E6.1.dgn



VICINITY MAP
N.T.S.

LEGEND:

+ 22.8	SPOT ELEVATION
HDPE	HIGH DENSITY POLYETHALENE
IE	INVERT ELEVATION
LP	LIGHT POLE
NTS	NOT TO SCALE
SSMH	SANITARY SEWER MANHOLE
WS	WATER SPIGOT
PP	POWER POLE
BOL	BOLLARD
ICV	IRRIGATION CONTROL VALVE
CO	CLEANOUT

SPECIAL NOTE:
*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #7 BELOW

NOTES:
1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
2. UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN AND ARE APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE EXACT LOCATION OF ANY UNDERGROUND UTILITY.
3. NO SUBSURFACE OR ENVIRONMENTAL INVESTIGATION OR WETLAND SURVEYS WERE PERFORMED FOR THIS PLAT. THEREFORE THIS PLAT DOES NOT REFLECT THE EXISTENCE OR NONEXISTENCE OF WETLANDS, CONTAMINATION, OR OTHER CONDITIONS WHICH MAY AFFECT THIS PROPERTY.
4. SURVEYING CONSULTANTS CERTIFIES TO THE BOUNDARY, TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS OF THE DATE OF SURVEY. IF THIS DOCUMENT IS TO BE PROVIDED AS A BASE MAP FOR OTHERS, INFORMATION ADDED AFTER THE DATE OF THIS SURVEY IS NOT THE RESPONSIBILITY OF SURVEYING CONSULTANTS.
5. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, THEREFORE THERE MAY BE OTHER EASEMENTS, RIGHT-OF-WAY, SETBACK LINES, AGREEMENTS, RESERVATIONS, RESTRICTIONS, OR OTHER SIMILAR MATTERS OF PUBLIC RECORD, NOT DEPICTED ON THIS SURVEY.
6. NO BOUNDARY LINES AND/OR ROAD RIGHT-OF-WAY LINES WERE NOT ESTABLISHED AS A PART OF THIS SURVEY.
7. THE HORIZNTAL DATUM SHOWN IS BASED ON NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES. THE VERTICAL DATUM SHOWN IS BASED ON NAVD 88 DATUM. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

REFERENCE PLAT:
1) BOUNDARY SURVEY OF TAX MAP #062-00-08-002 & TAX MAP #062-00-08-001, TOWN OF RIDGELAND, JASPER COUNTY, SC, BY: THOMAS G. STANLEY, S.C.R.L.S. NO. 18269, DATED: 09/02/1999, RECORDED: P.B. 24, PAGE 86.

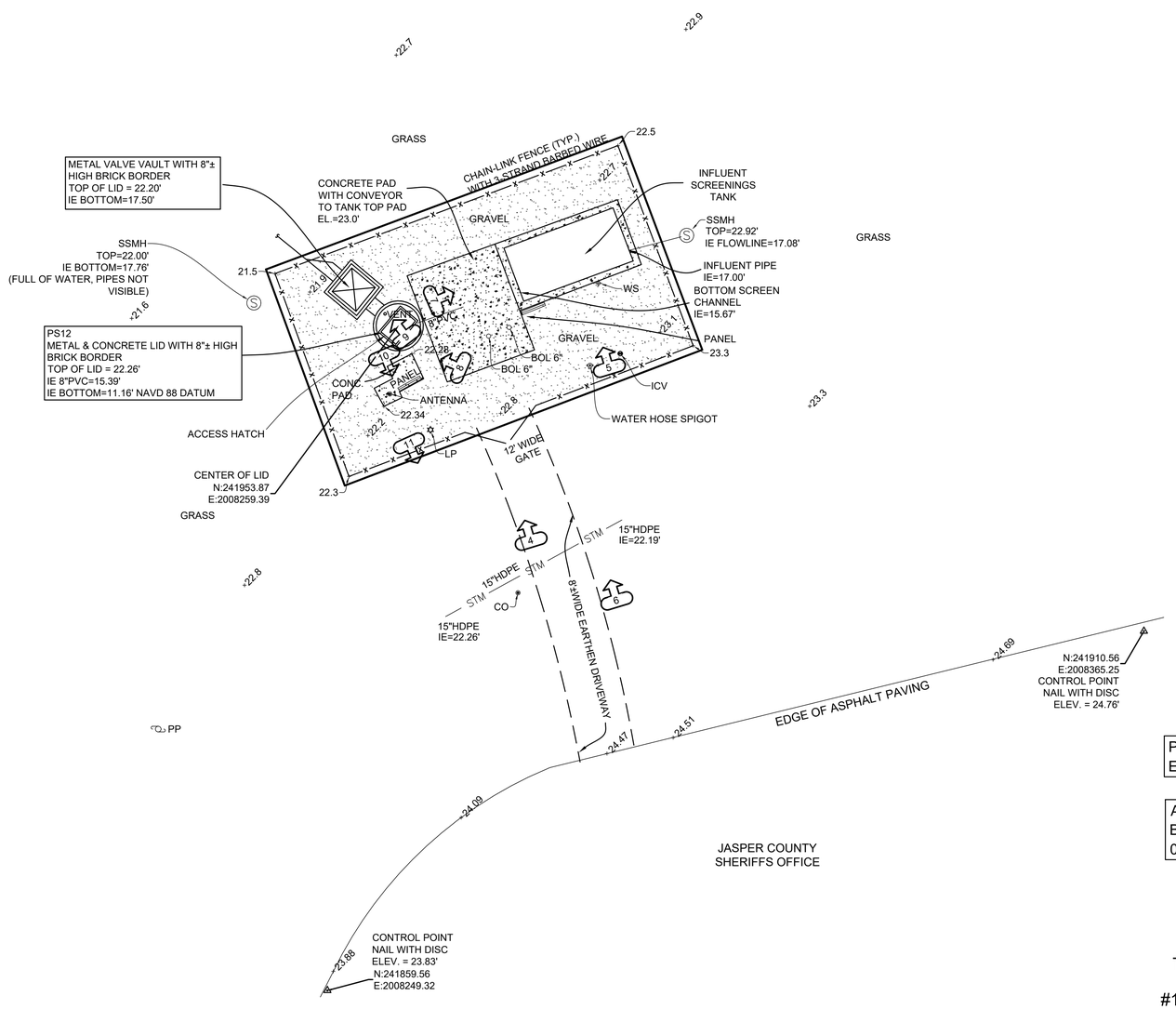


PHOTO LEGEND:
DENOTES PHOTO LOCATION AND DIRECTION

N

0 10' 20'
SCALE (In Feet)

PREPARED FOR: FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

ADDRESS: #12008 N JACOB SMART BOULEVARD PARENT TAX PARCEL I.D. NO. 062-00-08-001

ASBUILT & TOPOGRAPHIC
EXHIBIT OF

PUMP STATION #12

A PORTION OF

TAX PARCEL I.D. NO. 062-00-08-001

#12008 N JACOB SMART BOULEVARD

A SECTION OF

TOWN OF RIDGELAND
JASPER COUNTY, SOUTH CAROLINA
DATE: 07/29/2021 JOB NO: SC210030-PS12

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 826-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

DREW AWMW
CAD AM

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.
SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL UPDATES
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-12 EXISTING CONDITIONS AND KEY
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID

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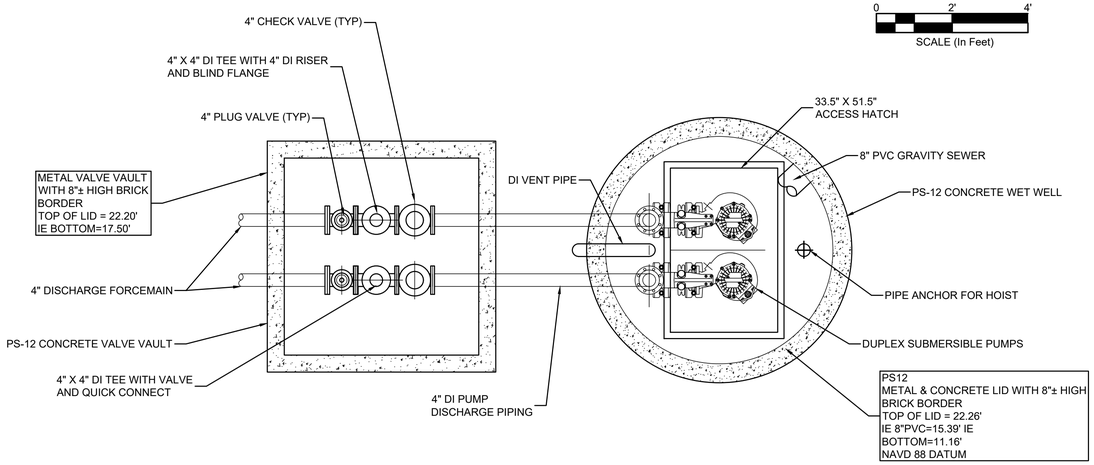
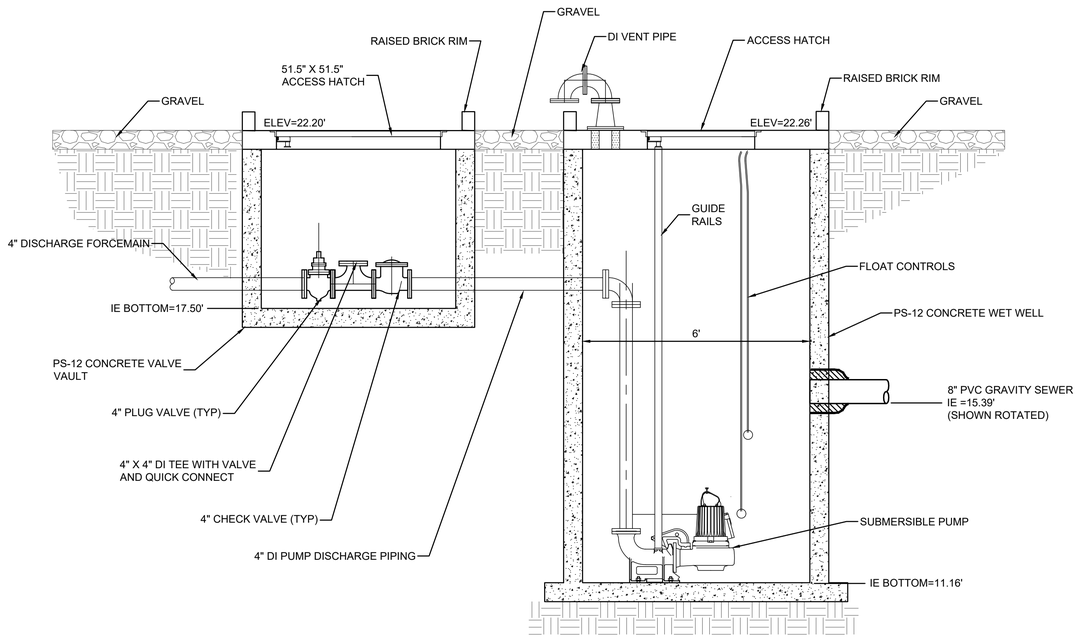
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G7.1



PLAN VIEW



PROFILE

PHOTO-1

LOOKING INTO WET WELL

PHOTO-2

LOOKING INTO WET WELL

PHOTO-3

LOOKING INTO VALVE VAULT

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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No. 5166

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2				
3				
4				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-12 EXSTING CONDITIONS DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	FEB 2023	BID
JOB #	17-1007	ISSUE DATE	ISSUE

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G7.2

PHOTO-4

LOOKING NORTH AT PUMP STATION SITE

PHOTO-5

LOOKING NORTH AT SCREENING AREA OF SITE

PHOTO-6

LOOKING NORTH AT SITE THROUGH DOUBLE GATES

PHOTO-7

LOOKING EAST AT SCREENING AREA OF SITE

PHOTO-8

LOOKING NORTHWEST AT PUMP STATION AREA OF SITE

PHOTO-9

LOOKING NORTHWEST AT WET WELL

PHOTO-10

LOOKING SOUTH AT PUMP STATION CONTROL PANEL

PHOTO-11

LOOKING SOUTH TOWARD MAIN ROAD

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-12 EXISTING CONDITIONS SITE PHOTOS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
ISSUE	BID		

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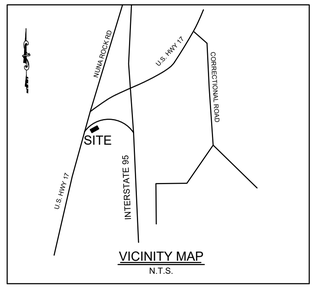
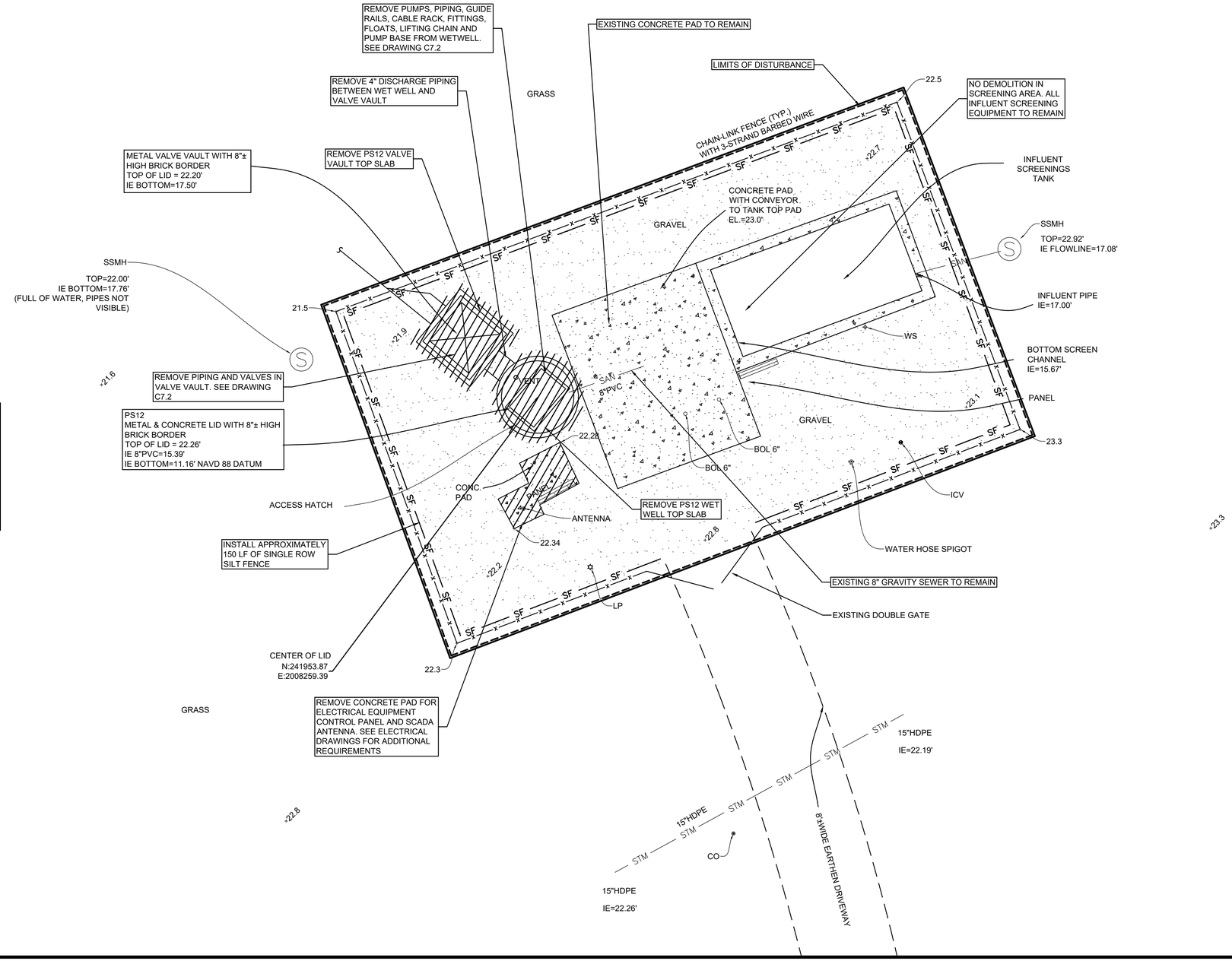
G7.3



847 LF TO CAPTAIN BILL CREEK

LEGEND:	
+22.8	SPOT ELEVATION
HDPE	HIGH DENSITY POLYETHALENE
IE	INVERT ELEVATION
LP	LIGHT POLE
NTS	NOT TO SCALE
SSMH	SANITARY SEWER MANHOLE
WS	WATER SPIGOT
PP	POWER POLE
BOL	BOLLARD
ICV	IRRIGATION CONTROL VALVE
CO	CLEANOUT

	DESCRIPTION
SF	SILT FENCE
	DENOTES LIMITS OF DISTURBANCE FOR PS-12 (1758 SF)
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED



N

0 5' 10'

SCALE (In Feet)

GRASS

1

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SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL OVERALL UPDATES
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

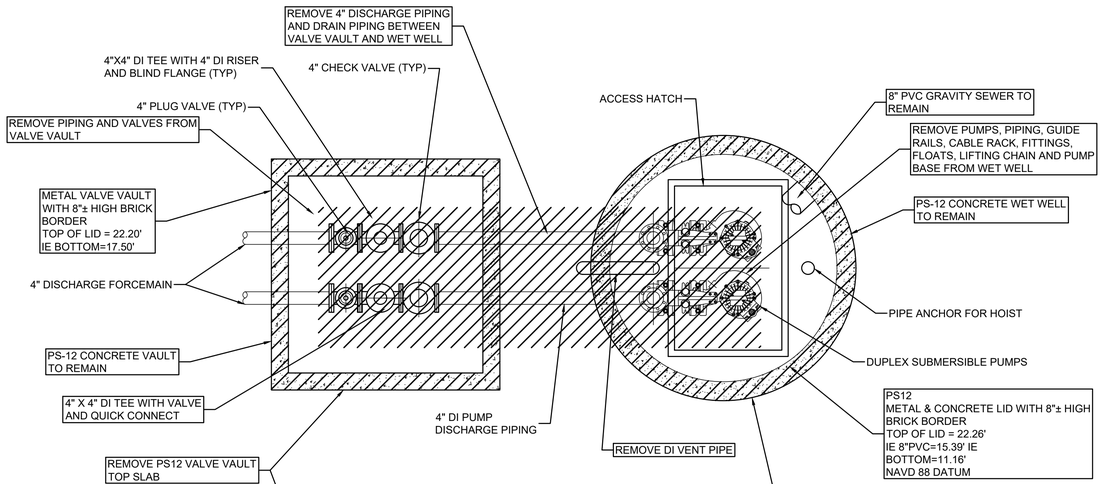
PS-12 DEMOLITION PLAN SITE PLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

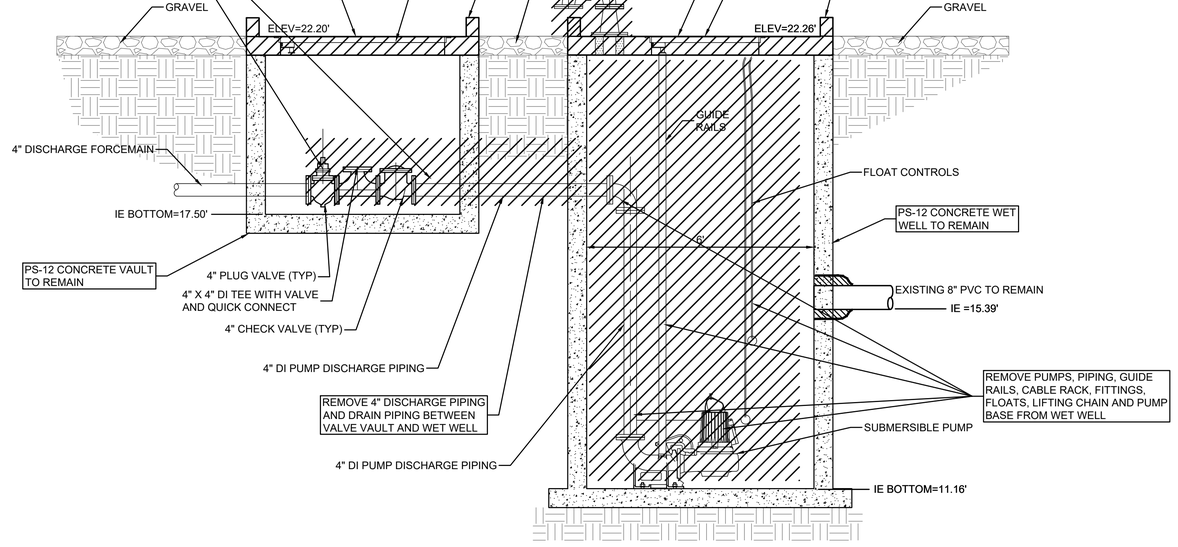
DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C7.1



PLAN VIEW



PROFILE

0 2' 4'

SCALE (In Feet)

	DESCRIPTION
	DENOTES EQUIPMENT AND STRUCTURE TO BE REMOVED AND/OR DEMOLISHED

DEMOLITION NOTES:

1. ALL NECESSARY TEMPORARY BYPASS OPERATIONS SHALL BE IN PLACE AND OPERATIONAL PRIOR TO INITIATING DEMOLITION ACTIVITIES.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. CONTRACTOR SHALL COORDINATE WITH TOWN OF RIDGELAND PROJECT REPRESENTATIVE REGARDING EQUIPMENT TO BE RETAINED BY TOWN WHICH SHALL BE DELIVERED TO THE JIMMY MIXSON WRF AT 366 PREACHER STREET. UNLESS SO IDENTIFIED, ALL OTHER EQUIPMENT AND MATERIALS TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
4. PRIOR TO DEMOLITION OR REMOVAL OF STRUCTURES USED FOR WASTEWATER, ALL WASTEWATER AND SOLIDS SHALL BE REMOVED FROM THE STRUCTURE AND PROPERLY DISPOSED.

1

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-12 DEMOLITION PLAN DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

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DRAWING NUMBER
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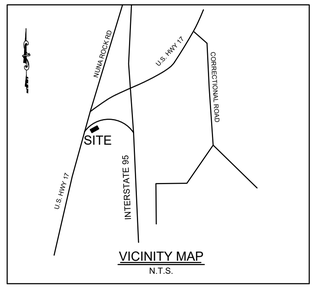
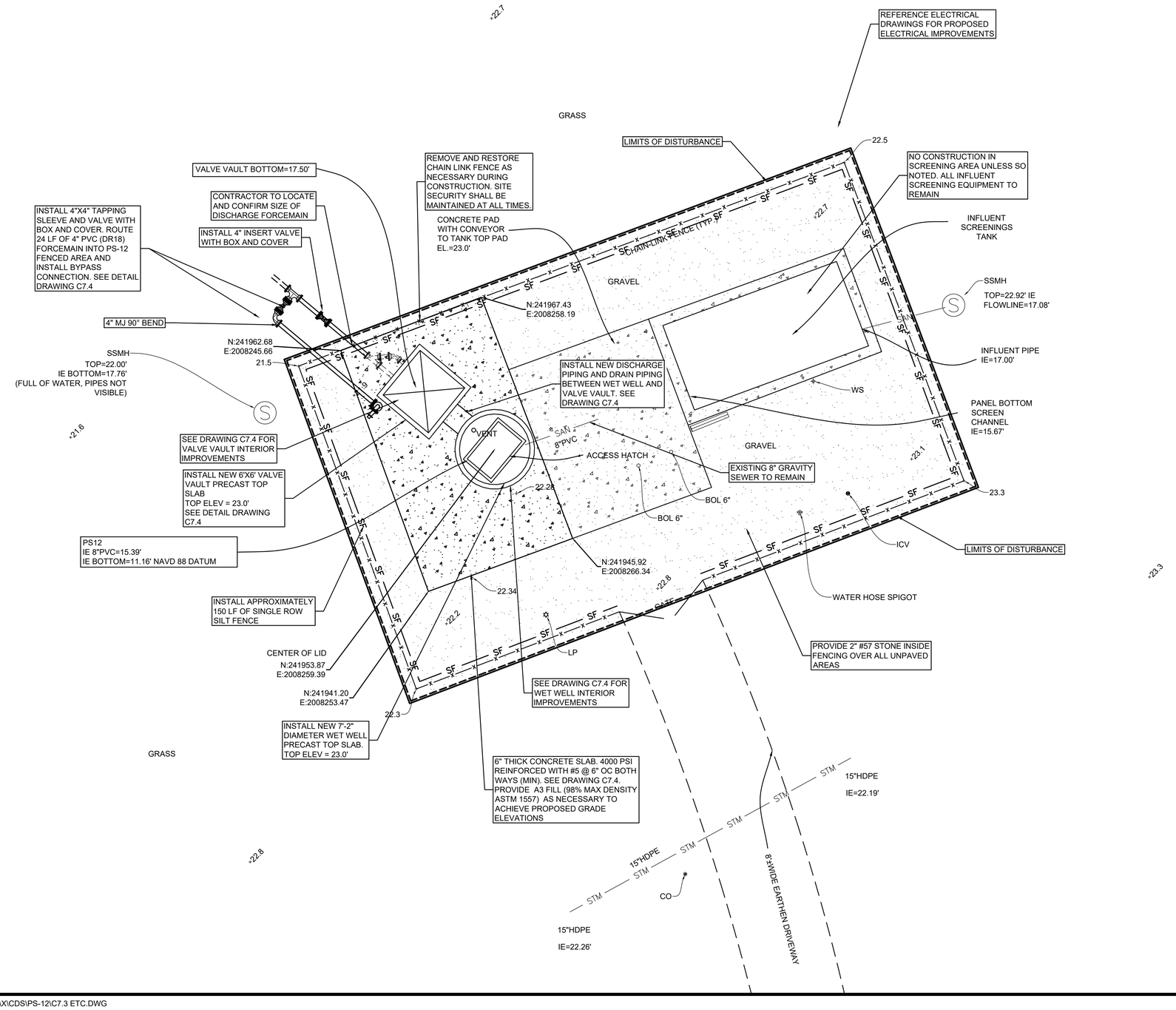


VICINITY MAP
N.T.S.

847 LF TO CAPTAIN BILL CREEK

LEGEND:	
+22.8	SPOT ELEVATION
HDPE	HIGH DENSITY POLYETHALENE
IE	INVERT ELEVATION
LP	LIGHT POLE
NTS	NOT TO SCALE
SSMH	SANITARY SEWER MANHOLE
WS	WATER SPIGOT
PP	POWER POLE
BOL	BOLLARD
ICV	IRRIGATION CONTROL VALVE
CO	CLEANOUT

	DESCRIPTION
— SF —	SILT FENCE
------	DENOTES LIMITS OF DISTURBANCE FOR PS-12 (1758 SF)



N

0 5' 10'

SCALE (In Feet)

1

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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
PS-12 PROPOSED IMPROVEMENTS SITE PLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	FEB 2023	BID

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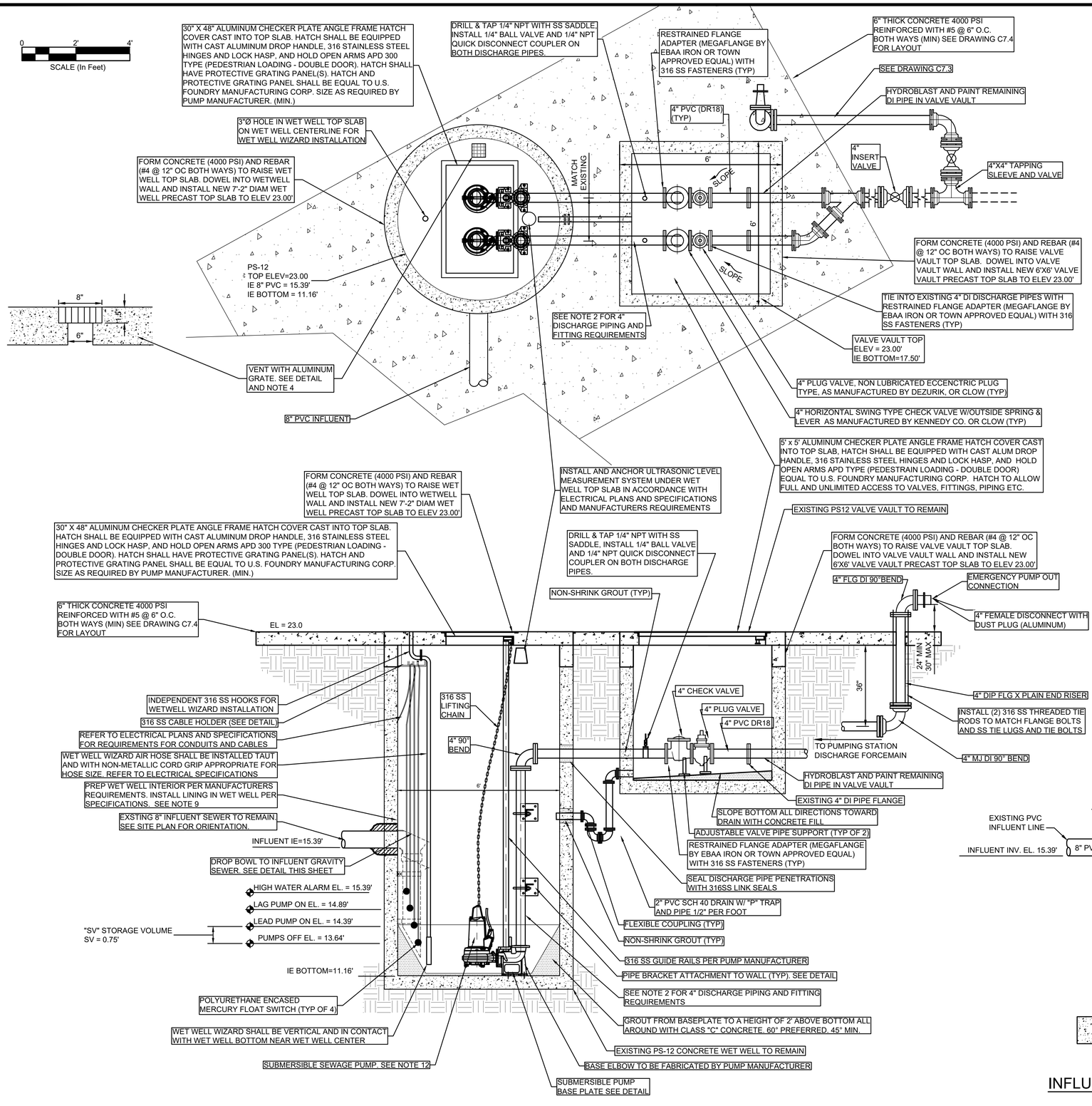
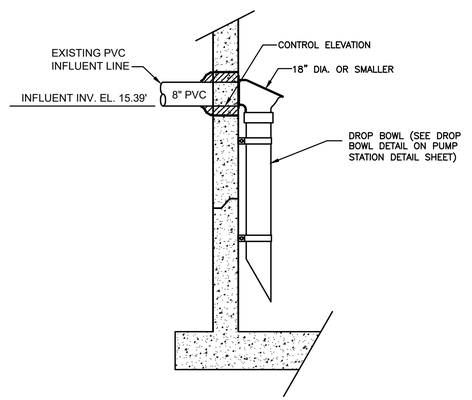
DRAWING NUMBER
C7.3



GENERAL NOTES

1. ALL METALS INSIDE THE WET WELL INCLUDING BUT NOT LIMITED TO GUIDE RAILS, LIFTING CHAINS, NUTS, BOLTS, CABLE HOLDERS, PIPE SUPPORTS AND BRACES, ETC., TO BE 316 STAINLESS STEEL, UNLESS SPECIFICALLY NOTED OTHERWISE.
2. PUMP DISCHARGE PIPING AND FITTINGS: DISCHARGE PIPING AND FITTINGS FROM PUMP ELBOW THROUGH TO CHECK VALVE IN VALVE VAULT SHALL BE A MINIMUM 4" (UNLESS APPROVED OTHERWISE BY TOWN) AND SHALL BE:
   a. FUSED PVC PIPE AND STAINLESS STEEL FITTINGS: PVC PIPE SHALL BE C900 DR18 AND SHALL BE FUSED AS ONE PIECE BETWEEN PUMP BASE ELBOW AND 90 DEGREE BEND IN WET WELL, AND FROM 90 DEGREE BEND IN WET WELL TO CHECK VALVE IN VALVE VAULT. 90 DEGREE BEND IN WET WELL SHALL BE FLANGED 316 STAINLESS STEEL, SCH 40. PVC PIPING ENDS SHALL UTILIZE RESTRAINED FLANGE ADAPTER (MEGAFLANGE BY EBAA IRON OR TOWN APPROVED EQUAL) WITH 316 SS FASTENERS TO CONNECT TO PUMP BASE ELBOW, 90 DEGREE BEND, AND CHECK VALVE AND PLUG VALVE.
3. AERATION SYSTEM: WET WELL WIZARD SYSTEM AS MANUFACTURED BY RELIANT WATER TECHNOLOGIES, NEW ORLEANS, LA. WWW.RELIANTWATER.US.COM SHALL BE INSTALLED IN WET WELL IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS. WET WELL WIZARD SYSTEM SHALL INCLUDE (1) WET WELL WIZARD, (1) 1.5 HP BLOWER AND ALL NECESSARY ASSOCIATED EQUIPMENT
4. VENT: PROVIDE 6"X6" OPENING THROUGH THE CONCRETE TOP OF THE WET WELL AND INSERT 8"X 8" X 1-1/2" THICK ALUMINUM GRATE VENT CONSTRUCTED OF 1-1/2" WIDE X 1/8" MATERIAL.
5. FITTINGS: ALL DUCTILE IRON FITTINGS SHALL BE EPOXY LINED. ALL BURIED FITTINGS SHALL BE RESTRAINED.
6. LEVEL MONITORING: INSTALL ULTRASONIC LEVEL MEASUREMENT SYSTEM IN ACCORDANCE WITH ELECTRICAL PLANS AND SPECIFICATIONS AND MANUFACTURER'S REQUIREMENTS. PROVIDE FOUR BACKUP POLYURETHANE ENCASED MERCURY FLOAT SWITCHES FOR PUMPS OFF, LEAD PUMP ON, LAG PUMP ON, AND HIGH WATER ALARM.
7. WET WELL: PRECAST CONCRETE WET WELL SHALL MEET ASTM C-478 STANDARD. CONCRETE, REINFORCING STEEL, AND BUOYANCY DESIGN AND CALCULATIONS TO BE PREPARED BY A SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER AND SUBMITTED WITH THE SHOP DRAWINGS.
8. WET WELL AND MANHOLES: ALL EXTERIOR JOINTS OF PRECAST CONCRETE WET WELL AND MANHOLES SHALL BE SEALED WITH A 18" WIDE RUBBERIZED ASPHALT MEMBRANE TAPE. EXTERIOR COATING OF BITUMINOUS COATING AS SPECIFIED IN ANSI SPECIFICATIONS A21.51 SHALL BE APPLIED TO WET WELL AND MANHOLES.
9. INTERIOR PROTECTIVE COATINGS: PROTECTIVE COATING SHALL BE APPLIED TO THE INTERIOR OF WET WELLS AND RECEIVING MANHOLES. COATING SYSTEM IN WET WELL SHALL BE APPLIED TO VERTICAL WALLS AND TOP, AT A MINIMUM. PROTECTIVE COATING SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND SHALL BE APPLIED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND BY INSTALLER CERTIFIED BY COATING SYSTEM MANUFACTURER.
10. EMERGENCY PUMP OUT CONNECTION: PIPE SIZE FOR EMERGENCY PUMP OUT CONNECTION SHALL MATCH PUMP DISCHARGE PIPE SIZE IN WET WELL.
11. MIN. WATER LEVEL: MINIMUM WATER LEVEL IN WET WELL SHALL BE 30" MINIMUM FOR PROPER OPERATION OF THE WET WELL WIZARD, SHALL COVER TOP OF PUMP MOTOR, OR SHALL BE GREATER IF RECOMMENDED BY PUMP MANUFACTURER.
12. SUBMERSIBLE SEWAGE PUMPS:
    a PUMPS SHALL BE SULZER ABS PUMPS SUITABLE FOR SUBMERSIBLE SEWER SERVICE. PUMPS SHALL BE 230/460 VOLTS, 3 PHASE, 60 HERTZ MOTORS.
    b PUMP BASE ELBOW: BASE ELBOW TO BE FABRICATED BY PUMP MANUFACTURER. BASE ELBOW SHALL BE 4"X4" UNLESS APPROVED OTHERWISE BY TOWN.
13. FLOOD ZONE: DESIGN ENGINEER OF RECORD SHALL PROVIDE INFORMATION ON THE FLOOD ZONE OF THE PUMP STATION SITE AND SHALL PROVIDE VERIFICATION THAT THE TOP OF THE WET WELL IS ABOVE THE 100 YEAR FLOOD ELEVATION AND THAT THE BOTTOM OF THE CONTROL PANELS, GENERATOR RECEPTACLE AND GENERATOR SLAB AREA ALL ABOVE THE 100 YEAR FLOOD ELEVATION + 2 FEET OR THE 500 YEAR FLOOD ELEVATION, WHICHEVER IS GREATER.
14. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL ELEVATIONS AND DIMENSIONS CALLED OUT ON THIS PLAN SET FOR THE PUMP STATION PRIOR TO ORDERING OF ANY MATERIALS OR COMPONENTS OF THE PUMP STATION. ANY DEVIATION OF THE LAYOUTS INDICTED ON THIS PLAN MUST BE COMMUNICATED TO THE TOWN AND ENGINEER OF RECORD FOR FURTHER DIRECTION.
15. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY STABILIZATION FOR DEMOLITION AND CONSTRUCTION AND SHALL HIRE A SPECIALTY PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA TO DESIGN THE STABILIZATION SYSTEM FOR EXCAVATION AND EVALUATE THE DRAWDOWN OF THE DEWATERING OPERATIONS DURING CONSTRUCTION IN ORDER TO PROTECT THE EXISTING PS-12 STRUCTURES. DESIGN AND EVALUATION SHALL BE SIGNED AND SEALED AND SUBMITTED TO THE TOWN OF RIDGELAND AND ENGINEER OF RECORD.
16. IF THE CONTRACTOR ENCOUNTERS GROUNDWATER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR UTILIZING DEWATERING SYSTEM(S) TO REMOVE WATER FROM THE EXCAVATIONS. PRIOR TO BEGINNING ANY DEWATERING OPERATIONS, THE CONTRACTOR SHALL PREPARE A DEWATERING PLAN FOR APPROVAL AND SHALL SECURE ANY NECESSARY SCDHEC PERMIT.
17. PS-12 SITE LOCATED IN ZONE X AREA OF MINIMAL FLOODING (NO ESTABLISHED FLOOD ELEVATION), PER NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP PANEL 305 OF 575 JASPER COUNTY, SOUTH CAROLINA AND INCORPORATED AREAS MAP NUMBER 45053C0305D OCTOBER 18. 2019
18. PUMP STATION SITE SHALL HAVE CONCRETE SLAB AROUND WET WELL VALVE VAULT AND PANEL AREAS AS NOTED. PROVIDE 1/2" EXPANSION JOINT MATERIAL BETWEEN WET WELL AND SLAB AND VALVE VAULT AND SLAB. CONCRETE SLAB SHALL BE 4000 PSI CONCRETE WITH REINFORCEMENT AS PER DRAWINGS.
19. RESTORE ALL ARES DISTURBED BY CONSTRUCTION TO PRE CONSTRUCTION CONDITION. HYDROSEED AND MULCH ALL UNPAVED AREAS OUTSIDE OF FENCING. REFERENCE DRAWING C7.3 FOR RESTORATION REQUIREMENTS INSIDE PUMP STATION FENCING.



INFLUENT SECTION

NOT TO SCALE

*PUMP STATION: TOWN OF RIDGELAND PS-12
*LOCATION: 12008 N. JACOB SMART BLVD (JASPER COUNTY SHERIFFS DEPARTMENT)
DESIGN CONDITION: 100 GPM @ 27 FT TDH
*PUMP MANUFACTURER: SULZER
*MODEL#: XFP80C CB1 8-1/3" Imp
SERIAL#:
HORSEPOWER: 2.68 HP
VOLTAGE:
DATE INSTALLED:
*ENGINEER: FOUR WATERS ENGINEERING INC.
CONTRACTOR:

*INFORMATION REQUIRED ON CONSTRUCTION PLANS. REMAINING INFORMATION REQUIRES ASBUILT

1

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-12 PROPOSED IMPROVEMENTS DETAILS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		BID
ISSUE			

FOUR WATERS ENGINEERING
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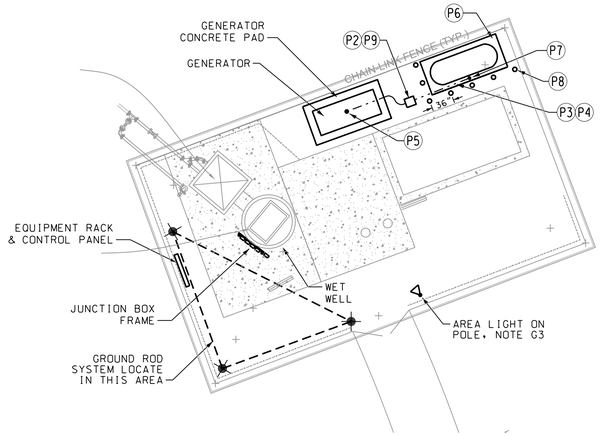


PROPANE FUEL NOTES:

(P1) ALL PROPANE GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED JOINTS. ALL WORK AND MATERIALS ON THE GAS SYSTEM SHALL COMPLY WITH THE "INTERNATIONAL GAS CODE". PAINT ALL EXPOSED GAS PIPING WITH RUST INHIBITING PRIMER AND 1 COAT OF OIL BASED YELLOW ENAMEL PAINT.

(P2) PROPANE GAS PRESSURE REGULATOR SIZED FOR 219 CFH AT 11 INCH WC OUTLET PRESSURE.

(P3) PROPANE GAS LINE U/G BY CONTRACTOR. COORDINATE WITH PROPANE COMPANY.

(P4) 3" GAS DOWN TO UNDERGROUND. UNDERGROUND PIPING SHALL BE SDR 11 POLYETHLYLENE PIPE AND FITTINGS.

(P5) 3" GAS UP TO GENERATOR. PROVIDE PLUG VALVE, UNION AND DRIPLEG AT CONNECTION. COORDINATE EXACT LOCATION OF CONNECTION WITH GENERATOR.

(P6) PROVIDE A CONCRETE PAD FOR THE PROPANE TANK, 12" THICK, 24"WIDER AND 24" LONGER THAN THE PROPANE TANK. REFER TO DETAIL 1/EO.1 FOR CONSTRUCTION REQUIREMENTS.

(P7) PROVIDE 2" SCH.80 PVC RISER AT TANK MID-POINT. EXTEND TO WITHIN 5' OF GENERATOR. CONDUIT SHALL BE 30" BELOW FINISH GRADE, MINIMUM. PROVIDE DETECTABLE PLASTIC WARNING TAPE 12" BELOW FINISH GRADE.

(P8) PROVIDE STEEL PIPE BOLLARDS IN FRONT OF THE PROPANE TANK, 36" ON CENTER. SEE DETAIL THIS SHEET. BOLLARDS SHALL EXTEND BEYOND THE END OF THE PROPANE TANK.

(P9) FIELD COORDINATE INLET LOCATION ON GENERATOR AND THE REGULATOR WITH THE PROPANE PROVIDER. THE REGULATOR SHALL NOT BE WITHIN 5' OF THE GENERATOR.

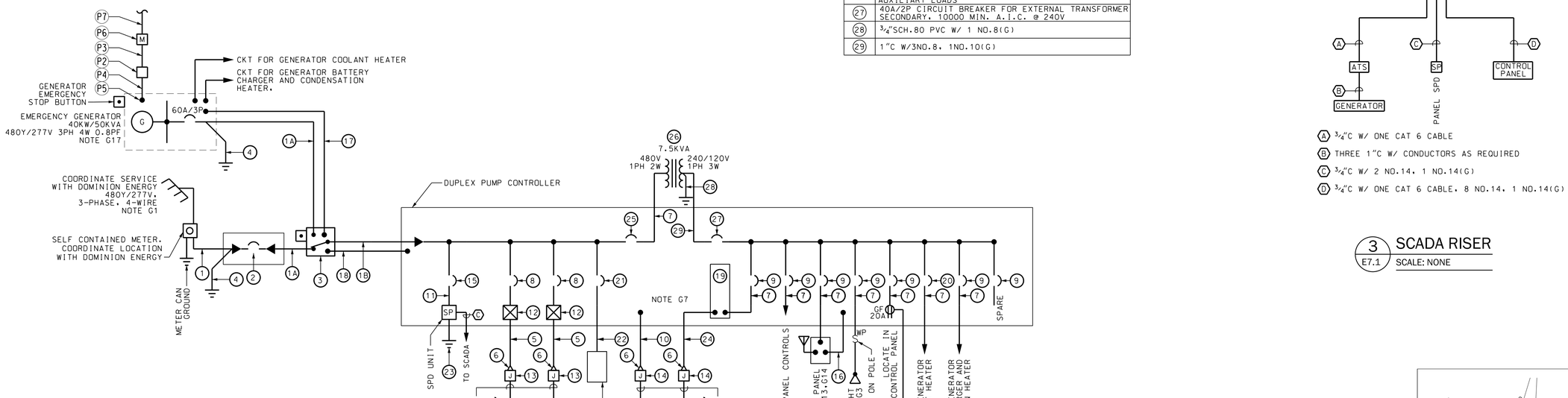
DUPLEX PUMP STATION ONE LINE SCHEDULE

ITEM# PS-12 2.7HP 460V 3PH 4.2FLA

(1)	1¼"C W/ 4 NO.4
(1A)	1¼"C W/ 4 NO.4, 1 NO.8(G)
(1B)	1¼"C W/ 3 NO.4, 1 NO.8(G)
(2)	ENCLOSED BREAKER, 60A/3P/4X SS ENCLOSURE UL SERVICE LABEL, POST FAULT CURRENT AVAILABLE & DATE CALCULATED 18000 MIN A.I.C @ 480V
(3)	70A/4P 4X STAINLESS STEEL AUTOMATIC TRANSFER SWITCH MOUNTED ON EQUIPMENT FRAME
(4)	¾" SCH.80 PVC W/1NO.6(G) GROUNDING ELECTRODE CONDUCTOR
(5)	2"C.W/3NO.12, 1 NO.12(G) 4NO.12(CNTLS)
(6)	SEALING HUB, C-H TYPE ES, NOTE G6
(7)	¾"C W/2NO.12, 1NO.12(G)
(8)	15A/3P MOTOR BREAKER 18 000 MIN. A.I.C. @ 480V
(9)	20A/1P CIRCUIT BREAKER, 10 000 MIN. A.I.C. @ 120V
(10)	¾"C W/4NO.12, 1NO.12(G) FOR FLOATS
(11)	3NO.10, 1NO.10(G) SHALL NOT EXCEED 18" IN LENGTH
(12)	MOTOR CONTROLLER: FVNR NEMA SIZE 0 ACROSS-THE-LINE MAGNETIC STARTER W/SOLID STATE THERMAL OVERLOAD PROTECTION
(13)	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH POWER BLOCKS AND TERMINAL STRIPS AS REQUIRED, NOTE G10
(14)	NEMA 4X STAINLESS STEEL JUNCTION BOX WITH TERMINAL STRIPS AS REQUIRED, NOTE G11,G12
(15)	30A/3P SURGE PROTECTION DEVICE CIRCUIT BREAKER, COORDINATE WITH EQUIPMENT 18 000 MIN A.I.C. @ 480V
(16)	2"C W/ SCADA ALARM AND STATUS CONDUCTORS
(17)	THREE 1"C W/CONDUCTORS AS REQUIRED FOR CONTROL AND ALARM ANNUNCIATION
(18)	1"C W/CONDUCTORS AS REQUIRED FOR LOAD CONTROL
(19)	ULTRASONIC LEVEL CONTROLLER HYDRORANGER 200
(20)	20A/2P CIRCUIT BREAKER FOR GENERATOR COOLANT HEATER, 10000 MIN. A.I.C. @ 240 V
(21)	WET WELL WIZARD BREAKER 15A/2P 18 000 MIN. A.I.C. @ 480V
(22)	¾"C W/2NO.10, 1NO.10(G)
(23)	SURGE PROTECTION DEVICE CONNECTION TO GROUNDING DELTA: ¾" SCH.80 PVC W/ 1 NO.10(G)
(24)	2"C W/LEVEL TRANSDUCER CABLE
(25)	20A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER PRIMARY, 18000 MIN. A.I.C. @ 480V
(26)	7.5KVA NEMA 3X TRANSFORMER W/ STAINLESS STEEL ENCLOSURE FOR 480V SYSTEM CONTROL POWER & AUXILIARY LOADS
(27)	40A/2P CIRCUIT BREAKER FOR EXTERNAL TRANSFORMER SECONDARY, 10000 MIN. A.I.C. @ 240V
(28)	¾"SCH.80 PVC W/ 1 NO.8(G)
(29)	1"C W/3NO.8, 1NO.10(G)

ELECTRICAL NOTES:

1. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. PROVIDE AERIAL SERVICE AS REQUIRED BY THE UTILITY AND PROJECT REQUIREMENTS. COORDINATE WITH DOMINION ENERGY: CONTACT PARKS MOSS, CUSTOMER SERVICE ENGINEER 843-815-8808
2. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.
3. MOUNT THE AREA LIGHT ON THE 35' CLASS 4 PRESSURE TREATED SERVICE POLE. REFER TO DETAIL 5/EO.1. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH YOKE MOUNT, SQ CORD, AND INTEGRAL PHOTOCELL: CATALOG NO. DSXF2 LED-3-A530/40K-WFL-MVOLT-YKC62-PE-DDBXD.
   A. MOUNT THE FLOOD LIGHT TO THE TOP OF THE SERVICE POLE BELOW THE SERVICE DROP RACK.
   B. PROVIDE A WEATHERPROOF SWITCH ON THE POLE, 48" ABOVE FINISH GRADE.
4. 3" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR PUMP CABLES.
5. 2" SCHEDULE 80 PVC STUBBED INTO WET WELL FOR FLOATS AND TRANSDUCER CABLES.

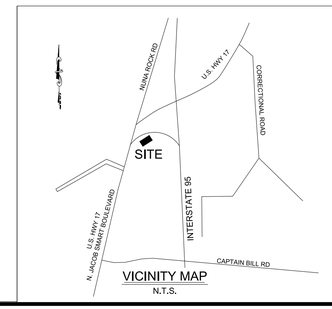


1 / E7.1 SITE PLAN PS-12 - ELECTRICAL
SCALE: 1" = 10' - 0"

2 / E7.1 ONE-LINE DIAGRAM - PS-12
NOT TO SCALE

(A) ¾"C W/ ONE CAT 6 CABLE
(B) THREE 1"C W/ CONDUCTORS AS REQUIRED
(C) ¾"C W/ 2 NO.14, 1 NO.14(G)
(D) ¾"C W/ ONE CAT 6 CABLE, 8 NO.14, 1 NO.14(G)

3 / E7.1 SCADA RISER
SCALE: NONE



VICINITY MAP
N.T.S.

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 40028 11 May 2023 CHARLES BEVERLEY COBB, JR.

SOUTH CAROLINA CHATHAM ENGINEERING COMPANY LLC C04812 CERTIFICATE OF AUTHORITY

REV/ NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
PS-12 ELECTRICAL SITE PLAN
NOTES & ONE-LINE DIAGRAM
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	QC	ISSUE
CC	CC	17-1007.035	LC	
		ISSUE DATE	11-2022	

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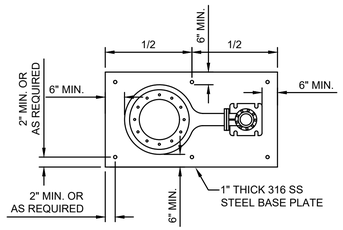
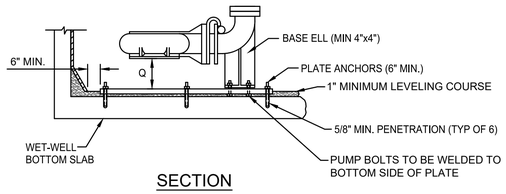
DRAWING NUMBER
E7.1

CADD PLOT
29-MAY-2023
13:51
CCOBB

E:\Ridgeland Well No.2 Rehab - 21010.01\CADD\E7.1.dgn



PLAN



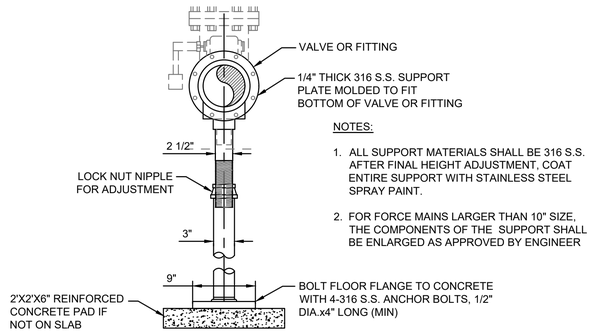
SECTION

BASE PLATE NOTES:

1. PLATE ANCHORS TO BE 3/4" DIAMETER, CONSTRUCTED OF 316 S.S. (H.A.S. ROD) w/ "HVU" ADHESIVE CAPSULE PROVIDING AN EMBEDMENT DEPTH OF 6 5/8". ACCEPTABLE: HILTI OR ENGINEER APPROVED EQUAL.
2. NO EXPANSION ANCHORS ALLOWED.
3. PLATE SIZE: 6" LARGER THAN BASE ELL & PUMP VOLUTE TYP. ALL AROUND.
4. BASE ELL BOLTS AND STUDS TO BE TYPE 316 STAINLESS STEEL. 5. BASE ELL BOLT HEADS SHALL BE WELDED TO UNDER SIDE OF STEEL PLATE.

SUBMERSIBLE PUMP BASE PLATE DETAIL

NOT TO SCALE

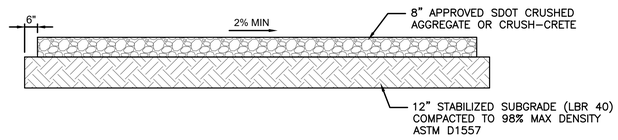


NOTES:

1. ALL SUPPORT MATERIALS SHALL BE 316 S.S. AFTER FINAL HEIGHT ADJUSTMENT, COAT ENTIRE SUPPORT WITH STAINLESS STEEL SPRAY PAINT.
2. FOR FORCE MAINS LARGER THAN 10" SIZE, THE COMPONENTS OF THE SUPPORT SHALL BE ENLARGED AS APPROVED BY ENGINEER

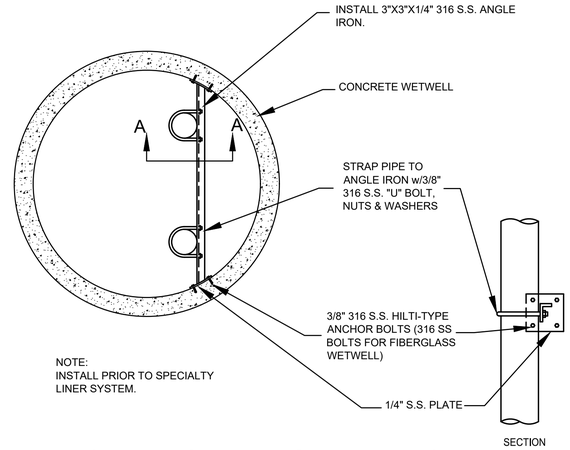
ADJUSTABLE VALVE/PIPE SUPPORT DETAIL

NOT TO SCALE



TYPICAL GRAVEL ROADWAY SECTION

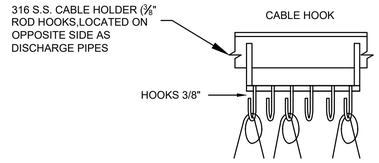
NOT TO SCALE



NOTE:
INSTALL PRIOR TO SPECIALTY LINER SYSTEM.

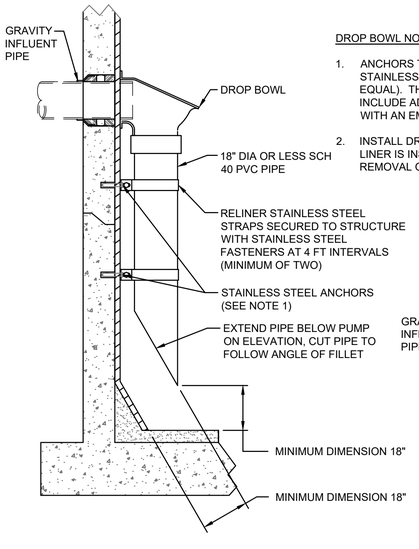
PIPE ATTACHMENT TO WALL DETAIL

NOT TO SCALE

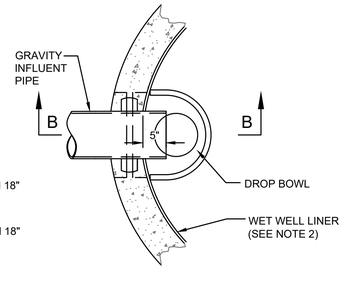


CABLE HOLDER

NOT TO SCALE



SECTION "B-B"

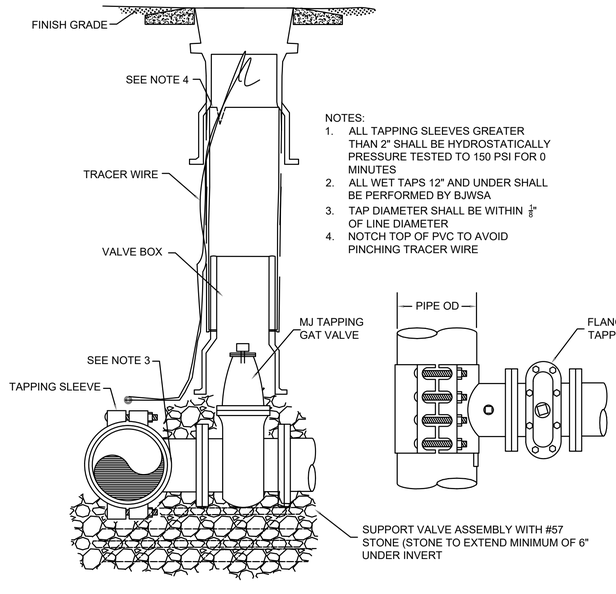


PLAN VIEW

DROP BOWL NOTES:

1. ANCHORS TO BE CONSTRUCTED OF 316 STAINLESS STEEL "H.A.S." ROD BY HILTI OR EQUAL). THE ANCHORING SYSTEM SHALL INCLUDE ADHESIVE (HILTI H.V.U. OR EQUAL) WITH AN EMBEDMENT DEPTH OF 4 1/4".
2. INSTALL DROP BOWL AFTER THE WET WELL LINER IS INSTALLED. THIS WILL ENSURE EASY REMOVAL OF THE DROP BOWL (IN THE FUTURE).

DROP BOWL DETAIL

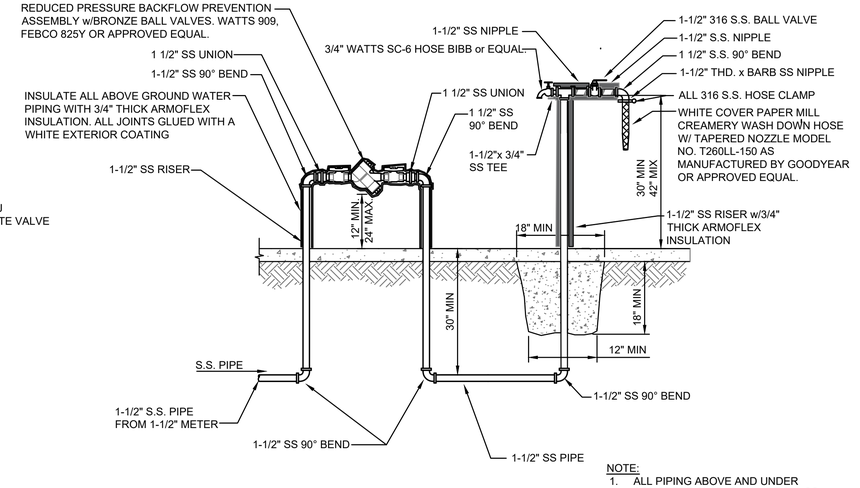


NOTES:

1. ALL TAPPING SLEEVES GREATER THAN 2" SHALL BE HYDROSTATICALLY PRESSURE TESTED TO 150 PSI FOR 0 MINUTES
2. ALL WET TAPS 12" AND UNDER SHALL BE PERFORMED BY BJWSA
3. TAP DIAMETER SHALL BE WITHIN ⅜" OF LINE DIAMETER
4. NOTCH TOP OF PVC TO AVOID PINCHING TRACER WIRE

TAPPING SLEEVE AND VALVE DETAIL

NOT TO SCALE



NOTE:
1. ALL PIPING ABOVE AND UNDER CONCRETE SLAB SHALL BE 316 SS SCHEDULE 40.
2. ALL EXTERNAL LONG RUNS OF PIPE SHALL BE SCHEDULE 80 PVC.

1-1/2" HOSE STATION DETAIL

NOT TO SCALE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS

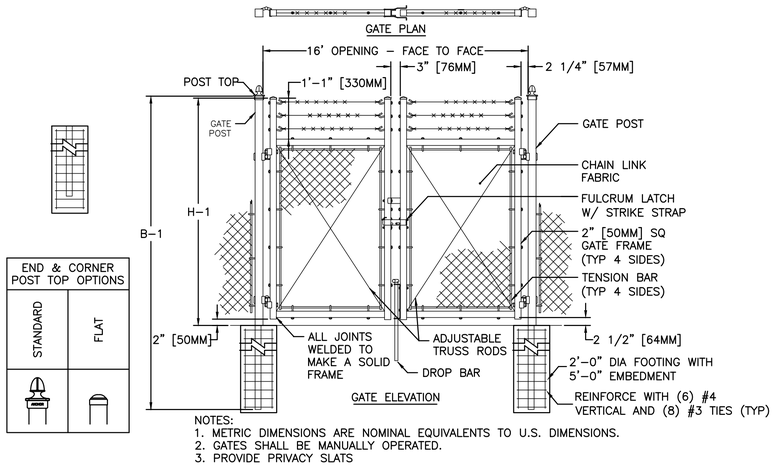
PART I
STANDARD DUPLEX PUMP STATION DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	FEB 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

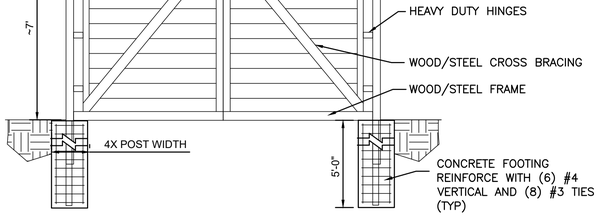
DRAWING NUMBER
D8.1



NOTES:
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
2. GATES SHALL BE MANUALLY OPERATED.
3. PROVIDE PRIVACY SLATS

7' HIGH TYPICAL DOUBLE SWING GATE ROUND END POSTS, WITH BARBED WIRE

NOT TO SCALE



PRODUCTS

1 GENERAL
- A. ALL WOOD MATERIALS SHALL BE TREATED WOOD, OR WOOD OF A NATURAL RESISTANCE TO DECAY. MATERIALS SHALL BE FREE FROM LOOSE KNOTS, CRACKS, AND OTHER IMPERFECTIONS.
- B. WOODEN FENCE AND GATE SHALL MATCH EXISTING. DECORATIVE EMBELLISHMENT AT TOP (PALM TREE) NOT REQUIRED
- C. CAST–IN–PLACE CONCRETE: CLASS 3000 MINIMUM

2 WOOD BOARDS OR SLATS
- A. WOOD BOARDS OR SLATS SHALL BE OF CEDAR, REDWOOD, COMBED SPRUCE OR SIMILAR WOOD ACCEPTABLE TO CITY
- B. WOOD BOARDS OR SLATS SHALL BE BETWEEN 3/8 INCHES AND 5/8 INCHES THICK AND BE NO GREATER THAN 6 INCHES WIDE.

3 POSTS
- A. DOUBLE GATE POSTS SHALL BE AT MINIMUM DUAL 6–INCH BY 6–INCH OR AS RECOMMENDED BY MANUFACTURER.
- B. POSTS SHALL BE PRESSURE TREATED REDWOOD, DOUGLAS FIR–LARCH, CEDAR OR SIMILAR WOOD ACCEPTABLE TO CITY.
- C. POST ENDS SHOULD BE TREATED WITH AN APPROVED WOOD PRESERVATIVE PRODUCT.

4 GATES
- A. PROVIDE ADDITIONAL HORIZONTAL, VERTICAL, AND DIAGONAL MEMBERS TO ENSURE PROPER GATE OPERATION AND FOR ATTACHMENT OF WOOD, HARDWARE AND ACCESSORIES. CONSULT MANUFACTURER AS NECESSARY.
- B. ACCESSIBILITY: GATE STOPS, LATCHES AND LOCKS SHALL BE ACCESSIBLE FROM EITHER SIDE OF GATE.
- C. DOUBLE GATES: OPENINGS SHALL BE A MINIMUM OF 12 FEET WIDE.

5 GATE HARDWARE
- A. GATE HARDWARE INCLUDING, BUT NOT LIMITED TO, LATCHES, HINGES, STOPS AND BOLTS SHALL BE 316 STAINLESS STEEL, POWDER COATED BLACK, OR GALVANIZED.
- B. HINGES AND PINS SHALL BE HEAVY DUTY AND SIZED AS PER MANUFACTURER'S RECOMMENDATIONS.
- C. FOR DOUBLE–LEAF GATES, A DROP ROD OR STOP SHALL BE INSTALLED ON ONE LEAF, INCLUDE AT LEAST ONE GUIDE AND SHALL EXTEND INTO CONCRETE BASE OR SIMILARLY SOLID BASE.
- D. DUAL ACCESS (ACCESSIBLE AND LOCKABLE FROM EITHER SIDE) LATCH AND LOCK SYSTEMS ARE REQUIRED ON ALL GATES.
  1. THE FOLLOWING DUAL ACCESS LATCH AND LOCK SYSTEMS ARE ALLOWED AND MUST BE APPROVED IN WRITING PRIOR TO INSTALLATION:
     - a. LOCK THRU LATCH (WEBSITE:http://www.hooverfence.com/woodfence/lockthru.htm);
     - b. SURE LATCH (WEBSITE: http://surelatch.com/gate–latches/7–lockable–two–way–latch–and–pin.html);
     - c. OR EQUAL.

EXECUTION

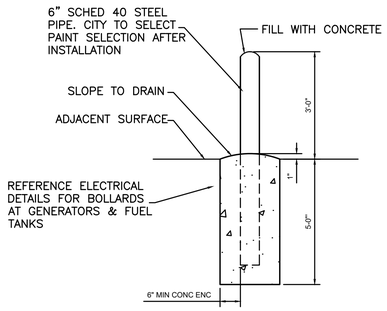
1 INSTALLATION OF POSTS
- A. POSTS SHALL BE SET TRUE TO LINE AND GRADE.
- B. SET POSTS IN CONCRETE FOOTINGS EXTENDING AT LEAST 5 FEET INTO UNDISTURBED NATURAL GROUND OR PROPERLY COMPACTED FILL. FOOTING SHALL BE 4X POST WIDTH

2 INSTALLATION OF GATES
- A. INSTALL GATES PLUMB, LEVEL, AND SECURE FOR FULL OPENING WITHOUT INTERFERENCE. INSTALL GROUND–SET ITEMS IN CONCRETE FOR ANCHORAGE AS RECOMMENDED BY THE FENCE MANUFACTURER. ADJUST HARDWARE FOR SMOOTH OPERATION.
- B. DOUBLE LEAF GATES:
  1. SHALL OPEN/CLOSE IN DIRECTION AS INDICATED ON PLANS.
  2. ONCE GATE IS INSTALLED COORDINATE WITH CITY ON LOCK INSTALLATION.

3. FINISH PAINT NEW FENCING TO MATCH EXISTING

WOODEN DOUBLE GATE AND FENCE DETAIL

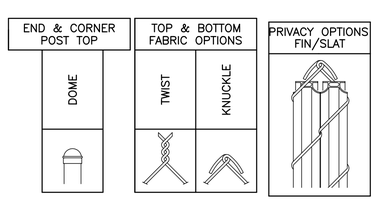
NOT TO SCALE

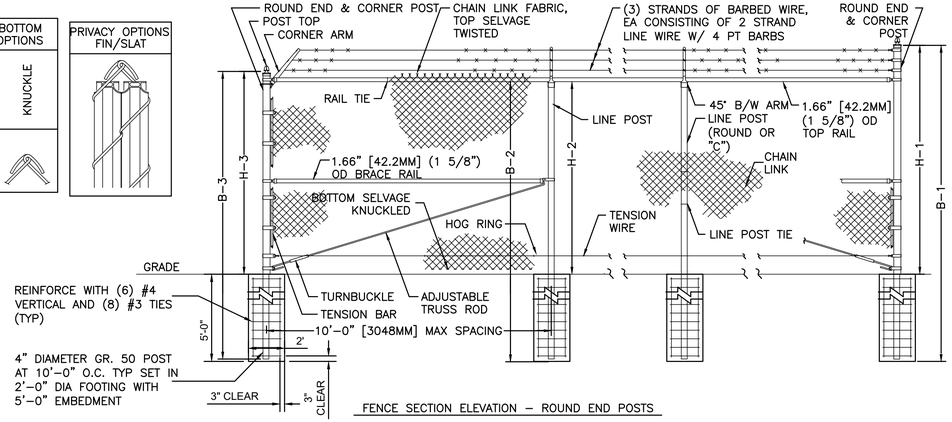


BOLLARD DETAIL

NOT TO SCALE

FENCE HEIGHT	UPRIGHT END & CORNER POSTS		LINE POSTS		CORNER POSTS WITH CORNER ARM	
NOM HT INCLUDING BARBED WIRE	B–1 BAR LENGTH	H–1 HEIGHT ABOVE GRADE	B–2 BAR LENGTH	H–2 HEIGHT ABOVE GRADE	B–3 BAR LENGTH	H–3 HEIGHT ABOVE GRADE
7'–0" [2134MM]	13'–0" [3962MM]	7'–0 5/8" [2150MM]	11'–8" [2555MM]	5'–8 7/8" [1749MM]	12'–0" [3657MM]	6'–0 5/8" [1845MM]



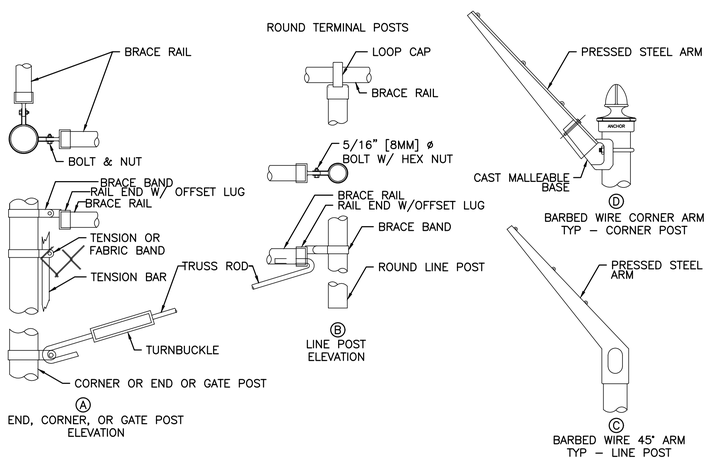


FENCE SECTION ELEVATION – ROUND END POSTS

NOTES:
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
2. PROVIDE BRACE RAIL AND ADJUSTABLE TRUSS ROD AT ALL CORNERS (TERMINALS) AND EACH SIDE OF GATES
3. PROVIDE PRIVACY SLATS

TYPICAL 7' HIGH FENCE - ROUND END POSTS, WITH TOP RAIL & WITH BARBED WIRE (DIMENSIONS AND SPECIFICATIONS)

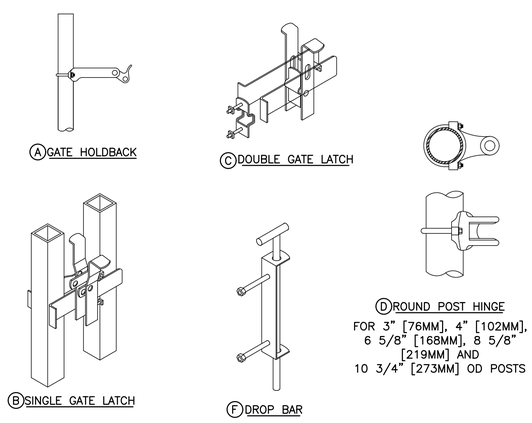
NOT TO SCALE



NOTES:
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.
2. ALL MATERIAL TO CONFORM TO FEDERAL SPEC RR–F–191G (1–25–74).
3. ALL GALVANIZED FITTINGS TO CONFORM TO ASTM–A153.

TYPICAL FENCE ROUND POST DETAILS

NOT TO SCALE



NOTES:
1. METRIC DIMENSIONS ARE NOMINAL EQUIVALENTS TO U.S. DIMENSIONS.

SWING GATES ROUND POST DETAILS

NOT TO SCALE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC. No. 5166

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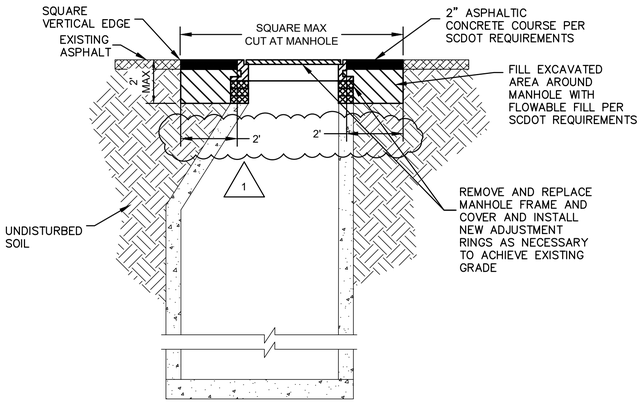
WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
STANDARD DUPLEX PUMP STATION DETAILS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

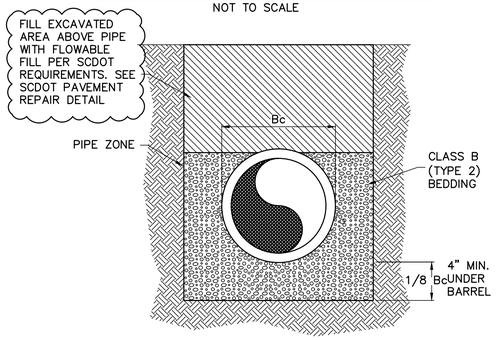
DRAWING NUMBER
D8.2



SECTION

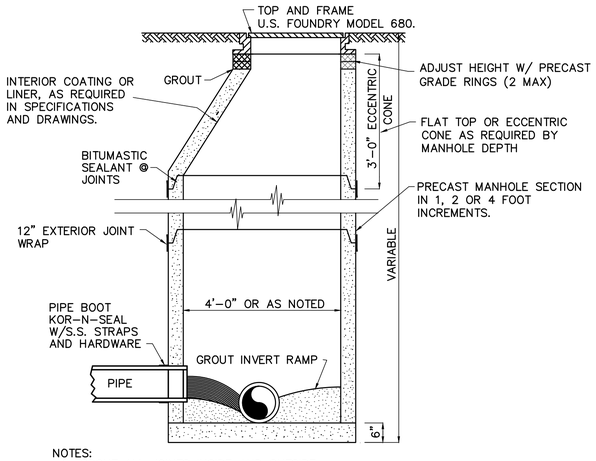
OPEN CUT SCDOT PAVEMENT REPAIR FOR LOW VOLUME ASPHALT AT MANHOLE

NOT TO SCALE



BEDDING FOR PVC GRAVITY SEWER PIPE IN SCDOT ROW

NOT TO SCALE

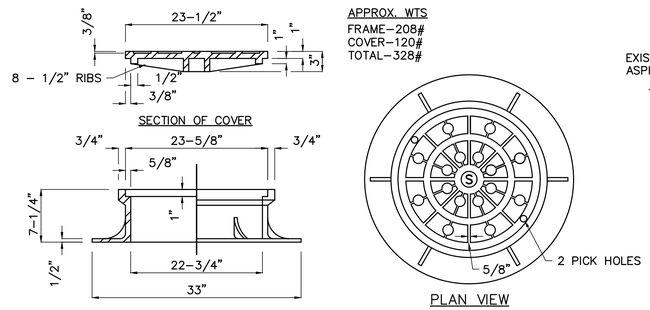


NOTES:
1. GROUT ALL JOINTS INSIDE AND OUTSIDE USING NON-SHRINK GROUT.
2. INSTALL INTERIOR COATING OR LINER AS REQUIRED IN THE SPECIFICATIONS AND DRAWINGS.
3. INSTALL SEAL WRAP EXTERIOR JOINT SEALER AS MANUFACTURED BY MAR-MAC.

SECTION

PRECAST SEWER MANHOLE

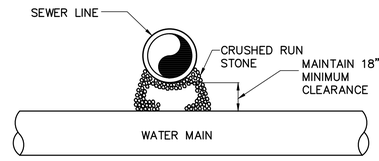
NOT TO SCALE



NOTES:
1. AS MANUFACTURED U.S. FOUNDRY MODEL 680. PROVIDE WITH 2 COATS OF BITUMASTIC PAINT.
2. MACHINED BEARING SURFACES BETWEEN COVER AND FRAME.

STANDARD SEWER MANHOLE FRAME & COVER

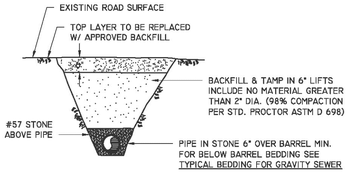
NOT TO SCALE



NOTE:
FULL JOINT OF DUCTILE IRON PIPE FOR WATER TO BE CENTERED AT CROSSING.

SEWER CROSSING ABOVE WATER LINE DETAIL

NOT TO SCALE

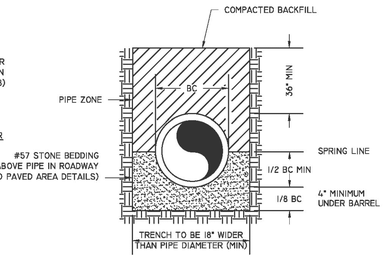


UNPAVED ROADWAY BEDDING DETAIL

NOT TO SCALE

TYPICAL PRESSURE PIPE BEDDING DETAIL IN SCDOT ROW

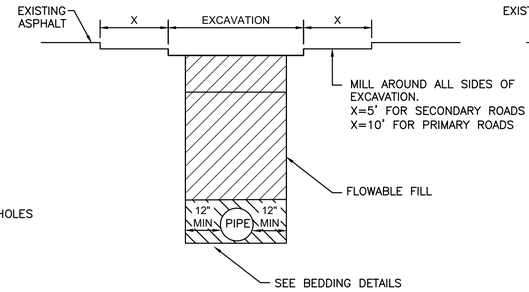
NOT TO SCALE



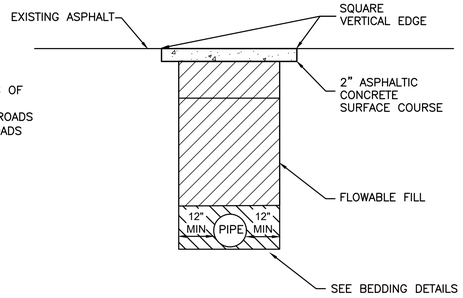
TYPICAL BEDDING FOR GRAVITY SEWER PIPE

NOT TO SCALE

MILL AND RESURFACE AT OPEN CUT REPAIR



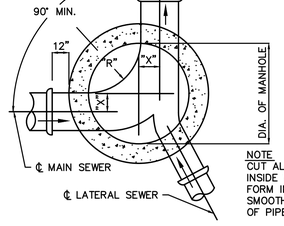
OPEN CUT REPAIR FOR ALL ROADWAYS



NOTES:
1. COMPACTION TESTS TO BE CONDUCTED BY A GEOTECHNICAL PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA AND SUBMITTED TO THE TOWN AND SCDOT FOR REVIEW AND APPROVAL PRIOR TO PAVING. TESTING RESULTS SHALL BE PROVIDED DIRECTLY TO SCDOT BY TESTING LAB.
2. COMPACTION TESTS SHALL BE CONDUCTED ON EACH SIDE OF THE MANHOLE (2 TOTAL) ABOVE THE PIPE INSTALLATION AND AS REQUIRED BY SCDOT FOR THE STRUCTURE. TESTS TO BE CONDUCTED BY A GEOTECHNICAL PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA AND SUBMITTED TO THE TOWN AND SCDOT FOR REVIEW AND APPROVAL PRIOR TO PAVING
3. ALL EXCAVATION AREAS SHALL BE COVERED WITH STEEL PLATE TO SCDOT STANDARDS AND TRAFFIC RESTORED AT THE END OF THE WORK DAY
4. ALL DISTRIBUTED PAVEMENT STRIPING AND MARKINGS SHALL BE RESTORED TO SCDOT STANDARDS (THERMOPLASTIC IN PRIMARY ROADS AND PAINT IN SECONDARY ROADS) TO BE DETERMINED BY SCDOT)

SCDOT PAVEMENT REPAIR

NOT TO SCALE

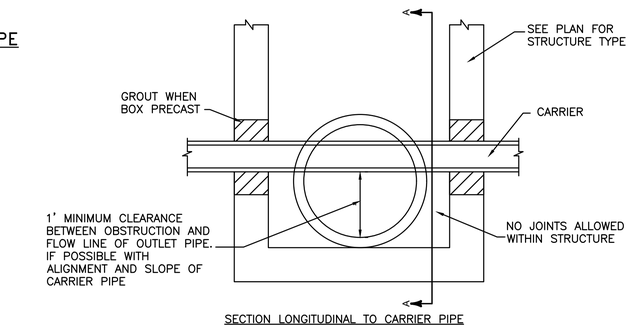


NOTE
CUT ALL PIPE FLUSH WITH INSIDE WALL OF MANHOLE FORM INVERT UNIFORM AND SMOOTH. CUT OFF TOP HALF OF PIPE AT WALL.

TYPICAL PLAN STANDARD MANHOLE

STANDARD MANHOLES
SCHEDULE OF GOVERNING DIMENSIONS

PIPE SIZE	ANGLE △	MANHOLE DIAMETER	"R"	"X"
8" TO 15"	0° TO 90°	4'-0"	2'-0"	0"
18" TO 30"	0° TO 90°	5'-0"	2'-0"	6"
36" TO 42"	0° TO 60°	6'-0"	3'-0"	9"
36" TO 42"	60° TO 90°	6'-0	3'-0"	1'-2"
48" OR LARGER	0° TO 45°	7'-0	4'-0"	6"
48" OR LARGER	45° TO 90°	8'-0	3'-0"	1'-3"



SECTION LONGITUDINAL TO CARRIER PIPE

UTILITY CONFLICT CONDITION 1
(NON-PRESSURE OR NON-FLUID CARRIER)

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	DETAIL UPDATES
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4				
5				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
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TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
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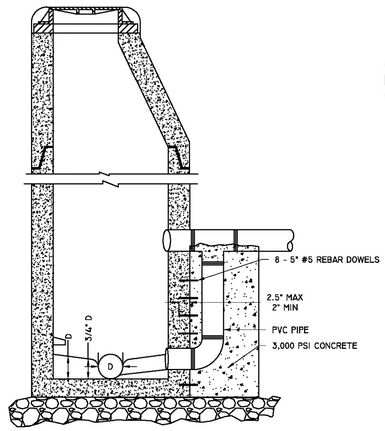
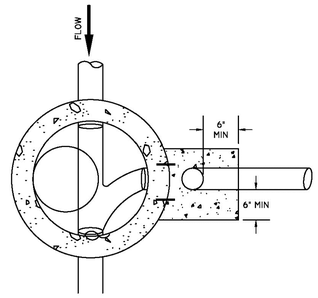
DRAWING NUMBER
D8.3



SECTION VIEW

DROP MANHOLE

NOT TO SCALE



PLAN VIEW

PVC PIPE RESTRAINT NOTES:

1. THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM.
2. ASSUMPTIONS: PVC PIPE, SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL=GM OR SM, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE.
3. BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING.
4. VERTICAL OFFSETS: ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS, Lu IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. Li IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.
5. TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE "BRANCH" LINE.
6. HDPE TO PVC TRANSITIONS: THE PVC PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).
7. THE INSTALLATION OF BELL HARNESS RESTRAINTS AT PVC JOINTS (DR-18 & 25 PIPE) SHALL BE COMPLETED PER THE MANUFACTURERS RECOMMENDATION, WHICH INCLUDES NOT OVER TIGHTENING THE PARALLEL RODS/NUTS. THESE NUTS SHOULD ONLY BE SNUG TIGHT. THE HOME MARKS ON THE PIPE SHOULD ALWAYS BE VISIBLE AFTER THE RESTRAINT IS INSTALLED. OVERHOMING THE JOINT MAY CAUSE A FAILURE AT THE BELL RESULTING IN A SERVICE OUTAGE.

LENGTH (L) TO BE RESTRAINED (SEE PLATE Nos. 38C & 38D FOR ADDITIONAL DETAILS)

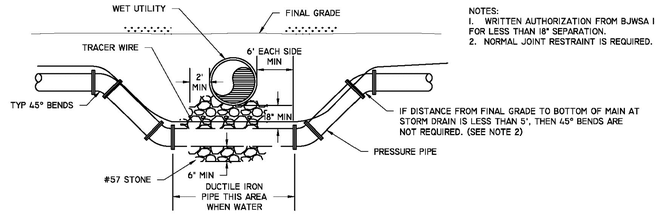
NOMINAL PIPE SIZE (IN.)	HORIZONTAL BENDS				VERTICAL OFFSETS 45° BENDS (SEE NOTE 4)		VALVES OR DEAD ENDS
	90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	UPPER L (FT.)	LOWER L (FT.)	L (FT.)
4	21	9	5	3	17	3	47
6	30	13	6	3	23	4	66
8	38	16	8	4	30	6	86
10	45	19	9	5	36	7	103
12	53	22	11	6	43	8	121
14	61	26	13	6	50	9	140
16	66	28	14	7	55	10	154
18	73	30	15	8	60	11	170
20	79	33	16	8	66	12	186
24	79	33	16	8	77	15	185
30	93	39	19	10	97	17	222
36	106	39	21	11	107	20	257
42	117	49	24	12	120	24	289
48	144	53	26	13	133	26	321

REDUCERS	
SIZE (IN.)	L (FT.)
6x4	34
8x6	36
8x4	62
10x8	35
10x6	63
12x10	36
12x8	64
16x12	66
16x10	92
20x18	35
20x16	66
20x12	117
24x20	56
24x18	80
24x16	101
30x24	78
30x20	121
36x30	78
36x24	141
42x36	75
42x30	140
48x42	75
48x36	139

TEES SEE NOTE 5		
RUN SIZE (IN.)	BRANCH SIZE (IN.)	L (FT.)
4	4	F.O.
4	6 4 < LESS	10 F.O.
8	8 6 < LESS	29 F.O.
10	10 8 6 < LESS	45 13 F.O.
12	12 10 8 < LESS	62 32 F.O.
16	16 12 10 10 < LESS	94 39 5 F.O.
20	20 16 12 10 < LESS	125 76 14 F.O.
24	24 20 16 12 < LESS	124 84 36 F.O.
30	30 24 20 16 16 < LESS	159 104 60 5 F.O.
36	36 30 24 20 16 < LESS	192 142 83 33 F.O.
42	42 36 30 24 20 16 < LESS	223 178 124 59 5 F.O.
48	48 42 36 30 24 20 < LESS	253 209 162 104 34 F.O.

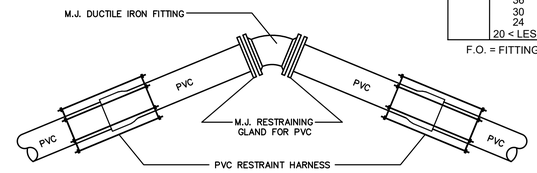
F.O. = FITTING ONLY

PVC PIPE RESTRAINT JOINT SCHEDULE



NOTES:
1. WRITTEN AUTHORIZATION FROM BJWSA IS REQUIRED FOR LESS THAN 18" SEPARATION.
2. NORMAL JOINT RESTRAINT IS REQUIRED.

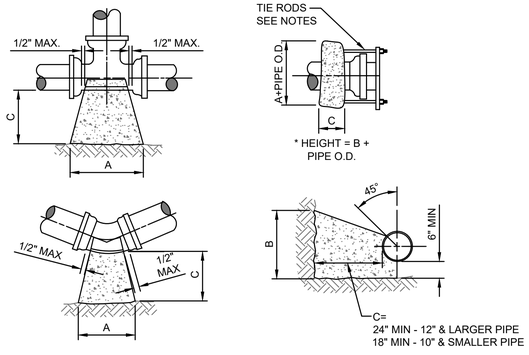
PRESSURE PIPE UNDER WET UTILITY FOR FINAL DEPTH 5' OR GREATER



RESTRAINED JOINT FITTING DETAIL

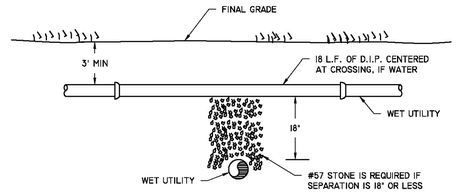
NOT TO SCALE

THRUST BLOCK FOR TEES & PLUGS				
	90° BEND			S.F. BEARING SURFACE
SIZE	A	B	C	
4"	16"	16"	18"	1.78
6"	20"	24"	18"	3.33
8"	26"	32"	18"	5.78
10"	32"	40"	18"	8.89
12"	36"	48"	24"	12.00
14"	40"	56"	24"	15.56
16"	48"	60"	24"	20.00
18"	56"	64"	24"	24.89
20"	60"	76"	24"	31.67
24"	72"	90"	24"	45.00
30"	86"	102"	24"	60.67
36"	116"	108"	24"	86.11



THRUST BLOCK FOR BENDS															
	90° BEND			S.F. BEARING SURFACE	45° BEND			S.F. BEARING SURFACE	22-1/2° BEND			S.F. BEARING SURFACE	11-1/4° BEND			S.F. BEARING SURFACE
SIZE	A	B	C		A	B	C		A	B	C		A	B	C	
4"	16"	16"	18"	1.78	14"	16"	18"	1.56	14"	16"	18"	1.56	14"	16"	18"	1.56
6"	22"	32"	18"	4.89	16"	18"	18"	2.00	14"	16"	18"	1.56	14"	16"	18"	1.56
8"	32"	36"	18"	8.00	24"	28"	18"	4.67	16"	18"	18"	2.00	14"	16"	18"	1.56
10"	36"	46"	18"	11.50	26"	36"	18"	6.50	20"	24"	18"	3.33	14"	18"	18"	1.75
12"	44"	56"	24"	17.11	32"	40"	24"	8.89	24"	30"	24"	5.00	16"	20"	24"	2.22
14"	52"	62"	24"	22.39	36"	48"	24"	12.00	26"	36"	24"	6.50	20"	24"	24"	3.33
16"	58"	72"	24"	29.00	40"	54"	24"	15.00	32"	38"	24"	8.44	22"	26"	24"	3.97
18"	64"	80"	24"	35.56	46"	60"	24"	19.17	36"	42"	24"	10.50	24"	32"	24"	5.33
20"	72"	88"	24"	44.00	52"	66"	24"	23.83	38"	48"	24"	12.67	26"	36"	24"	6.50
24"	96"	96"	24"	36.89	64"	78"	24"	34.67	46"	56"	24"	17.89	32"	40"	24"	8.89
30"	122"	102"	24"	86.11	72"	94"	24"	47.00	56"	62"	24"	24.11	36"	48"	24"	12.00
36"	166"	104"	24"	123.33	88"	108"	24"	66.00	64"	78"	24"	34.67	44"	54"	24"	16.50

THRUST BLOCK SIZE CHART

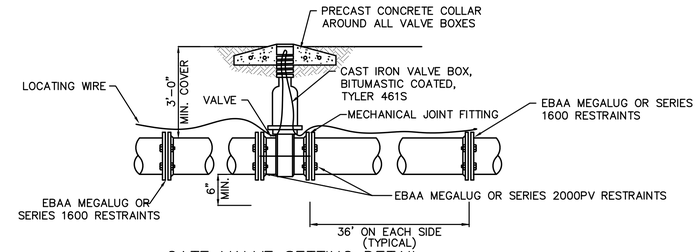


WET UTILITY CROSSING

NOT TO SCALE

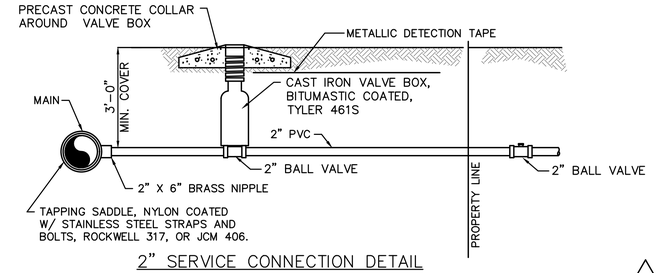
NOTES:

1. ALL BEARING SURFACES TO BE CARRIED TO UNDISTURBED SOIL.
2. THESE TABLES SHOW MINIMUM SIZES FOR THRUST BLOCKS IN GOOD SOIL (A-1 THRU A-3, CLEAN SANDS AND GRAVELS) WITH MINIMUM BEARING CAPACITY OF 2000 psi.
3. POOR SOILS A-4 THRU A-8, SILTY SOILS, CLAYS, MUCK AND PEAT WILL REQUIRE LARGER THRUST BLOCKING.
4. BOTH CONCRETE THRUST BLOCKS AND TIE RODS MUST BE USED WHEN, IN THE JUDGEMENT OF THE ENGINEER, THE NATURE AND CRITICALITY OF AN INSTALLATION IS SUCH AS TO REQUIRE POSITIVE ASSURANCE OF STABILITY.
5. THE USE OF THRUST BLOCKS SHALL BE LIMITED TO SITUATIONS SUCH AS POINT REPAIR WHERE EXPOSING SEVERAL JOINTS OF PIPE IS NOT FEASIBLE DUE TO EXISTING GROUND CONDITIONS.
6. CONCRETE COLLARS WITH TIE RODS MAY BE USED ON DEAD END LINES AT THE CONTRACTOR'S DISCRETION. NUMBER OF TIE RODS REQUIRED IS AS FOLLOWS:
   - 3" - 8" DIAMETER MAIN - 2 TIE RODS REQUIRED PER JOINT (3/4" ROD)
   - 10" - 12" DIAMETER MAIN - 4 TIE RODS REQUIRED PER JOINT (3/4" ROD)
   - 14" - 16" DIAMETER MAIN - 6 TIE RODS REQUIRED PER JOINT (3/4" ROD)
   - 18" - 20" DIAMETER MAIN - 8 TIE RODS REQUIRED PER JOINT (3/4" ROD)
   - 24" DIAMETER MAIN -12 TIE RODS REQUIRED PER JOINT (3/4" ROD)
   - 30" - 36" DIAMETER MAIN -14 TIE RODS REQUIRED PER JOINT (1" ROD)
   - 42" - 48" DIAMETER MAIN -16 TIE RODS REQUIRED PER JOINT (1 1/4" ROD)
   - 54" DIAMETER MAIN -18 TIE RODS REQUIRED PER JOINT (1 1/4" ROD)
7. MAXIMUM TEST PRESSURE TO BE 150 PSI.



GATE VALVE SETTING DETAIL

NOT TO SCALE



2" SERVICE CONNECTION DETAIL

NOT TO SCALE

1

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	DETAIL UPDATES
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

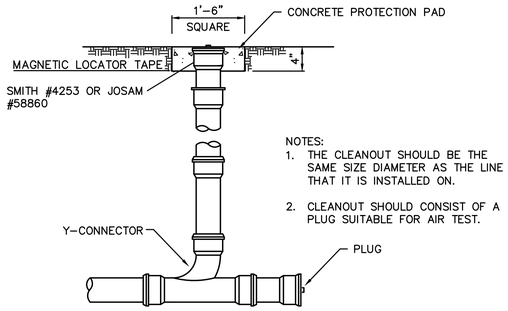
STANDARD DUPLEX PUMP STATION DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	FEB 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

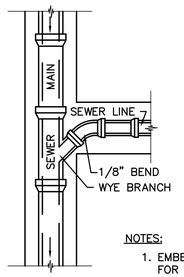
DRAWING NUMBER
D8.4



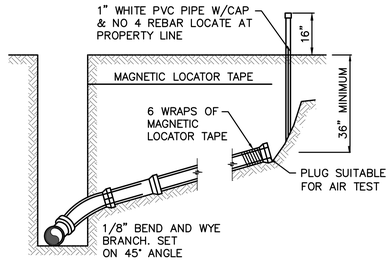
NOTES:
1. THE CLEANOUT SHOULD BE THE SAME SIZE DIAMETER AS THE LINE THAT IT IS INSTALLED ON.
2. CLEANOUT SHOULD CONSIST OF A PLUG SUITABLE FOR AIR TEST.

CLEANOUT DETAIL

NOT TO SCALE



PLAN

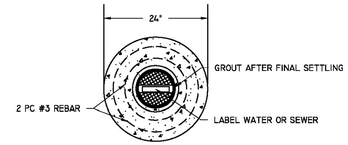


SECTION

NOTES:
1. EMBEDMENT SAME AS FOR SEWER LINE.
2. SERVICE LINE SHALL BE ON SUCH A GRADE THAT WILL PERMIT SERVICING OF PROPERTY. MINIMUM GRADE SHALL BE 1.0%. MAXIMUM GRADE SHALL BE 50%
3. NO VERTICAL STACKING WILL BE ALLOWED.

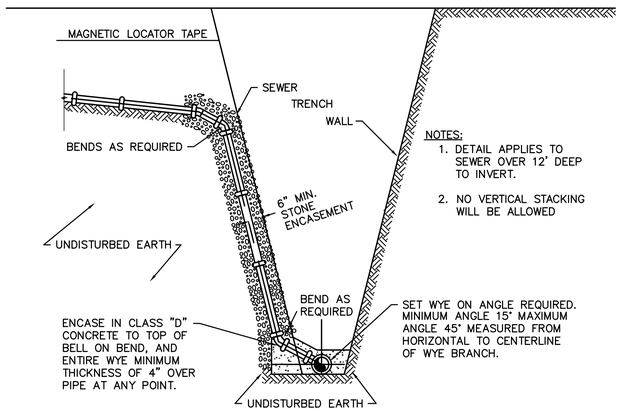
SEWER SERVICE CONNECTION DETAIL

NOT TO SCALE



CONCRETE COLLAR

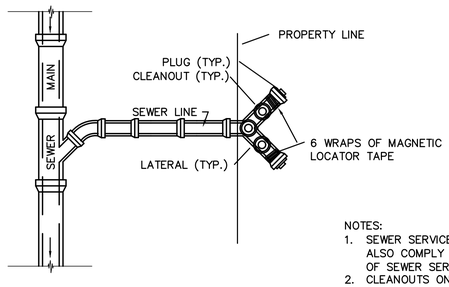
NOT TO SCALE



NOTES:
1. DETAIL APPLIES TO SEWER OVER 12' DEEP TO INVERT.
2. NO VERTICAL STACKING WILL BE ALLOWED

DEEP SEWER SERVICE DETAIL

NOT TO SCALE

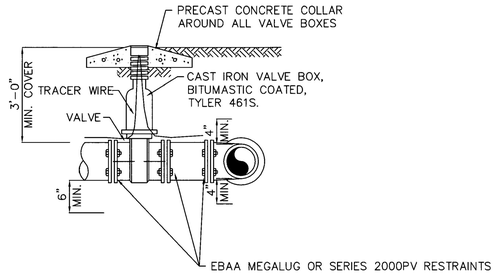


NOTES:
1. SEWER SERVICE CONNECTION SHOULD ALSO COMPLY WITH REQUIREMENTS OF SEWER SERVICE DETAIL.
2. CLEANOUTS ON INDIVIDUAL LATERALS SHALL BE PLACED AT PROPERTY LINE.
3. CONNECTION TO MAIN SHALL BE 6" PIPE. SERVICES MAY BE 4".

DOUBLE SEWER SERVICE

NOT TO SCALE

NOTE:
1.) ALL FITTINGS SHALL BE MECHANICAL JOINTS.
2.) TRACER WIRE SHALL BE LOOPED TO THE TOP OF THE VALVE BOX.



VALVE & TEE SETTING DETIAL

NOT TO SCALE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	DETAIL UPDATES
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
STANDARD DUPLEX PUMP STATION DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D8.5

1

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
NO. 24242
WILLIE E. McCONNELL, JR

SIGNATURE

8/2/12
DATE

#	DATE	CHK	DESCRIPTION
6			
5			
4			
3			
2			
1	8-12-11	JCS	GENERAL UPDATE
0	8-23-07	JCS	DRAWING NO. UPDATE

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

RIGHT SHOULDER CLOSURE (CASE I / CASE II) PRIMARY ROUTES

610-205-00

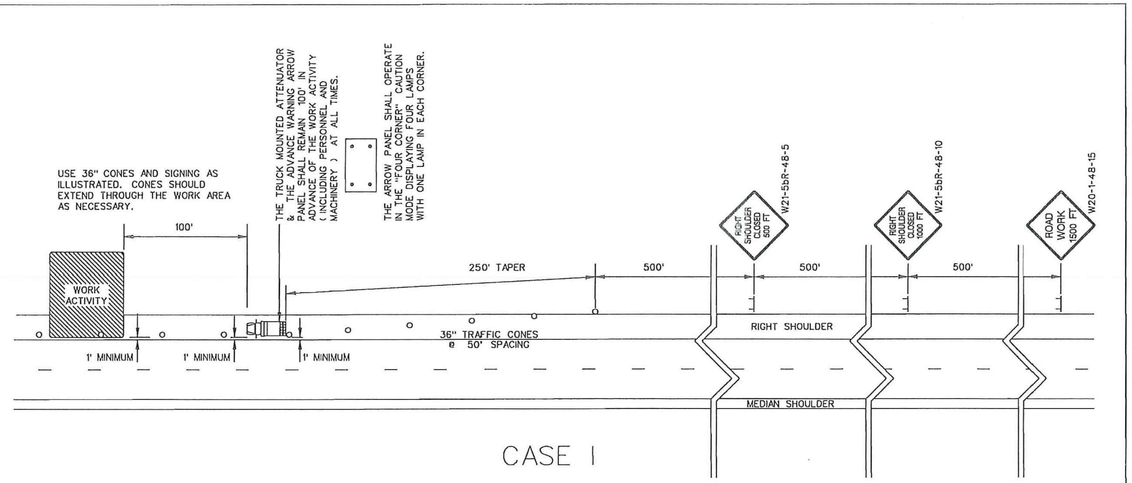
EFFECTIVE LETTING DATE | JAN, 2013 | THIS DRAWING IS NOT TO SCALE

GENERAL NOTES

1. ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
2. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
3. SPACINGS INDICATED ARE FOR NORMAL CONDITIONS: ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL POSTS OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org .
7. THE CONTRACTOR SHALL PROVIDE AND UTILIZE ANY SPECIAL SIGN MOUNTING ASSEMBLIES AND HARDWARE THAT MAY BE NECESSARY FOR INSTALLING AND MOUNTING SIGNS IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS OR DOUBLEFACED GUARDRAIL.
8. THE PRIMARY TRAFFIC CONTROL DEVICES UTILIZED FOR DAYTIME SHOULDER CLOSURES ARE 36" CONES. THE PRIMARY TRAFFIC CONTROL DEVICES UTILIZED FOR NIGHTTIME SHOULDER CLOSURES ARE PORTABLE PLASTIC DRUMS. DURING DAYTIME SHOULDER CLOSURES, 42" OVERSIZED CONES MAY BE SUBSTITUTED FOR 36" CONES. DURING NIGHTTIME SHOULDER CLOSURES, 42" OVERSIZED CONES ARE PROHIBITED FOR USE. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE HOURS OF DARKNESS, REPLACE ALL CONES, 36" OR 42" OVERSIZED, WITH PORTABLE PLASTIC DRUMS.
9. THE 36" CONES UTILIZED DURING DAYLIGHT HOURS ARE NOT REQUIRED TO BE REFLECTORIZED. REFLECTORIZE ALL 42" OVERSIZED CONES UTILIZED DURING DAYTIME SHOULDER CLOSURES WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
11. THE DEPARTMENT PROHIBITS CONDUCTING WORK ON PRIMARY AND SECONDARY ROUTES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE UNDER A SHOULDER CLOSURE. ALL WORK THAT MAY REQUIRE THE PRESENCE OF EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE SHALL BE CONDUCTED UNDER A LANE CLOSURE.

    CASE I: WHENEVER ANY PORTION OF THE SHOULDER AREA WITHIN 15' BUT NOT CLOSER THAN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE MUST BE OCCUPIED BY EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES TO CONDUCT THE WORK, INSTALL AND MAINTAIN THE SIGNING AND TRAFFIC CONTROL DEVICES AS ILLUSTRATED.

    CASE II: WHENEVER THE WORK IS CONDUCTED BEYOND 15' BUT WITHIN 30' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE, INCLUDING THE PRESENCE OF EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES, INSTALL AND MAINTAIN THE SIGNING AND TRAFFIC CONTROL AS ILLUSTRATED.
12. CONDUCT THE WORK IN SUCH A MANNER THAT WILL NOT REQUIRE ENCROACHMENT OF TRAFFIC CONTROL DEVICES, EQUIPMENT, PERSONNEL, MATERIALS OR ANY WORK RELATED VEHICLES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
13. PLACE THE TRUCK MOUNTED ATTENUATOR AT A LOCATION 100' IN ADVANCE OF THE WORK ACTIVITY AND NO CLOSER THAN 1' FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
14. FOR A CASE I SCENARIO IN THE RIGHT SHOULDER AREA, ADJUST THE TAPER AS NECESSARY TO FIT THE WIDTH OF THE SHOULDER WHILE MAINTAINING THE REQUIRED 250' TAPER LENGTH.
15. IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS AT THE SAME TIME UNDER CASE I SHOULDER CLOSURES, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 1 MILE FROM THE END OF THE FIRST CASE I CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CASE I CLOSURE. A MINIMUM SEPARATION DISTANCE OF ONE-HALF MILE IS RECOMMENDED BETWEEN SHOULDER CLOSURES WHEN ONE OR BOTH SHOULDER CLOSURES IS A CASE II CLOSURE.
16. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.
17. THIS TYPICAL TRAFFIC CONTROL SETUP APPLIES TO THE INSTALLATION OF SHOULDER CLOSURES IN THE RIGHT SHOULDER AREAS OF PRIMARY AND SECONDARY ROADWAYS.



PORTABLE TRUCK MOUNTED ATTENUATOR

1. UTILIZE A TRUCK MOUNTED ATTENUATOR ATTACHED TO THE REAR OF A TRUCK WITH A MINIMUM GROSS VEHICULAR WEIGHT (GVM) OF 15,000 POUNDS (ACTUAL WEIGHT). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE ATTACHED TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
2. LOCATE THE TRUCK MOUNTED ATTENUATOR 100 FEET IN ADVANCE OF THE WORK AREA UNLESS OTHERWISE SPECIFIED.
3. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

ADVANCE WARNING ARROW PANEL

ALL ADVANCE WARNING ARROW PANELS SHALL BE 48" x 96" WITH A MINIMUM LEGIBILITY DISTANCE OF 1 MILE. PLACEMENT OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS. THE PANEL FACE SHALL BE NONREFLECTIVE BLACK. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

WHEN AN ADVANCE WARNING ARROW PANEL IS REQUIRED TO OPERATE IN THE CAUTION MODE, THE ADVANCE WARNING ARROW PANEL SHALL DISPLAY THE "FOUR CORNERS" CAUTION MODE, WITH ONE LAMP IN EACH CORNER. DISPLAY OF ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE SUCH AS THE "FLASHING BAR" OR THE "ALTERNATING DIAMOND" CAUTION MODES ARE UNACCEPTABLE AND PROHIBITED.

LEGEND

O 36" TRAFFIC CONES

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
TEMPORARY TRAFFIC CONTROL DETAILS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D8.6

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

8/2/12

DATE

#	DATE	CHK	DESCRIPTION
6			
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4			
3			
2			
1	2-15-11	JCS	GENERAL UPDATE
0	8-22-07	JCS	DRAWING NO. UPDATE

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

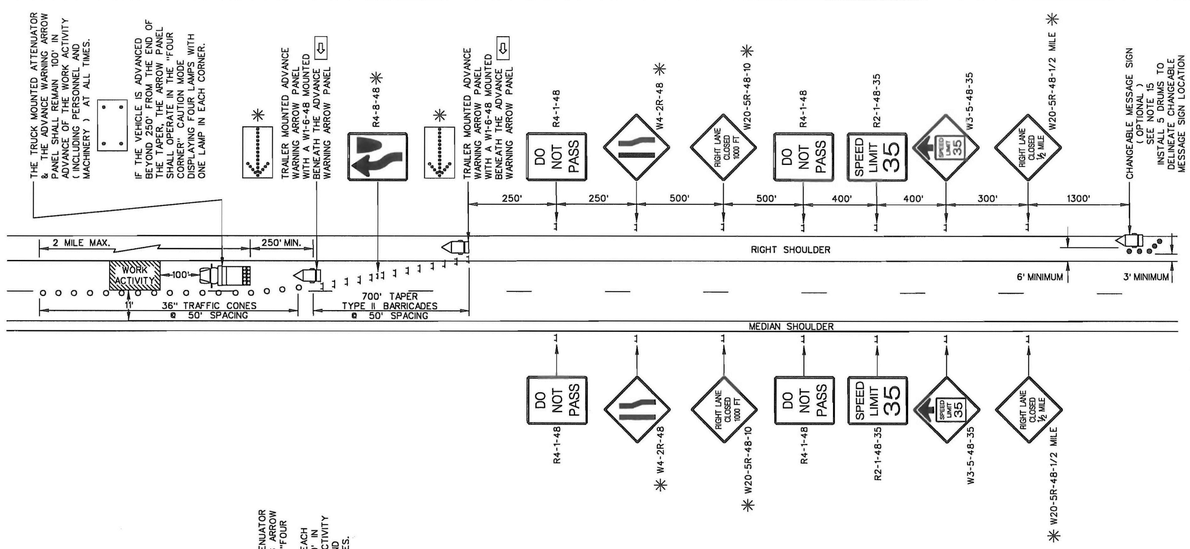
STANDARD DRAWING

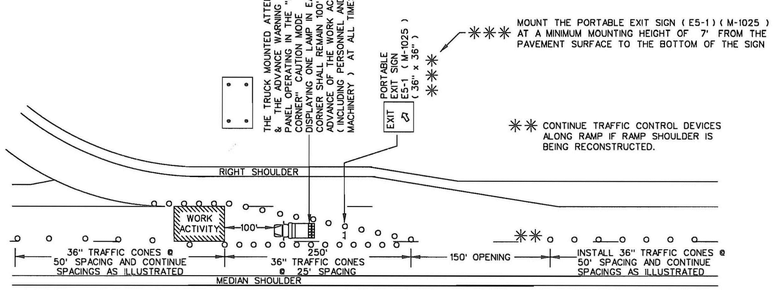
LANE CLOSURE
DAYTIME
MULTILANE
PRIMARY ROUTES

610-025-00

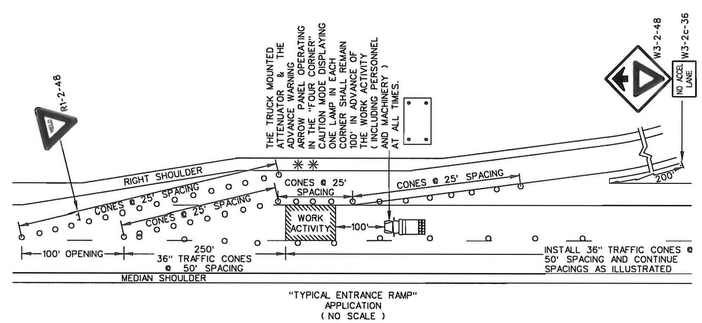
EFFECTIVE LETTING DATE JAN. 2013

THIS DRAWING IS NOT TO SCALE





"TYPICAL EXIT RAMP" APPLICATION (NO SCALE)



"TYPICAL ENTRANCE RAMP" APPLICATION (NO SCALE)

GENERAL NOTES

1. ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
2. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
3. SPACINGS INDICATED ARE FOR NORMAL CONDITIONS; ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL POSTS OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org .
7. THE CONTRACTOR SHALL PROVIDE AND UTILIZE ANY SPECIAL SIGN MOUNTING ASSEMBLIES AND HARDWARE THAT MAY BE NECESSARY FOR INSTALLING AND MOUNTING SIGNS IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS OR DOUBLEFACED GUARDRAIL.
8. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
9. REFLECTORIZE ALL BARRICADES WITH A TYPE VIII OR IX PRISMATIC RETROREFLECTIVE SHEETING ON ALL PROJECTS LET TO CONTRACT AFTER MAY 1, 2012 UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
10. TYPE II BARRICADES SHALL HAVE A MINIMUM WIDTH OF 3 FEET UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
11. CONDUCT THE WORK IN SUCH A MANNER THAT WILL MINIMIZE ENCROACHMENT OF TRAFFIC CONTROL DEVICES, EQUIPMENT, PERSONNEL, MATERIALS OR ANY WORK RELATED VEHICLES ONTO AN ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER DELINEATION OF THE WORK AREA.
12. LANE CLOSURES ARE RESTRICTED TO MAXIMUM LENGTHS OF 2 MILES UNLESS OTHERWISE DIRECTED BY THE SPECIAL PROVISIONS AND/OR THE DEPARTMENT.
13. IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS WITHIN THE SAME TRAVEL LANE UNDER TWO SEPARATE LANE CLOSURES ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER, SEPARATE THE TWO LANE CLOSURES BY NO LESS THAN 2 MILES FROM THE END OF THE FIRST CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CLOSURE.
14. IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS IN THE SAME DIRECTION BUT WITHIN DIFFERENT TRAVEL LANES UNDER TWO SEPARATE LANE CLOSURES ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER, SEPARATE THE TWO LANE CLOSURES BY NO LESS THAN 4 MILES FROM THE END OF THE FIRST CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CLOSURE.
15. UTILIZATION OF A CHANGEABLE MESSAGE SIGN IS OPTIONAL WITH THIS TRAFFIC CONTROL SETUP. HOWEVER, WHEN A CHANGEABLE MESSAGE SIGN IS UTILIZED, INSTALL THE SIGN AS ILLUSTRATED ON THIS STANDARD DRAWING UNLESS OTHERWISE DIRECTED BY THE SPECIAL PROVISIONS, THE PLANS AND/OR THE ENGINEER. INSTALL THE CHANGEABLE MESSAGE SIGN NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE AND SUPPLEMENT THE SIGN LOCATION WITH NO LESS THAN 5 PORTABLE PLASTIC DRUMS FOR DELINEATION AS ILLUSTRATED. 36" STANDARD TRAFFIC CONES OR 42" OVERSIZED TRAFFIC CONES ARE PROHIBITED AS SUBSTITUTES FOR THE PORTABLE PLASTIC DRUMS IN THIS APPLICATION. DURING A RIGHT LANE CLOSURE, THE SIGN SHOULD FLASH ALTERNATELY TO READ "RIGHT LANE CLOSED", "MERGE LEFT" AT A RATE THAT WILL PERMIT MOTORISTS TO READ BOTH MESSAGES AT LEAST ONCE.
16. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.
17. THIS TYPICAL TRAFFIC CONTROL SETUP APPLIES TO THE INSTALLATION OF A LANE CLOSURE ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER.

✳ LEFT LANE CLOSURE

1. SIGNS ILLUSTRATED ARE FOR A RIGHT LANE CLOSURE.
2. WHEN CLOSING THE LEFT TRAVEL LANE, USE THE FOLLOWING:
   2 - W20-5L-48-10 2 - W20-5L-48-1/2 MILE
   2 - W4-2L-48 1 - R4-7-48
3. THE STRIPES ON THE BARRICADES TO THE LEFT OF TRAFFIC SHALL SLOPE DOWNWARD FROM THE UPPER LEFT TO THE LOWER RIGHT.
4. THE FLASHING ARROW AND THE "LARGE ARROW" SIGN (W1-6-48) SHALL POINT TO THE RIGHT.
5. THE CHANGEABLE MESSAGE SIGN SHALL FLASH ALTERNATELY TO READ "LEFT LANE CLOSED", "MERGE RIGHT".

PORTABLE TRUCK MOUNTED ATTENUATOR

1. UTILIZE A TRUCK MOUNTED ATTENUATOR ATTACHED TO THE REAR OF A TRUCK WITH A MINIMUM GROSS VEHICULAR WEIGHT (GVM) OF 15,000 POUNDS (ACTUAL WEIGHT). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE ATTACHED TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
2. LOCATE THE TRUCK MOUNTED ATTENUATOR 100 FEET IN ADVANCE OF THE WORK AREA UNLESS OTHERWISE SPECIFIED.
3. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
4. DUE TO THE WEIGHT OF A TRUCK MOUNTED ATTENUATOR, THE TRUCK MOUNTED ATTENUATOR SUPPLEMENTED WITH AN ADVANCE WARNING ARROW PANEL MAY BE REPLACED WITH A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL WHEN THIS TRAFFIC CONTROL SETUP IS UTILIZED FOR ASPHALT CONCRETE PAVEMENT OPERATIONS. REPLACEMENT WITH A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL SHALL REQUIRE THE ENGINEER'S APPROVAL.

ADVANCE WARNING ARROW PANEL

ALL ADVANCE WARNING ARROW PANELS SHALL BE 48" x 96" WITH A MINIMUM LEGIBILITY DISTANCE OF 1 MILE. PLACEMENT OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS. THE PANEL FACE SHALL BE NONREFLECTIVE BLACK. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

WHEN AN ADVANCE WARNING ARROW PANEL IS REQUIRED TO OPERATE IN THE CAUTION MODE, THE ADVANCE WARNING ARROW PANEL SHALL DISPLAY THE "FOUR CORNERS" CAUTION MODE, WITH ONE LAMP IN EACH CORNER. DISPLAY OF ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE SUCH AS THE "FLASHING BAR" OR THE "ALTERNATING DIAMOND" CAUTION MODES ARE UNACCEPTABLE AND PROHIBITED.

LEGEND

○ 36" TRAFFIC CONES

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

TEMPORARY TRAFFIC CONTROL DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC	17-1007	BID
	JOB #	ISSUE DATE	ISSUE
		FEB 2023	

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER D8.7

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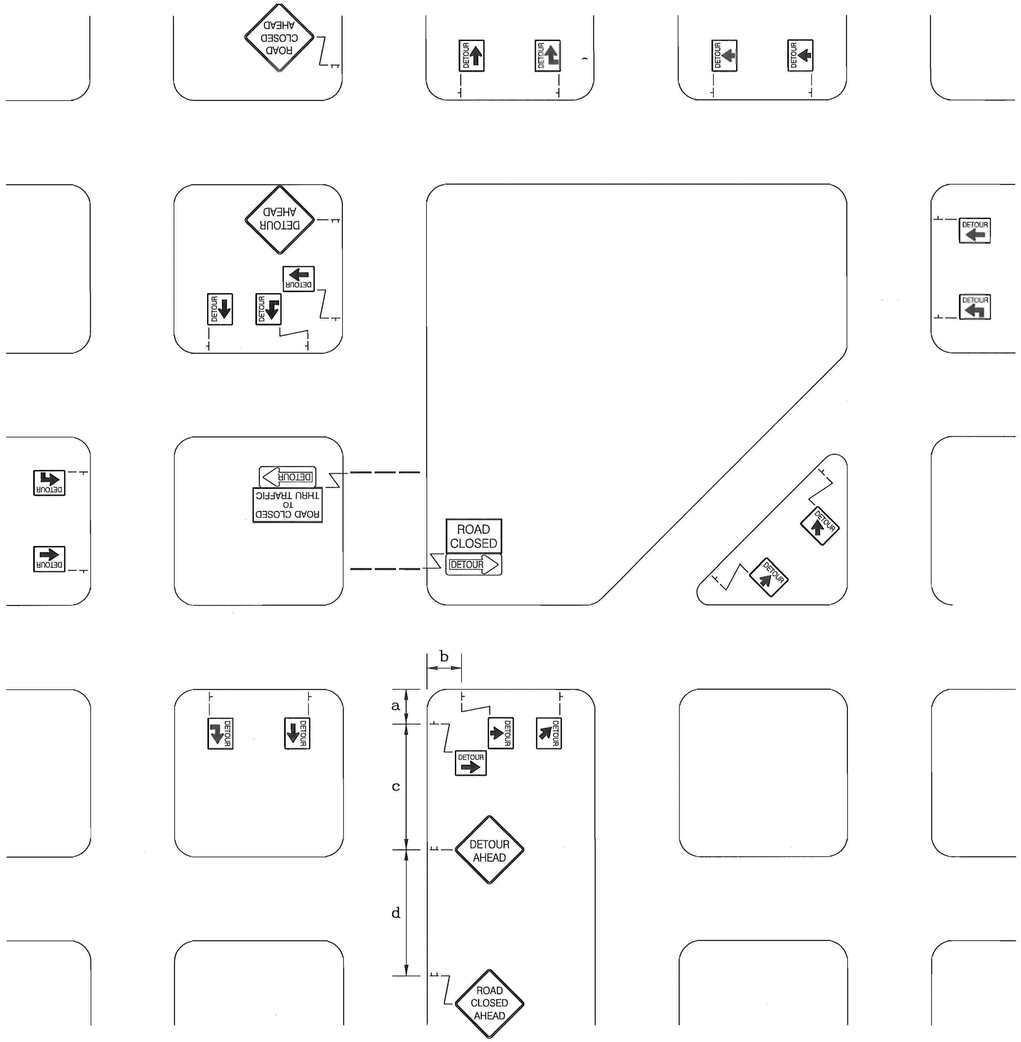

GENERAL NOTES

1.) ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.

2.) IN AREAS WITH PAVED SHOULDERS OR CURB & GUTTER, GROUND MOUNT ALL DETOUR SIGN ASSEMBLIES 2 FEET FROM EITHER THE PAVEMENT EDGE OF A PAVED SHOULDER OR THE FACE OF A CURB. IN AREAS WITH NO PAVED SHOULDERS OR CURB & GUTTER, GROUND MOUNT ALL DETOUR SIGN ASSEMBLIES 6-12 FEET FROM THE NEAR EDGE OF AN ADJACENT TRAVEL LANE TO THE NEAREST EDGE OF THE SIGN ASSEMBLY. MOUNT EACH DETOUR SIGN ASSEMBLY SO THE BOTTOM EDGE OF THE BOTTOM SIGN HAS A MINIMUM MOUNTING HEIGHT OF NO LESS THAN 5 FEET ABOVE THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.

3.) SPACINGS INDICATED ARE FOR NORMAL CONDITIONS: ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.

4.) MOUNT ALL SIGNS SUCH THAT THEY ARE STRAIGHT AND LEVEL AND THE FACE OF THE SIGNS ARE PERPENDICULAR TO THE SURFACE OF THE ROADWAY.

5.) REFLECTORIZE ALL DETOUR MARKERS, DETOUR SIGNS, AND DETOUR ARROW SIGNS WITH A FLUORESCENT ORANGE COLORED PRISMATIC REFLECTIVE SHEETING.

6.) ALL TRAFFIC CONTROL DEVICES, INCLUDING TYPE III BARRICADES, PORTABLE SIGN SUPPORTS, SIGN SUBSTRATUMS, BREAKAWAY SYSTEMS FOR GROUND MOUNTED SIGN SUPPORTS, WARNING LIGHTS, ETC., SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL BE APPROVED BY THE DEPARTMENT. ALL APPROVED TRAFFIC CONTROL DEVICES ARE INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES". THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org .

7.) SPECIAL SIGN MOUNTING ASSEMBLIES MAY BE NECESSARY IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS, OR DOUBLEFACED GUARDRAIL AND SHALL BE PROVIDED BY THE CONTRACTOR.

8.) REFLECTORIZE ALL BARRICADES WITH A TYPE III HIGH INTENSITY REFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.

9.) ALL SUPPLEMENTAL SIGNS ATTACHED TO TYPE III BARRICADES SHALL BE CONSTRUCTED OF AN APPROVED REFLECTIVE ROLL-UP MATERIAL OR AN APPROVED ALUMINUM COMPOSITE MATERIAL. ONLY THOSE ALUMINUM COMPOSITE MATERIALS INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" SUCH AS "ALPOLIC", "DIBOND", OR "REYNOLITE" ARE APPROVED. ALL OTHER RIGID SIGN SUBSTRATUMS, INCLUDING .08 AND .10 ALUMINUM SIGN BLANKS, ARE PROHIBITED FOR ATTACHMENT TO A TYPE III BARRICADE.

10.) THE TRAFFIC CONTROL SETUP SHOWN IS A TYPICAL INSTALLATION FOR A SECONDARY ROADWAY. SPECIFIC SIGNING WILL BE BASED ON SITE CONDITIONS AND SHALL REQUIRE THE ENGINEER'S APPROVAL PRIOR TO INSTALLATION. ROAD AND STREET NAMES MAY ALSO BE USED.

11.) THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT CONSTRUCTION OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS, AND/OR THE ENGINEER.

12.) THE TRAFFIC CONTROL SETUP ILLUSTRATED ON THIS STANDARD DRAWING, INCLUDING INSTALLATION AND MAINTENANCE OF THE DETOUR SIGNING AND ALL TRAFFIC CONTROL DEVICES PERTINENT TO THE DETOUR, SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID ITEM FOR TRAFFIC CONTROL.

13.) COORDINATE THE SIGNS IN EACH SIGN ASSEMBLY ACCORDING TO LOCATION, ROUTE, DIRECTION, SIZE, AND COLOR.

SIGN PLACEMENT AND SPACING INTERVALS

SPEED LIMIT	a	b	c	d
35 mph OR LESS	50'	100'	200'	200'
40 mph TO 50 mph	75'	150'	350'	350'
55 mph OR GREATER	100'	200'	500'	500'

TYPICAL SIGNS

DETOUR AHEAD — W20-2-48-A

ROAD CLOSED AHEAD — W20-3-48-A

DETOUR — M4-9-30

DETOUR — M4-9L-30

DETOUR — M4-9.2L-30

DETOUR — M4-9R-30

DETOUR — M4-9.2R-30

DETOUR — M4-9.1L-30

DETOUR — M4-10L-48

DETOUR — M4-9.1R-30

DETOUR — M4-10R-48

ROAD CLOSED — R11-2-48

ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY — R11-3a-60-XX

ROAD CLOSED TO THRU TRAFFIC — R11-4-60

BRIDGE OUT XX MILES AHEAD LOCAL TRAFFIC ONLY — R11-3b-60-XX

LEGEND

TYPE III BARRICADE (6 FEET)

SINGLE POST SIGN ASSEMBLY

DUAL POSTS SIGN ASSEMBLY

THIS DRAWING IS NOT TO SCALE

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

1-30-2008

DATE

#	DATE	CHK	DESCRIPTION
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1			
0	8-30-07	JCS	DRAWING NO. UPDATE

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

DETOUR SIGNING FOR SECONDARY ROUTES

610-610-00

EFFECTIVE LETTING DATE: MAY 2008

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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1	5/23	SD	AB	NEW DETAIL PAGE
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

TEMPORARY TRAFFIC CONTROL DETAILS

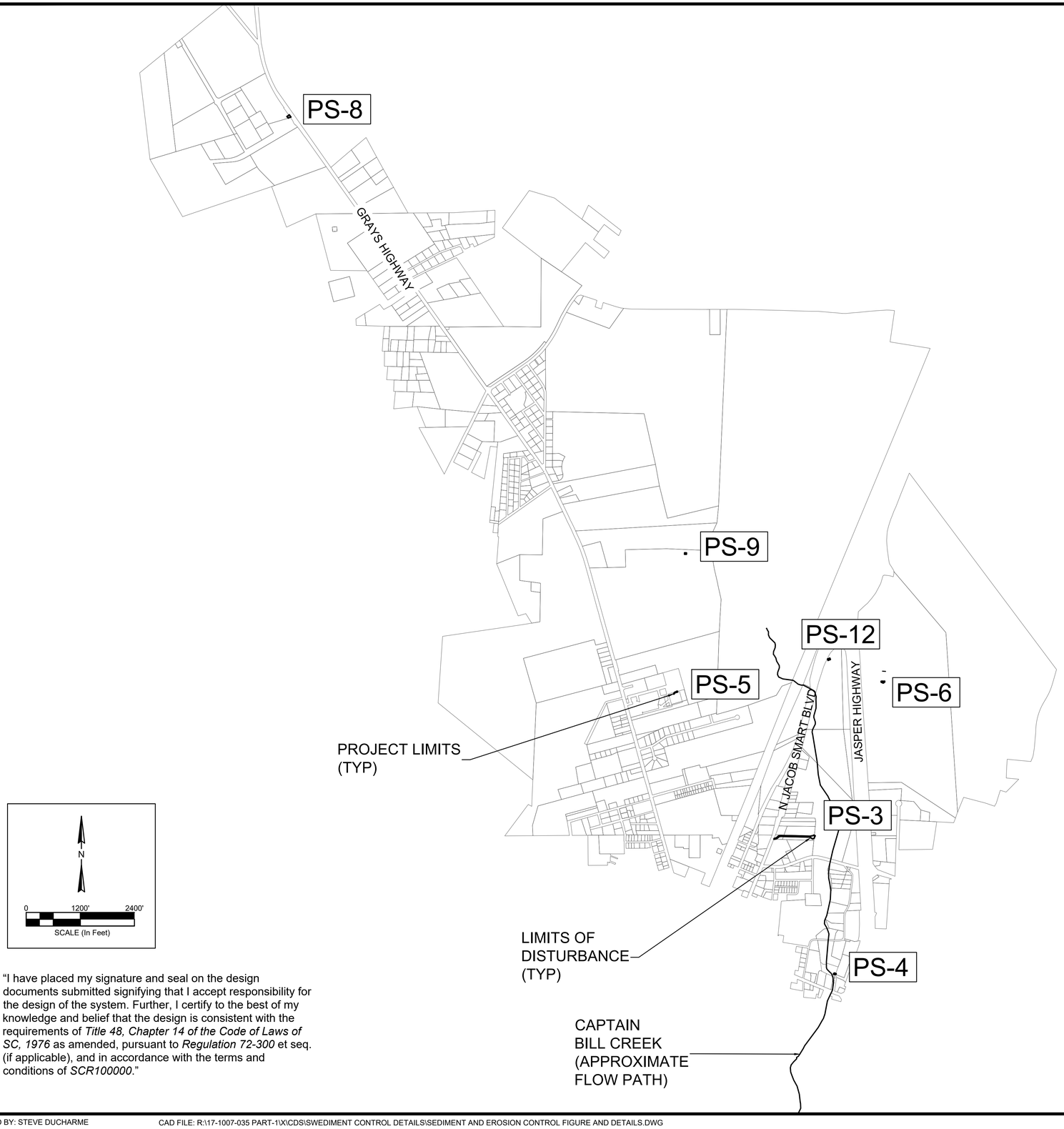
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER D8.8

1



PROJECT LIMIT AND LAND DISTURBANCE LIMITS

SCALE 1" = 1200'

SCDHEC SEDIMENT AND EROSION CONTROL STANDARD NOTES

1. IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
2. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.
   - WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
   - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY, OR INCORRECTLY, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.
7. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C REG. 72-300 ET SEQ. AND SCR100000.
8. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
9. ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.
10. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.
11. A COPY OF THE SWPPP, INSPECTIONS RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.
12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.
13. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.
14. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE;
15. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPS (SEDIMENT BASIN, FILTER BAG, ETC.).
16. THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:
   - WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
   - WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
   - FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
   - SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.
17. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.
18. IF EXISTING BMPS NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPS MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.
19. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

PLANNED SEQUENCE OF OPERATIONS:

1. CLEARING AND GRUBBING OF AREAS NECESSARY FOR INSTALLATION OF SILT FENCE AND INLET PROTECTION PER CONSTRUCTION PLANS
2. DEMOLITION OF EXISTING PUMP STATION STRUCTURES PER CONSTRUCTION PLANS
3. SITE GRADING PER CONSTRUCTION PLANS
4. INSTALLATION OF SEWER MAIN AND SEWER LATERALS PER CONSTRUCTION PLANS
5. REPAVEMENT OF ROADWAY SURFACE AS PER CONSTRUCTION PLANS
6. INSTALLATION OF PUMP STATION IMPROVEMENTS PER CONSTRUCTION PLANS
7. INSTALLATION OF HYDROSEEDING AND/OR SOD FOR PERMANENT STABILIZATION OF DISTURBED AREAS.
8. MAINTAIN GRASS SURFACE.
9. REMOVE TEMPORARY SEDIMENT CONTROL FEATURES ONCE FINAL STABALIZATION IS OBTAINED.

PROJECT LIMITS NOTES:

PROJECT LIMITS DETERMINED AS EXTENT OF LAND DISTURBANCE OR PUMP STATION BOUNDARY, WHICHEVER IS GREATER

PROJECT LIMIT AREAS:
APPROX 0.72 ACRES

LAND DISTURBANCE LIMITS BASED ON PROJECT IMPROVEMENTS AND CONSTRUCTION RELATED ITEMS

LAND DISTURBANCE AREAS:
APPROX 0.621 ACRES

"I have placed my signature and seal on the design documents submitted signifying that I accept responsibility for the design of the system. Further, I certify to the best of my knowledge and belief that the design is consistent with the requirements of *Title 48, Chapter 14 of the Code of Laws of SC, 1976* as amended, pursuant to *Regulation 72-300* et seq. (if applicable), and in accordance with the terms and conditions of *SCR100000*."

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA
FOUR WATERS ENGINEERING, INC.
No. 5166
CERTIFICATE OF AUTHORIZATION

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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

SCDHEC SEDIMENT AND EROSION CONTROL NOTES

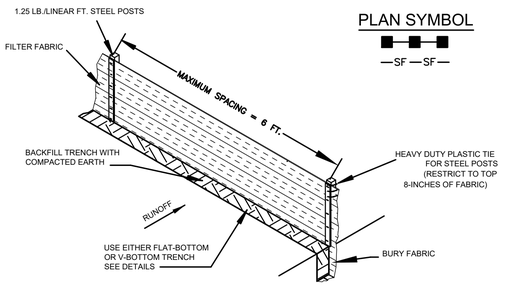
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	BID
DRAWN JMC			ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
EC8.1

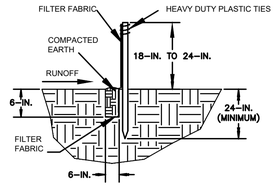
SILT FENCE INSTALLATION



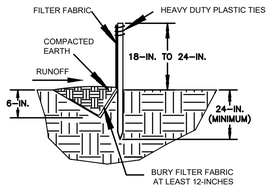
PLAN SYMBOL

—SF—SF—

FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL



SILT FENCE – GENERAL NOTES

1. Do not place silt fence across channels or in other areas subject to concentrated flows. Silt fence should not be used as a velocity control BMP. Concentrated flows are any flows greater than 0.5 cfs.
2. Maximum sheet or overland flow path length to the silt fence shall be 100-feet.
3. Maximum slope steepness (normal [perpendicular] to the fence line) shall be 2:1.
4. Silt fence joints, when necessary, shall be completed by one of the following options:
   - Wrap each fabric together at a support post with both ends fastened to the post, with a 1-foot minimum overlap;
   - Overlap silt fence by installing 3-feet passed the support post to which the new silt fence roll is attached. Attach old roll to new roll with heavy-duty plastic ties; or,
   - Overlap entire width of each silt fence roll from one support post to the next support post.
5. Attach filter fabric to the steel posts using heavy-duty plastic ties that are evenly spaced within the top 8-inches of the fabric.
6. Install the silt fence perpendicular to the direction of the stormwater flow and place the silt fence the proper distance from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.
7. Install Silt Fence Checks (Tie-Backs) every 50-100 feet, dependent on slope, along silt fence that is installed with slope and where concentrated flows are expected or are documented along the proposed/installed silt fence.

South Carolina Department of Health and Environmental Control

SILT FENCE

STANDARD DRAWING NO. SC–03 Page 1 of 2

NOT TO SCALE FEBRUARY 2014 DATE

SILT FENCE – POST REQUIREMENTS

Silt Fence posts must be 48-inch long steel posts that meet, at a minimum, the following physical characteristics.

- Composed of a high strength steel with a minimum yield strength of 50,000 psi.
- Include a standard "T" section with a nominal face width of 1.38-inches and a nominal "T" length of 1.48-inches.
- Weigh 1.25 pounds per foot (± 8%)

2. Posts shall be equipped with projections to aid in fastening of filter fabric.
3. Steel posts may need to have a metal soil stabilization plate welded near the bottom when installed along steep slopes or installed in loose soils. The plate should have a minimum cross section of 17-square inches and be composed of 15 gauge steel, at a minimum. The metal soil stabilization plate should be completely buried.
4. Install posts to a minimum of 24-inches. A minimum height of 1- to 2- inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.
5. Post spacing shall be at a maximum of 6-feet on center.

SILT FENCE – FABRIC REQUIREMENTS

1. Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
   - Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polyolefins, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
   - Free of any treatment or coating which might adversely alter its physical properties after installation;
   - Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
   - Have a minimum width of 36-inches.
2. Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.
3. 12-inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.
4. Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
5. Filter Fabric shall be installed at a minimum of 24-inches above the ground.

SILT FENCE – INSPECTION & MAINTENANCE

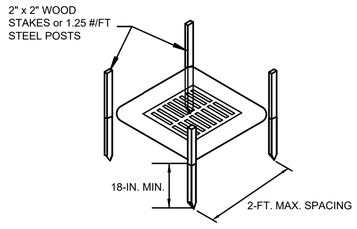
1. The key to functional silt fence is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the silt fence.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Check for areas where stormwater runoff has eroded a channel beneath the silt fence, or where the fence has sagged or collapsed due to runoff overtopping the silt fence. Install checks/tie-backs and/or reinstall silt fence, as necessary.
7. Check for tears within the silt fence, areas where silt fence has begun to decompose, and for any other circumstance that may render the silt fence ineffective. Removed damaged silt fence and reinstall new silt fence immediately.
8. Silt fence should be removed within 30 days after final stabilization is achieved and once it is removed, the resulting disturbed area shall be permanently stabilized.

South Carolina Department of Health and Environmental Control

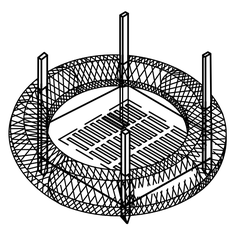
SILT FENCE

STANDARD DRAWING NO. SC–03 PAGE 2 of 2

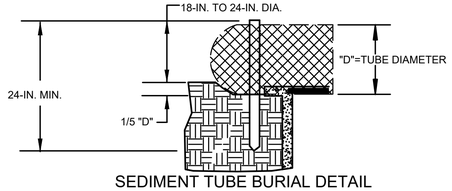
GENERAL NOTES FEBRUARY 2014 DATE



POST INSTALLATION DETAIL



SEDIMENT TUBE INSTALLATION DETAIL



SEDIMENT TUBE BURIAL DETAIL

PLAN SYMBOL

A

South Carolina Department of Health and Environmental Control

Type A

SEDIMENT TUBE INLET PROTECTION

STANDARD DRAWING NO. SC–07A PAGE 1 of 2

NOT TO SCALE FEBRUARY 2014 DATE

TYPE A – SEDIMENT TUBE INLET PROTECTION

GENERAL NOTES

1. Sediment tubes are elongated tubes of compacted geotextiles, curled excelsior wood, natural coconut fiber, or hardwood mulch. Straw, pine needle, and leaf mulch-filled sediment tubes are not permitted.
2. The outer netting of the sediment tube should consist of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable material.
3. Sediment tube diameters shall range from 18-inches to 24-inches. Sediment tunes with smaller diameters are prohibited when used as inlet protection.
4. Curled excelsior wood, or natural coconut products that are rolled up to create a sediment tube are not allowed.
5. Sediment tubes should be staked using wooden oak stakes (2-inch X 2-inch) or steel posts (standard "U" or "T" sections with a minimum weight of 1.25 pounds per foot) at a minimum of 48-inches in length placed on 2-foot centers.
6. Install all sediment tubes to ensure that no gaps exist between the soil and the bottom of the tube. Manufactuer's recommendations should always be consulted before installation.
7. The ends of adjacent sediment tubes should be overlapped 6-inches to prevent flow and sediment from passing through the field joint.
8. Sediment tubes should not be stacked on top of one another.
9. Each sediment tube should be installed in a trench with a depth equal to 1/5 the diameter of the sediment tube.
10. Install stakes at a diagonal facing incoming runoff.

INSPECTION & MAINTENANCE

1. The key to functional inlet protection is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of sediment tube inlet protection shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations in front of the sediment tube is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the sediment tube. When a sump is installed in front of the inlet protection, sediment shall be removed when if fills approximately 1/3 the depth of the sump.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Large debris, trash, and leaves should be removed from in front of tubes when found.
7. Inlet protection structures should be removed after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

South Carolina Department of Health and Environmental Control

Type A

SEDIMENT TUBE INLET PROTECTION

STANDARD DRAWING NO. SC–07A PAGE 2 of 2

NOT TO SCALE FEBRUARY 2014 DATE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I

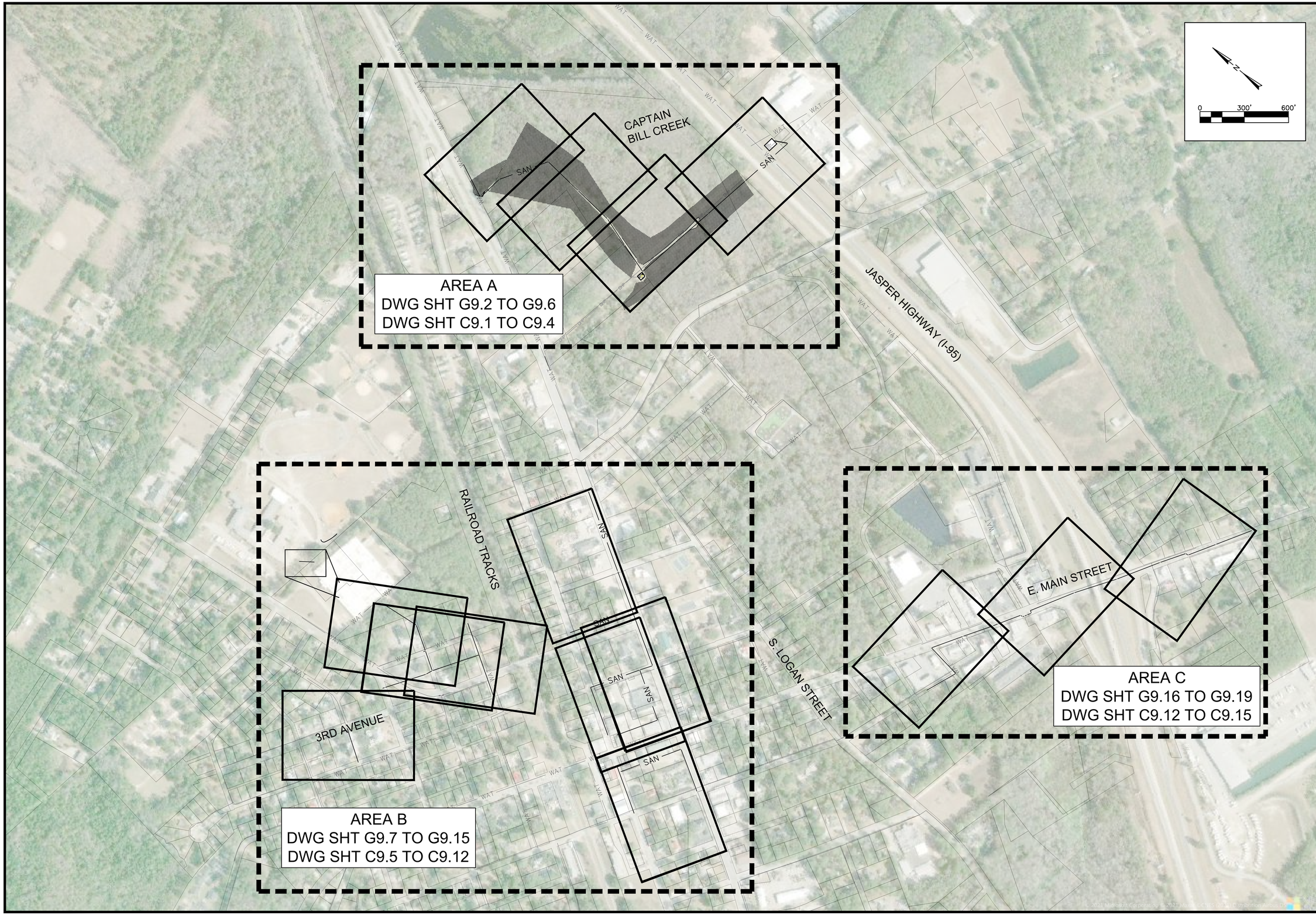
SEDIMENT AND EROSION CONTROL DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	
ABB	JMC	17-1007	FEB 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
EC8.2



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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2
EXISTING CONDITIONS AND PROPOSED IMPROVEMENTS MASTER KEY MAP

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
	JOB # 17-1007	ISSUE DATE APRIL 2023	BID
			ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G9.0

LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-2\X\CDS\RIDGELAND EDA PART 2 EC.DWG
PLOT DATE AND TIME: 6/1/2023 7:30:31 PM

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL CONFORM TO THE PROJECT SPECIFICATIONS AND CONTRACT DOCUMENTS.

2. THE CONTRACTOR SHALL PROTECT ALL BENCH MARKS AND MONUMENTS FROM DAMAGE AND SHALL ESTABLISH OFFSET POINTS AS REQUIRED FOR THIS WORK. THE CONTRACTOR IS RESPONSIBLE FOR THE LAYOUT OF ALL SCHEDULED IMPROVEMENTS AS SHOWN ON THE CONTRACT DRAWINGS.

3. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION ACTIVITIES AND NOTIFYING THE TOWN ENGINEER OF POTENTIAL CONFLICTS. THE CONTRACTOR SHALL CONTACT THE LOCAL UTILITY MARK-OUT SERVICE PROVIDER PRIOR TO COMMENCING WORK.

4. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE AND PROTECT ANY EXISTING ABOVEGROUND AND UNDERGROUND UTILITIES, CONDUITS, STRUCTURES, EQUIPMENT, FOUNDATIONS, PIPE, ETC. AS NECESSARY TO COMPLETE THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE OWNER'S OF THE UTILITY 72 HOURS PRIOR TO STARTING WORK AND SHALL BEAR ALL COSTS ASSOCIATED WITH SAME. VARIOUS UTILITIES MAY NEED TO BE RESET BY THE AFFECTED UTILITY COMPANY. THE CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF THE UTILITY COMPANY TO AVOID DELAYS. NO EXTENSION OF TIME WILL BE PROVIDE DUE TO THE LACK OF COORDINATION BY THE CONTRACTOR. THE CONTRACTOR SHALL PERFORM TEST PITS WHERE EXISTING UTILITIES ARE TO BE CROSSED. TEST PIT INFORMATION SHALL BE GIVEN TO THE TOWN ENGINEER PRIOR TO CONSTRUCTION TO PERMIT ADJUSTMENTS AS MAY BE REQUIRED TO AVOID CONFLICTS.

5. THE CONTRACTOR SHALL BE RESPONSIBLE TO CONSTRUCT ALL IMPROVEMENTS WITHIN SCDOT AND TOWN R.O.W.'S AND EASEMENTS. ALL SURVEY LAYOUT VERIFYING THE EXACT LOCATION OF THE R.O.W.'S SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. ALL COSTS FOR SAME SHALL BE INCLUDED WITHIN THE VARIOUS BID ITEMS.

6. THE CONTRACTOR SHALL TAKE CARE IN MAINTAINING ALL LANDSCAPING AND YARD STRUCTURES WITHIN THE CONSTRUCTION LIMITS. WHEN RELOCATION IS NECESSARY OR WHERE ANY DAMAGE IS DONE TO SAID ITEMS THEY SHALL BE RESTORED BY THE CONTRACTOR, AT HIS EXPENSE, TO THE SATISFACTION OF THE TOWN ENGINEER.

7. ANY CONCRETE STRUCTURE, DRIVEWAY, WALKWAY, OR CURB WHICH IS NOT SHOWN, DIRECTED, OR MARKED OUT BY THE ENGINEER TO BE REPLACED, BUT IS REMOVED, MISALIGNED OR DAMAGED AS A RESULT OF THE CONTRACTOR'S CONSTRUCTION SHALL BE REPLACED BY THE CONTRACTOR PER SCDOT STANDARDS AT NO ADDITIONAL COSTS TO THE TOWN.

8. THE CONTRACTOR SHALL ENSURE THAT POSITIVE DRAINAGE AWAY FROM RESIDENCES AND ALONG ROAD GUTTERS IS MAINTAINED AT ALL LOCATIONS DISTURBED WITH IN THE PROJECT LIMITS.

9. IF IT SHALL BECOME ABSOLUTELY NECESSARY TO PERFORM WORK AT NIGHT, THE TOWN ENGINEER SHALL BE INFORMED IN ADVANCE AND APPROVAL PROVIDED. GOOD LIGHTING AND ALL OTHER NECESSARY FACILITIES FOR PROPERLY CARRYING OUT AND INSPECTING THE WORK SHALL BE PROVIDED BY THE CONTRACTOR. THE CONTRACTOR SHALL ALSO COMPLY WITH ALL STATE AND LOCAL REGULATIONS GOVERNING HOURS DURING WHICH CONSTRUCTION EQUIPMENT MAY BE OPERATED.

10. OPEN TRENCHES SHALL BE KEPT TO A MINIMUM. NO EXCAVATION AREAS ARE TO REMAIN OPEN OVERNIGHT. BITUMINOUS STABILIZED BASE COURSE SHALL BE PLACED IN ALL TRENCH AREAS WITHIN THE ROADWAY AT THE END OF EACH DAYS WORK.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DISPOSAL OF ALL MATERIALS EXCAVATED OF WHATEVER NATURE AT HIS OWN EXPENSE. THE TOWN IS NOT OBLIGATED TO SUPPLY A DISPOSAL SITE. THE CONTRACTOR CAN NOT DEPOSIT ANY OF THE EXCESS MATERIALS WITHIN TOWN LIMITS WITHOUT THE EXPRESS PERMISSION OF THE TOWN ENGINEER. MATERIALS MUST BE DISPOSED OF IN ACCORDANCE WITH ALL STATE REGULATIONS REGARDING SAME.

12. ALL STRUCTURES SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND DETAILS.

13. PROTECTION OF EXISTING TREES WITHIN THE LIMITS OF DISTURBANCE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE TOWN ENGINEER SHALL DETERMINE IN THE FIELD WHICH TREES REQUIRE TREE PROTECTION. NO CONSTRUCTION EQUIPMENT OR SUPPLIES SHALL BE STOCKPILED OR STORED WITHIN THE DRIP LINE OF ANY EXISTING TREE TO REMAIN.

14. ALL PROPERTY CORNERS OR MONUMENTS REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED BY A SOUTH CAROLINA LICENSED LAND SURVEYOR, AT NO ADDITIONAL COST TO THE TOWN.

15. THE CONTRACTOR SHALL TAKE ALL NECESSARY MEASURES TO MAINTAIN DUST CONTROL AS REQUIRED PER THE EROSION AND SEDIMENTATION DOCUMENTATION AND NPDES PERMIT FOR THE PROJECT. ALL VEHICLES SHALL BE CLEAN AND ALL ROADWAYS SHALL BE MAINTAINED AS DIRECTED BY THE TOWN ENGINEER AND SCDOT.

16. ALL PAVEMENT MARKINGS AND SIGNS SHALL CONFORM TO THE SCDOT STANDARDS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL EXISTING PAVEMENT MARKINGS. CONTRACTOR SHALL NOTIFY TOWN ENGINEER AND SCDOT WHEN TRAFFIC STRIPES AND PAVEMENT MARKINGS HAVE BEEN LAID OUT PRIOR TO PAINTING. SCDOT WILL INSPECT AND APPROVE LAYOUT PRIOR TO CONTRACTOR PAINTING TRAFFIC STRIPES AND PAVEMENT MARKINGS.

17. THE CONTRACTOR SHALL PERFORM ONLY THE AMOUNT OF WORK WHICH CAN BE COMPLETED THE SAME DAY. THE ENTIRE ROADWAY SHALL BE OPENED TO TRAFFIC AFTER WORK HOURS UNLESS APPROVED BY TOWN AND SCDOT. SCDOT TEMPORARY PAVEMENT OR APPROVED SURFACE SHALL BE PLACED IN CONSTRUCTION AREAS TO PROVIDE A SMOOTH, SAFE SURFACE FOR VEHICULAR TRAFFIC. THE COST FOR TEMPORARY PAVEMENT SHALL BE INCLUDED IN UNIT PRICE BID FOR VARIOUS CONSTRUCTION ITEMS.

18. THE CONTRACTOR IS RESPONSIBLE FOR THE CONSTRUCTION STAKEOUT. OFFSET LINES WITH STAKES SHALL BE SET AT APPROPRIATE INTERVALS TO FACILITATE CONSTRUCTION. CUT SHEETS SHALL BE SUBMITTED FOR APPROVAL TO THE TOWN ENGINEER AND TO THE WORK CREWS AT LEAST 5 DAYS PRIOR TO CONSTRUCTION.

19. ALL EXISTING STRUCTURES AND ALL UNDERGROUND STRUCTURES ARE TO BE REMOVED IN ACCORDANCE WITH STATE REGULATIONS.

20. THE CONTRACTOR SHALL NOTIFY THE TOWN ENGINEER IMMEDIATELY IF ANY FIELD CONDITIONS ENCOUNTERED DIFFER FROM THOSE SHOWN HEREIN.

21. WORK WITHIN SCDOT ROW SHALL BE CONDUCTED IN COMPLIANCE WITH ALL APPLICABLE REQUIREMENTS OF THE NPDES PERMIT(S) ISSUED TO SCDOT TO GOVERN THE DISCHARGE OF STORM WATER AND NON-STORM STORM WATER FROM ITS PROPERTIES AND PER THE NPDES PERMIT FOR THE PROJECT

22. THESE GENERAL NOTES SHALL APPLY FOR THE ENTIRE PROJECT.

SPECIAL NOTE:

*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #7 BELOW

LEGEND:

25	CONTOUR
+25.3	SPOT ELEVATION
SSMH	SANITARY SEWER MANHOLE
IE	INVERT ELEVATION
PP	POWER POLE
N.T.S.	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
A&AS	TYPICAL WETLAND FLAG LABEL
PVC	POLYVINYL CHLORIDE PIPE
WV	WATER VALVE
EM	ELECTRIC METER
ANT	ANTENNA
GW	GUY WIRE ANCHOR
CO	CLEANOUT
OHP	OVERHEAD POWERLINE
SS	SANITARY SEWER LINE
	WETLAND LINE

SURVEY NOTES:
THE FOLLOWING INFORMATION APPLIES TO DRAWINGS G9.2-G9.6 AND C9.1-C9.4

1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
2. UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN AND ARE APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE EXACT LOCATION OF ANY UNDERGROUND UTILITY.
3. THE WETLAND LINES SHOWN ARE FIELD LOCATIONS OF FLAGS RECENTLY SET BY NEWKIRK ENVIRONMENTAL (SEE REFERENCE PLAT #1) AND ARE SHOWN FOR INFORMATION PURPOSES ONLY. THIS SHOULD NOT BE CONSTRUED AS A CERTIFIED WETLAND SURVEY
4. SURVEYING CONSULTANTS CERTIFIES TO THE TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS OF THE DATE OF SURVEY. IF THIS DOCUMENT IS TO BE PROVIDED AS A BASE MAP FOR OTHERS, INFORMATION ADDED AFTER THE DATE OF THIS SURVEY IS NOT THE RESPONSIBILITY OF SURVEYING CONSULTANTS.
5. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, THEREFORE THERE MAY BE OTHER EASEMENTS, RIGHT-OF-WAY, SETBACK LINES, AGREEMENTS, RESERVATIONS, RESTRICTIONS, OR OTHER SIMILAR MATTERS OF PUBLIC RECORD, NOT DEPICTED ON THIS SURVEY.
6. NO BOUNDARY LINES AND/OR ROAD RIGHT-OF-WAY LINES WERE NOT ESTABLISHED AS A PART OF THIS SURVEY. THE APPROXIMATE BOUNDARY LINES SHOWN WERE SCALED FROM THE JASPER COUNTY ONLINE GIS MAPPING SERVICE AND WERE NOT FIELD VERIFIED. THIS PLAT SHOULD IN NO WAY BE CONSTRUED AS A BOUNDARY SURVEY.
7. THE HORIZONTAL DATUM SHOWN IS BASED ON NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES. THE VERTICAL DATUM SHOWN IS BASED ON NAVD 88 DATUM. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

REFERENCE PLAT:

1) WETLAND RESOURCE MAP, PS3 SEWER PROJECT, PROJECT # 04-4584q, JASPER COUNTY, SOUTH CAROLINA, DATED: 08/29/2021, BY: NEWKIRK ENVIRONMENTAL INC.

2) PLAT OF A PARCEL OF LAND MADE FOR THREE STAR DEVELOPMENT COMPANY, NOW OR FORMERLY SYDNEY N. BROWN, FORMERLY ADA THOMAS, LOCATED NEAR THE TOWN OF RIDGELAND, CONTAINING 41.5 ACRES, DATED: 1973 & 1974, BY: D.W. PRICE, S.C.R.L.S. NO. 3217 RECORDED: P.B. 13, PG. 111, 07/16/1974.

SCALE: 1" = 30' DATE: 09/08/2021 JOB NO: SC210030-PS3

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 525-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com

CREW: CAD: JH/AW AP

NOTES FOR MAINTENANCE AND PROTECTION OF TRAFFIC:

1. ALL DEVICES AND PROCEDURES FOR THE MAINTENANCE AND PROTECTION OF TRAFFIC SHALL BE IN ACCORDANCE WITH THE SCDOT. THE CONTRACTOR SHALL PLAN AND CARRY OUT HIS WORK TO PROVIDE FOR THE CONVENIENT AND SAFE PASSAGE OF ALL VEHICULAR AND PEDESTRIAN TRAFFIC ON ADJACENT STREETS.
2. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING MAINTENANCE AND PROTECTION OF TRAFFIC THROUGH THE DURATION OF CONSTRUCTION. NO SEPARATE PAYMENTS WILL BE MADE FOR RELOCATING THE DEVICES AS REQUIRED, OR AS DIRECTED BY THE TOWN ENGINEER, DURING THE COURSE OF CONSTRUCTION.
3. DURING CONSTRUCTION, ALL ROADS SHALL BE PROPERLY MAINTAINED TO ACCOMMODATE EMERGENCY VEHICLES AT ALL TIMES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE LOCAL AND STATE POLICE DEPARTMENTS FOR TRAFFIC OPERATIONS AND PARKING PROHIBITIONS DURING CONSTRUCTION.
5. THE CONTRACTOR SHALL COORDINATE ANY TEMPORARY DETOURS NECESSARY WITH THE POLICE, TOWN ENGINEER AND/OR FIRE DEPARTMENTS PRIOR TO CONSTRUCTION. ALL EMERGENCY VEHICLES MUST HAVE ACCESS TO STREETS AT ALL TIMES AND ALL RESIDENTS MUST HAVE ACCESS TO THEIR HOMES AT ALL TIMES. THE CONTRACTOR IS RESPONSIBLE FOR RESTORING THE ROADWAY TO A SAFE CONDITION AT THE END OF EACH DAY'S WORK PER SCDOT STANDARDS.
6. ALL TRAFFIC CONTROL SIGNS AND STRIPING SHALL BE INSTALLED IN ACCORDANCE WITH THE SCDOT. EXACT LOCATION OF STREET SIGNS SHALL BE DETERMINED BY SCDOT SPECIFICATIONS.

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

GENERAL NOTES

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA A EXISTING CONDITIONS AND PROPOSED IMPROVEMENTS KEY MAP

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	APRIL 2023
		ISSUE	BID

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LEGEND: DESCRIPTION

- (S) – DENOTES EXISTING MANHOLE
- SAN – DENOTES EXISTING SANITARY SEWER PIPE
- WAT – DENOTES EXISTING WATER MAIN
- – DENOTES EXISTING LATERAL CONNECTION
- – DENOTES EXISTING MAJOR SANITARY DEFECT
- – DENOTES EXISTING MINOR SANITARY DEFECT
- – DENOTES WETLAND LINE
- – DENOTES WETLAND

N

0 30' 60'

AREA A KEY MAP

CAPTAIN BILL CREEK

N. JACOB SMART BLVD (US 17)

EXIST MH-127
N:239377.9444
E:2007526.7757
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:6.50'
N. IN: 6" PVC
W. IN: 8"
S. OUT: 10" VCP

10277
17.55
IE 6" PVC

10275
22.79
SSMH

IE 8"PVC=17.55'

10276
16.30
IE 10" PVC

SSMH #127
TOP=22.79'
IE 8"VCP=16.30'

062-22-03-001

EXISTING CRACK 2.0 LF FROM MH-127 TO MH-128

8" WATER MAIN
MATERIAL UNKNOWN

EXISTING INFIL STAIN 19.9 LF FROM MH-127 TO MH-128

EXISTING INFIL STAIN 50.6 LF FROM MH-127 TO MH-128

EXISTING INFIL STAIN 80.9 LF FROM MH-127 TO MH-128

253 LF OF 10" VCP

EXISTING INFIL STAIN 5.0 LF FROM MH-128 TO MH-129

EXISTING 25% WATER LEVEL SAG 32.9 LF FROM MH-128 TO MH-129

EXISTING 25% WATER LEVEL SAG 45.6 LF FROM MH-128 TO MH-129

176 LF OF 10" VCP

EXISTING 25% WATER LEVEL SAG 114.3 LF FROM MH-128 TO MH-129

EXISTING INFIL STAIN 135.8 LF FROM MH-128 TO MH-129

EXISTING 25% WATER LEVEL SAG 137.3 LF FROM MH-128 TO MH-129

EXISTING FRACTURE 175.7 LF FROM MH-128 TO MH-129

CONTROL POINT - NAIL IN DISC
ELEV=25.51' (88 DATUM)

WETLANDS
(REF. FLAT #1 - SEE NOTE #3)

END OF WETLAND FLAGS

4984
25.51
TPN

10192
23.74
SSMH

10190
15.54
IE 8" PVC

10191
15.51
IE 8" PVC

10189
15.53
IE 8" PVC

SSMH #128
TOP=23.71'
IE 8"VCP FLOWLINE=15.51'

HIGHGROUND

EXIST MH-128
N:239133.1812
E:2007462.9049
48"Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:8.20'
S. IN: 8"
N. IN:10" VCP
E. OUT: 10" VCP

EXISTING 25% WATER LEVEL SAG 92.8 LF FROM MH-128 TO MH-129

EXISTING 25% WATER LEVEL SAG 103.3 LF FROM MH-128 TO MH-129

EXISTING 25% WATER LEVEL SAG 16.6 LF FROM MH-129 TO MH-130

063-30-01-001

EXISTING 25% WATER LEVEL SAG 32.3 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 50.1 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 66.7 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 72.7 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 83.0 LF FROM MH-129 TO MH-130

063-27-13-001

APPROXIMATE PARCEL LINES (TYP.)
PER JASPER COUNTY GIS MAPS

SSMH #129
TOP=23.50'
IE 8"VCP FLOWLINE=14.66'

10177
14.70
IE 8" PVC

4985
20.57
TPN

10178
23.50
SSMH

10176
14.66
IE 8" PVC

EXIST MH-129
N:239139.5030
E:2007638.6961
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:8.84'
W. IN: 10" VCP
E. OUT: 10" VCP

353 LF OF 10" VCP

EXISTING 25% WATER LEVEL 25% SAG 127.6 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL 25% SAG 152.4 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL 25% SAG 161.3 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 168.5 LF FROM MH-129 TO MH-130

EXISTING INFIL STAIN 180.3 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 187.4 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 202.7 LF FROM MH-129 TO MH-130

063-30-01-001

EXISTING 25% WATER LEVEL SAG 230.8 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 255.5 LF FROM MH-129 TO MH-130

CONTROL POINT - NAIL IN DISC
ELEV=19.7' (88 DATUM)

10162
13.15
IE 8" PVC

4986
19.66
TPN

10164
13.15
SSMH

10163
13.15
IE 8" PVC

SSMH #130
TOP=22.59'
IE 8" VCP FLOWLINE=13.75'

EXISTING INFIL STAIN 265.9 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 280.9 LF FROM MH-129 TO MH-130

EXISTING INFIL STAIN 286.3 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 307.5 LF FROM MH-129 TO MH-130

EXISTING 25% WATER LEVEL SAG 344.2 LF FROM MH-129 TO MH-130

EXIST MH-130
N:239007.5519
E:2007965.9519
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:9.50'
W. IN: 10" VCP
S. OUT: 10" VCP

CONTINUES ON SHEET G9.4

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LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA A EXISTING CONDITONS
CAPTAIN BILL CREEK

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID

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CONTINUES ON SHEET G9.3

(SEE NOTE #6)

LINES (TYP.)
GIS MAPS

SSMH #130
TOP=22.59'
IE 8" VCP FLOWLINE=13.75'

EXIST MH-130
N:239007.5519
E:2007965.9519
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:9.50'
W. IN: 10" VCP
S. OUT: 10" VCP

EXISTING FRACTURE 2.0 LF FROM MH-130 TO MH-121A

EXISTING INFIL STAIN 5.0 LF FROM MH-130 TO MH-121A

EXISTING 25% WATER LEVEL SAG 6.1 LF FROM MH-130 TO MH-121A

EXISTING INFIL STAIN 9.9 LF FROM MH-130 TO MH-121A

EXISTING INFIL STAIN 14.9 LF FROM MH-130 TO MH-121A

EXISTING 25% WATER LEVEL SAG 17.5 LF FROM MH-130 TO MH-121A

EXISTING INFIL STAIN 29.9 LF FROM MH-130 TO MH-121A

281 LF OF 10" VCP

EXISTING JOINT SEPARATED AND INFIL STAIN 196.8 LF FROM MH-130 TO MH-121A

EXISTING CRACK 226.8 LF FROM MH-130 TO MH-121A

WETLAND LINE (TYP.)

EXIST MH-121A
N:238727.4424
E:2007986.8787
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:11.30'
N. IN: 10" VCP
S. OUT: 10" VCP

SSMH #121A
TOP=23.14'
IE 8" VCP
FLOWLINE=11.88'

SSMH
TOP=23.14'

EXISTING FRACTURE 1.0 LF FROM MH-121A TO MH-121

EXISTING INFIL STAIN 35.1 LF FROM MH-121A TO MH-121

EXISTING 25% WATER LEVEL SAG 42.8 LF FROM MH-121A TO MH-121

EXISTING 25% WATER LEVEL SAG 63.8 LF FROM MH-121A TO MH-121

EXISTING 25% WATER LEVEL SAG 75.9 LF FROM MH-121A TO MH-121

277 LF OF 10" VCP

EXISTING INFIL STAIN 151.5 LF FROM MH-121A TO MH-121

EXISTING INFIL STAIN AND 25% WATER LEVEL SAG 181.5 LF FROM MH-121A TO MH-121

EXISTING INFIL STAIN AND 25% WATER LEVEL SAG 191.9 LF FROM MH-121A TO MH-121

EXISTING INFIL STAIN 197.1 LF FROM MH-121A TO MH-121

EXISTING CRACK 247.2 LF FROM MH-121A TO MH-121

EXISTING INFIL STAIN 262.7 LF FROM MH-121A TO MH-121

EXISTING GREASE DEPOSIT 266.9 LF FROM MH-121A TO MH-121

EXISTING INFIL STAIN 272.8 LF FROM MH-121A TO MH-121

EXISTING GREASE DEPOSIT 272.3 LF FROM MH-121A TO MH-121

EXISTING CRACK 277.3 LF FROM MH-121A TO MH-121

SSMH
TOP=23.75'
IE 8" VCP FLOWLINE=10.82'

APPROXIMATE PARCEL LINES (TYP.)
PER JASPER COUNTY GIS MAPS
(SEE NOTE #6)

EXIST MH-121
N:238452.2372
E:2008007.4962
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:13.00'
N. IN: 10" VCP
W.IN:8"
S. OUT: 10" VCP

SSMH
TOP=23.66'
IE 8" VCP=11.51'

CAPTAIN BILL CREEK

063-27-13-019

063-27-13-007

063-30-01-001

CONTINUES ON SHEET G9.5

AREA A KEY MAP

0 30' 60'

LEGEND: DESCRIPTION

- Ⓢ – DENOTES EXISTING MANHOLE
- SAN – DENOTES EXISTING SANITARY SEWER PIPE
- WAT – DENOTES EXISTING WATER MAIN
- DENOTES EXISTING LATERAL CONNECTION
- DENOTES EXISTING MAJOR SANITARY DEFECT
- ⊗ – DENOTES EXISTING MINOR SANITARY DEFECT
- DENOTES WETLAND LINE
- DENOTES WETLAND

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA A EXISTING CONDITONS
CAPTAIN BILL CREEK

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

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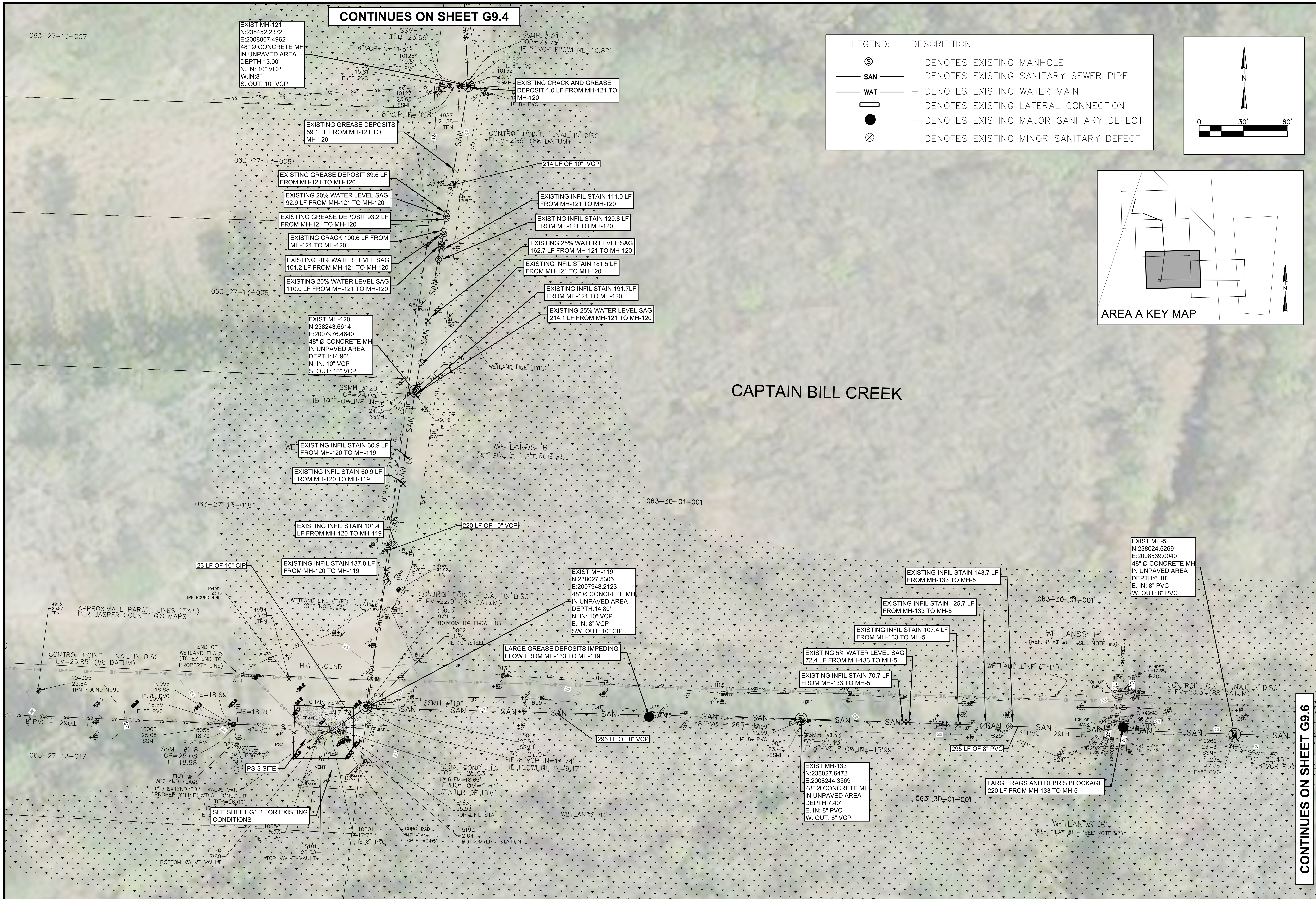

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA A EXISTING CONDITONS CAPTAIN BILL CREEK

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	APRIL 2023	BID

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LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-2\X\CDS\RIDGELAND EDA PART 2 EC.DWG
PLOT DATE AND TIME: 6/1/2023 7:30:55 PM

LEGEND: DESCRIPTION

- (S) – DENOTES EXISTING MANHOLE
- SAN – DENOTES EXISTING SANITARY SEWER PIPE
- WAT – DENOTES EXISTING WATER MAIN
- – DENOTES EXISTING LATERAL CONNECTION
- ● – DENOTES EXISTING MAJOR SANITARY DEFECT
- ⊗ – DENOTES EXISTING MINOR SANITARY DEFECT

AREA A KEY MAP

N

0 30' 60'

CONTINUES ON SHEET G9.5

EXIST MH-5
N:238024.5269
E:2008539.0040
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:6.10'
E. IN: 8" PVC
W. OUT: 8" PVC

8 LF OF 8" PVC

MATERIAL CHANGE FROM VCP TO PVC 327.3 LF FROM MH-4 TO MH-5

EXISTING JOINT OFFSET LARGE 327.3 LF FROM MH-4 TO MH-5

EXISTING FRACTURE AND INFIL STAIN 322.3 LF FROM MH-4 TO MH-5

EXISTING CRACK AND INFIL STAIN 157.6 LF FROM MH-4 TO MH-5

EXISTING CRACK AND INFIL WEEPER 198.6 LF FROM MH-4 TO MH-5

APPROXIMATE PARCEL LINES (TYP.) PER JASPER COUNTY GIS MAPS

EXISTING INFIL STAIN 39.7 LF FROM MH-4 TO MH-5

EXISTING INFIL RUNNER 82.5 LF FROM MH-4 TO MH-5

063-30-01-002

CONTROL POINT - NAIL IN DISC
ELEV=23.3' (88' DATUM)

48"HDPE IE=17.35' Ø20'

40"HDPE IE=17.48'

10259 25.45 SSMH 10.38 17.38 IE=8" PVC

SSMH #5
TOP=23.45'
IE 8" VCP FLOWLINE=17.38'

6" VCP - 324.1 LF

327.2 LF OF 8" VCP

IE 8"PVC=18.71'

SSMH #4
TOP=29.62'
10252 29.62 SSMH
10255 18.71 IE 10" PVC
10254 24.74 IE 8" PVC

EXIST MH-4
N:238022.7486
E:2008874.1643
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:10.90'
E. IN: 8" PVC
W. OUT: 8" PVC
WITH OUTSIDE DROP PIPE
(EAST SIDE)

4 LF OF 8" VCP WITH DROP DOWN PIPE OUTSIDE MH-4

IE 8"PVC=24.74'

EDGE OF PAVEMENT

EXISTING 25% WATER LEVEL SAG 371.7 LF FROM MH-123 TO MH-4

EXISTING 25% WATER LEVEL SAG 378.5 LF FROM MH-123 TO MH-4

MATERIAL CHANGE FROM PVC TO VCP 382.1 LF FROM MH-123 TO MH-4

EXISTING TAP FACTORY 383.3 LF FROM MH-123 TO MH-4 (DROP CONNECTION)

382.0 LF OF 8" PVC

JASPER HIGHWAY (I-95)

6" WATER MAIN MATERIAL UNKNOWN

6" WATER MAIN MATERIAL UNKNOWN

EXIST MH-123
N:238020.8263
E:2009259.7857
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:17.00'
N IN: 6" FM (WITH INSIDE DROP)
E. IN: 8" PVC
W. OUT: 8" PVC

EXISTING 25% WATER LEVEL SAG 14.3 LF FROM MH-123 TO MH-4

EXISTING 25% WATER LEVEL SAG 0.0 LF FROM MH-123 TO MH-4

24991 43.60 TIE TPN 4991
4991 43.52 TPN

063-30-03-014

10268 36.52 IE 10" PVC IE 8"PVC=26.99'

10269 43.54 SSMH
10267 26.99 IE

FORCEMAIN (PER PLANS PROVIDED, IE NOT FOUND)

SSMH #123
TOP=43.54'
8"PVC IN=36.52'
(OPPOSITE SIDE OF I-95)

063-30-03-011

CAPTAIN BILL CREEK

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA A EXISTING CONDITIONS
CAPTAIN BILL CREEK TO JASPER HIGHWAY

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007	ISSUE DATE	APRIL 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDTIONS AND PROPOSED IMPROVEMENTS KEY MAP

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID

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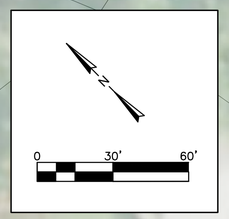
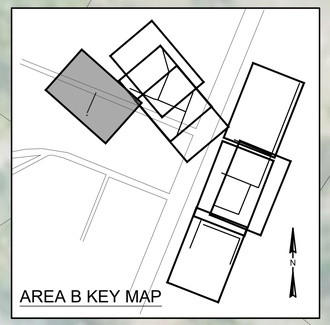
LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-2\X\CDS\RIDGELAND EDA PART 2 EC.DWG
PLOT DATE AND TIME: 6/1/2023 7:31:05 PM





LEGEND:	DESCRIPTION
Ⓢ	– DENOTES EXISTING MANHOLE
SAN	– DENOTES EXISTING SANITARY SEWER PIPE
WAT	– DENOTES EXISTING WATER MAIN
▭	– DENOTES EXISTING LATERAL CONNECTION
●	– DENOTES EXISTING MAJOR SANITARY DEFECT
⊗	– DENOTES EXISTING MINOR SANITARY DEFECT

EXIST MH-161
N:237055.0500
E:2004399.4381
48" Ø CONCRETE MH
IN ROADWAY (BRICK PAVERS)
DEPTH:5.80'
SW OUT: 8" PVC
NE IN: 8" PVC
NW IN: 6" PVC
SW. IN: 8" PVC

EXISTING 20% WATER LEVEL SAG
2.0 LF FROM MH-161 TO MH 149

6" WATER MAIN
MATERIAL UNKNOWN

EXISTING 20% WATER LEVEL
SAG 15.8 LF FROM MH-161 TO MH
149

EXISTING TAP FACTORY
LOCATED 57.0 LF FROM MH-161
TO MH-149

231.7 LF OF 8" PVC

EXISTING TAP BREAK-IN
LOCATED 67.4 LF FROM MH-161
TO MH-149

EXISTING 25% WATER LEVEL SAG
100.4 LF FROM MH -161 TO MH-149

EXISTING 35% WATER LEVEL SAG
144.9 LF FROM MH -161 TO MH-149

4" WATER MAIN
MATERIAL UNKNOWN

EXISTING 35% WATER LEVEL
SAG 231.7 LF FROM MH-161
TO MH 149

EXIST MH-149
N:236827.8219
E:2004299.7731
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:7.80'
NE IN: 8" PVC
NW IN: 8" CLAY
SE. OUT: 8" CLAY

6" WATER MAIN
MATERIAL UNKNOWN

JASPER STREET (S-63)
OWENS STREET (S-78)
RUSSELL STREET (SC-366)
3RD AVENUE (S-64)
2ND AVENUE (S-74)
3RD AVENUE (S

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDTIONS
3RD AVENUE TO 2ND AVENUE

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

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GRETSCH BUILDING

SEE INSET A THIS SHEET FOR NORTH WEST PIPE

8" WATER MAIN MATERIAL UNKNOWN

EXIST MH-79
N:237526.0182
E:2005138.3914
48" Ø BRICK MH
IN PAVED AREA
DEPTH:3.30'
N. IN: 8" VCP
S. OUT: 8" VCP

EXISTING FRACTURE AND CRACK 1.0 LF FROM MH-79 TO MH-256

EXISTING FRACTURE AND ROOTS (FINE) VISIBLE 10.6 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 26.7 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 31.4 LF FROM MH-79 TO MH-256

EXISTING FRACTURE AND ROOTS (TAP) VISIBLE 36.5 LF FROM MH-79 TO MH-256

EXISTING ROOTS VISIBLE (FINE) 41.7 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 46.9 LF FROM MH-79 TO MH-256

EXISTING CRACK 52.9 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 88.7 LF FROM MH-79 TO MH-256

EXISTING FRACTURE AND ROOTS (TAP) VISIBLE 93.6 LF FROM MH-79 TO MH-256

EXISTING FRACTURE AND ROOTS (TAP-2) VISIBLE 109.4 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 115.2 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 119.9 LF FROM MH-79 TO MH-256

EXISTING FRACTURE AND ROOTS (TAP) VISIBLE 124.9 LF FROM MH-79 TO MH-256

274 LF OF 8" VCP

EXISTING FRACTURE 140.5 LF FROM MH-79 TO MH-256

EXISTING 25% WATER LEVEL SAG 140.9 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 151.2 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 156.3 LF FROM MH-79 TO MH-256

EXISTING 25% WATER LEVEL SAG 166.8 LF FROM MH-79 TO MH-256

EXISTING FRACTURE AND 20% WATER LEVEL SAG 176.8 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 182.2 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 187.4 LF FROM MH-79 TO MH-256

EXISTING 20% WATER LEVEL SAG 196.6 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 197.9 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 213.2 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 223.4 LF FROM MH-79 TO MH-256

EXISTING CRACK 228.4 LF FROM MH-79 TO MH-256

EXISTING FRACTURE AND CRACK 248.8 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 269.4 LF FROM MH-79 TO MH-256

EXISTING CRACK 271.7 LF FROM MH-79 TO MH-256

EXISTING FRACTURE 1.0 LF FROM MH-256 TO MH-255

EXISTING CRACK 20.3 LF FROM MH-256 TO MH-255

EXISTING CRACK 30.2 LF FROM MH-256 TO MH-255

EXISTING CRACK 35.5 LF FROM MH-256 TO MH-255

EXISTING FRACTURE 97.1 LF FROM MH-256 TO MH-255

EXISTING FRACTURE133.5 LF FROM MH-256 TO MH-255

EXISTING FRACTURE 138.7 LF FROM MH-256 TO MH-255

EXIST MH-256
N:237262.3510
E:2005212.3216
48" Ø BRICK MH
IN ROADWAY
DEPTH:4.30'
N. IN: 8" VCP
S. OUT: 8" VCP

EXISTING FRACTURE 76.8 LF FROM MH-256 TO MH-255

EXISTING CRACK 82.0 LF FROM MH-256 TO MH-255

EXISTING FRACTURE 87.0 LF FROM MH-256 TO MH-255

185 LF OF 8" VCP

EXISTING FRACTURE 143.8 LF FROM MH-256 TO MH-255

EXIST MH-255
N:237091.0156
E:2005141.8694
48" Ø BRICK MH
IN UNPAVED AREA
(GRAVEL)
DEPTH:4.20'
N. IN: 8" VCP
W. IN: 8" VCP
SW. OUT: 8" VCP

6" WATER MAIN MATERIAL UNKNOWN

EXISTING FRACTURE 178.6 LF FROM MH-256 TO MH-255

EXISTING BROKEN VOID VISIBLE FRACTURE 3.0 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 7.3 LF FROM MH-255 TO MH-257

EXISTING CRACK 12.4 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 22.7 LF FROM MH-255 TO MH-257

EXISTING CRACK 73.9 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 89.2 LF FROM MH-255 TO MH-257

EXISTING CRACK 94.0 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 104.3 LF FROM MH-255 TO MH-257

EXISTING CRACK 119.7 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 124.7 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 38.1 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 43.3 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 48.6 LF FROM MH-255 TO MH-257

EXISTING CRACK 53.8 LF FROM MH-255 TO MH-257

EXISTING FRACTURE 59.1 LF FROM MH-255 TO MH-257

142 LF OF 8" VCP

EXIST MH-257
N:236960.2217
E:2005087.3042
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.20'
W. IN: 8" VCP
NE. IN: 8" VCP
SE. OUT: 8" VCP

EXIST MH-321
N:236970.2919
E:2005040.1233
48" Ø BRICK MH
IN UNPAVED AREA
(GRAVEL)
DEPTH:5.50'
NW. IN: 8" VCP
E. OUT: 8" VCP

SEE SHEET G 9.10 FOR PIPE SEGMENT EXISTING CONDITIONS

SEE SHEET G9.10 FOR PIPE SEGMENT EXISTING CONDITIONS

CONTINUES ON SHEET G9.10

CONTINUES ON SHEET G9.10

4TH AVENUE (S-65)

TOWN SQUARE (S-65)

TOWN SQUARE (S-65)

GRAYS HIGHWAY (US-278)

VOLUNTEER PARK ROAD

LEGEND:

	DESCRIPTION
Ⓢ	– DENOTES EXISTING MANHOLE
SAN	– DENOTES EXISTING SANITARY SEWER PIPE
WAT	– DENOTES EXISTING WATER MAIN
▭	– DENOTES EXISTING LATERAL CONNECTION
●	– DENOTES EXISTING MAJOR SANITARY DEFECT
⊗	– DENOTES EXISTING MINOR SANITARY DEFECT

N

0 30' 60'

AREA B KEY MAP

INSET A

N

0 30' 60'

108 LF OF 6" DIP

EXIST MH-270
N:238037.9114
E:2004983.5485
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:2.06'
NW. IN: 6" DIP
SE. OUT: 6" DIP

MANHOLE LOCATED IN SWALE EMBANKMENT

EXIST MH-80
N:238113.8779
E:2004906.1312
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:1.71'
NW. IN: 6"
SE. OUT: 6" DIP

GRETSCH BUILDING

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDTIONS
TOWN SQUARE

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	BID
DRAWN JMC			ISSUE

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
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LEGEND: DESCRIPTION

- Ⓢ — DENOTES EXISTING MANHOLE
- SAN — DENOTES EXISTING SANITARY SEWER PIPE
- WAT — DENOTES EXISTING WATER MAIN
- ▭ — DENOTES EXISTING LATERAL CONNECTION
- ● — DENOTES EXISTING MAJOR SANITARY DEFECT
- ⊗ — DENOTES EXISTING MINOR SANITARY DEFECT

EXIST MH-79
N:237526.0182
E:2005138.3914
48" Ø BRICK MH
IN PAVED AREA
DEPTH:3.30'
S. OUT: 8" VCP

SEE SHEET G9.9 FOR PIPE SEGMENT EXISTING CONDITIONS

EXIST MH-256
N:237262.3510
E:2005212.3216
48" Ø BRICK MH
IN ROADWAY
DEPTH:4.30'
N. IN: 8" VCP
S. OUT: 8" VCP

SEE SHEET G9.9 FOR PIPE SEGMENT EXISTING CONDITIONS

EXIST MH-255
N:237091.0156
E:2005141.8694
48" Ø BRICK MH
IN UNPAVED AREA
(GRAVEL)
DEPTH:4.20'
N. IN: 8" VCP
W. IN: 8" VCP
SW. OUT: 8" VCP

SEE SHEET G9.9 FOR PIPE SEGMENT EXISTING CONDITIONS

EXIST MH-254
N:237042.1412
E:2005481.7471
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:3.00'
S. OUT: 8" VCP
"FLUSH WELL"
SYSTEM WITH STAND PIPES

SEE SHEET G9.11 FOR PIPE SEGMENT EXISTING CONDITIONS

6" WATER MAIN
MATERIAL UNKNOWN

EXISTING CRACK 36.1 MH-253 TO MH-257

EXISTING ROOTS VISIBLE (FINE) 66.5 LF FROM MH-253 TO MH-257

EXISTING ROOTS VISIBLE (TAP) 72.3 LF FROM MH-253 TO MH-257

EXISTING ROOTS VISIBLE (TAP) 77.9 LF FROM MH-253 TO MH-257

EXISTING ROOTS VISIBLE (FINE) 81.2 LF FROM MH-253 TO MH-257

EXISTING ROOTS VISIBLE (MEDIUM) 108.2 LF FROM MH-253 TO MH-257

EXISTING ROOTS VISIBLE (FINE) 121.0 LF FROM MH-253 TO MH-257

EXISTING TAP FACTORY BREAK-IN 132.5 LF FROM MH-253 TO MH-257

EXISTING ROOTS VISIBLE (TAP) 133.1 LF FROM MH-253 TO MH-257

EXISTING TAP FACTORY DEFECTIVE 153.7 LF FROM MH-253 TO MH-257

EXIST MH-253
N:236829.2922
E:2005394.5959
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.10'
W. IN: 8" VCP
N. IN: 8" VCP
S. OUT: 8" VCP

332.1 LF OF 8" VCP

EXISTING OBSTACLE (BROKEN CLAY PIPE PIECE) IN JOINT 154.2 LF FROM MH-253 TO MH-257

EXISTING 25% WATER LEVEL SAG 161.2 LF FROM MH-253 TO MH-257

EXISTING HOLE SOIL VISIBLE 209.8 LF FROM MH-253 TO MH-257

EXISTING 25% WATER LEVEL SAG 213.2 LF FROM MH-253 TO MH-257

EXISTING 25% WATER LEVEL SAG 237.9 LF FROM MH-253 TO MH-257

EXISTING ROOTS VISIBLE (FINE) 257.7 LF FROM MH-253 TO MH-257

ABANDONED SURVEY DUE TO COLLAPSED PIPE WITH CONSTRUCTION DEBRIS OBSTACLE 269.9 LF FROM 253 TO MH-257

EXISTING HOLE VISIBILE 62.2 LF FROM MH-257 TO MH-253

EXISTING TAP BREAK-IN 51.9 LF FROM MH-257 TO MH-253

EXIST MH-257
N:236960.2217
E:2005087.3042
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.20'
W. IN: 8" VCP
NE. IN: 8" VCP
SE. OUT: 8" VCP

48 LF OF 8" VCP

186 LF OF 8" VCP

EXIST MH-321
N:236970.2919
E:2005040.1233
48" Ø BRICK MH
IN UNPAVED AREA
(GRAVEL)
DEPTH:5.50'
NW. IN: 8" VCP
E. OUT: 8" VCP

EXISTING INTRUDING SEALING GROUT AT INVERT 185.2 LF FROM MH-321 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 137.4 LF FROM MH-321 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 145.8 LF FROM MH-321 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 158.2 LF FROM MH-321 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 163.8 LF FROM MH-321 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 41.2 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 38.2 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 35.1 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 28.8 LF FROM MH-78 TO MH-321A

EXISTING GREASE DEPOSIT AND ROOTS VISIBLE (FINE) 22.7 LF FROM MH-78 TO MH-321A

REPAIR PATCH 19.6 LF FROM MH-78 TO MH-321A

EXISTING GREASE DEPOSIT AND ROOTS VISIBLE (TAP) 16.6 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (TAP) 13.5 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 10.3 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (TAP-2) 7.0 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (TAP) 5.0 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (TAP) 1.0 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 53.6 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 68.9 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 75.2 LF FROM MH-78 TO MH-321A

EXISTING ROOTS VISIBLE (FINE) 81.3 LF FROM MH-78 TO MH-321A

EXISTING PIPE BORED THROUGH MH-321A

106 LF OF 8" VCP

EXIST MH-78
N:237088.4649
E:2004772.7862
22" Ø BRICK MH
IN ROADWAY
DEPTH:4.40'
NW. IN: VCP
SE. OUT: 8" VCP

EXIST BURIED MH-321A
N:237045.3347
E:2004869.8337
48" Ø BRICK MH
IN ROADWAY
PIPE BORED THROUGH MH
DEPTH: ~5.00'
NW. IN: 8" VCP
SE. OUT: 8" VCP

12" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

EXIST MH-252
N:236547.3865
E:2005278.7761
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.70'
N. IN: 8" VCP
S. OUT: 8" VCP

4TH AVENUE (S-65)

TOWN SQUARE (S-65)

TOWN SQUARE (S-66)

N PERRY STREET (S-67)

GRAYS HIGHWAY (US-278)

3RD AVENUE (US-278)

RUSSELL ST

AREA B KEY MAP

0 30' 60'

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDTIONS
GRAYS HIGHWAY TO N. PERRY STREET

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007		
ISSUE DATE	APRIL 2023		
ISSUE	BID		

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G9.10

CONTINUES ON SHEET G9.9

EXIST MH-256
N:237262.3510
E:2005212.3216
48" Ø BRICK MH
IN ROADWAY
DEPTH:4.30'
N. IN: 8" VCP
S. OUT: 8" VCP

EXIST MH-254
N:237042.1412
E:2005481.7471
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:3.00'
S. OUT: 8" VCP
"FLUSH WELL"
SYSTEM WITH STAND PIPES

SURVEY ABANDONED, EXTERNAL PIPE BORED THROUGH WALL,EXISTING HOLE, EXTERNAL PIPE, AND ROOTS VISIBLE (FINE AND TAP) 124.1 LF FROM MH-253 TO MH-254

EXISTING 25% WATER LEVEL SAG 118.0 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 115.2 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 112.5 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 109.1 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (FINE) 106.3 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP-2) 103.1 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) AND 25% WATER LEVEL SAG 99.8 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 96.7 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 94.2 LF FROM MH-253 TO MH-254

230 LF OF 8" VCP

EXISTING ROOTS VISIBLE (TAP) 90.7 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 84.9 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 78.6 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 72.6 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 69.5 LF FROM MH-253 TO MH-254

EXISTING TAP BREAK-IN (INTRUDING) 59.6 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (FINE) 54.3 LF FROM MH-253 TO MH-254

EXISTING TAP BREAK-IN 53.5 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (FINE) 47.9 LF FROM MH-253 TO MH-254

EXISTING 20% WATER LEVEL SAG 37.1 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE 35.7 LF FROM MH-253 TO MH-254

EXISTING 20% WATER LEVEL SAG 29.0 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (FINE AND TAP) 23.4 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (FINE) 17.4 LF FROM MH-253 TO MH-254

EXISTING ROOTS VISIBLE (TAP) 11.2 LF FROM MH-253 TO MH-254

EXISTING 10% WATER LEVEL SAG 0 LF FROM MH-253 TO MH-254

EXIST MH-253
N:236829.2922
E:2005394.5959
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.10'
W. IN: 8" VCP
N. IN: 8" VCP
S. OUT: 8" VCP

EXISTING TAP BREAK-IN 52.9 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (FINE) 60.5 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (FINE) 72.9 LF FROM MH-253 TO MH-252

EXISTING TAP BREAK-IN 93.4 LF FROM MH-253 TO MH-252

133.6 LF OF 8" VCP

12.4 LF OF 8" CAST IRON

N:236706.8751
E:2005343.7511
MATERIAL CHANGE: 8" VCP TO 8" CAST IRON
WITH ATTACHED ENCRUSTATION
133.6 LF FROM MH-253 TO MH-252

N:236706.8751
E:2005343.7511
MATERIAL CHANGE: 8" CAST IRON TO 8" VCP
WITH ATTACHED ENCRUSTATION AND
TUBERCULATION 146.0 LF FROM MH-253 TO MH-252

156.1 LF OF 8" VCP

EXISTING TAP FACTORY CAPPED 231.7 LF FROM MH-253 TO MH-252

EXISTING FRACTURE 233.5 LF FROM MH-253 TO MH-252

EXISTING TAP FACTORY CAPPED 240.7 LF FROM MH-253 TO MH-252

EXISTING TAP BREAK-IN 246.3 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (MEDIUM) 254.3 LF FROM MH-253 TO MH-252

EXISTING GREASE DEPOSIT AND ROOTS VISIBLE (FINE) 260.4 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (TAP AND FINE) AND 25% WATER LEVEL SAG 263.6 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (FINE) 266.4 LF FROM MH-253 TO MH-252

EXISTING GREASE DEPOSIT 272.7 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (MEDIUM) 275.8 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (TAP-2) 278.7 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (TAP-2) AND 25% WATER LEVEL SAG 282.0 LF FROM MH-253 TO MH-252

EXISTING FRACTURE 283.6 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (TAP) 285.1 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (TAP) 291.2 LF FROM MH-253 TO MH-252

EXISTING ROOTS VISIBLE (TAP-2) 297.4 LF FROM MH-253 TO MH-252

EXIST MH-252
N:236547.3865
E:2005278.7761
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.70'
N. IN:8" VCP
S. OUT: 8" VCP

6" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

12" WATER MAIN
MATERIAL UNKNOWN

SEE SHEET G9.9 FOR PIPE SEGMENT EXISTING CONDITIONS

SEE SHEET G9.9 FOR PIPE SEGMENT EXISTING CONDITIONS

SEE SHEET G9.10 FOR PIPE SEGMENT EXISTING CONDITIONS

SEE SHEET G9.9 FOR PIPE SEGMENT EXISTING CONDITIONS

EXIST MH-255
N:237091.0156
E:2005141.8694
48" Ø BRICK MH
IN UNPAVED AREA
(GRAVEL)
DEPTH:4.20'
N. IN: 8" VCP
W. IN: 8" VCP
SW. OUT: 8" VCP

EXIST MH-257
N:236960.2217
E:2005087.3042
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.20'
W. IN: 8" VCP
NE. IN: 8" VCP
SE. OUT: 8" VCP

EXIST MH-321
N:236970.2919
E:2005040.1233
48" Ø BRICK MH
IN UNPAVED AREA
(GRAVEL)
DEPTH:5.50'
NW. IN: 8" VCP
E. OUT: 8" VCP

CONTINUES ON SHEET G9.9

4TH AVENUE (S-65)

N PERRY STREET (S-69)

TOWN SQUARE (S-66)

3RD AVENUE (US-278)

GRAYS HIGHWAY (US-278)

RAILROAD TRACKS

LEGEND: DESCRIPTION

- Ⓢ – DENOTES EXISTING MANHOLE
- SAN – DENOTES EXISTING SANITARY SEWER PIPE
- WAT – DENOTES EXISTING WATER MAIN
- – DENOTES EXISTING LATERAL CONNECTION
- ● – DENOTES EXISTING MAJOR SANITARY DEFECT
- ⊗ – DENOTES EXISTING MINOR SANITARY DEFECT

N

0 30' 60'

AREA B KEY MAP

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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FOUR WATERS ENGINEERING, INC.
No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDTIONS
4TH AVENUE TO 3RD AVENUE

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	APRIL 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

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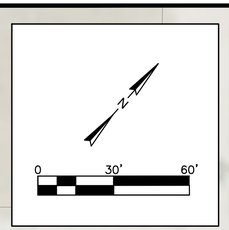
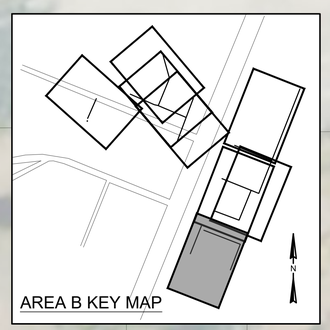
G9.11



LEGEND: DESCRIPTION

- Ⓢ — DENOTES EXISTING MANHOLE
- SAN — DENOTES EXISTING SANITARY SEWER PIPE
- WAT — DENOTES EXISTING WATER MAIN
- ▭ — DENOTES EXISTING LATERAL CONNECTION
- ● — DENOTES EXISTING MAJOR SANITARY DEFECT
- ⊗ — DENOTES EXISTING MINOR SANITARY DEFECT



AREA B KEY MAP

S.GREEN STREET (S-32)

EXISTING 30% WATER LEVEL SAG 67.5 LF FROM MH-40 TO MH-41

EXISTING TAP FACTORY DEFECTIVE 45.0 LF FROM MH-40 TO MH-41

EXISTING INFIL STAIN AND 30% WATER LEVEL SAG 36.2 LF FROM MH-40 TO MH-41

EXISTING 25% WATER LEVEL SAG 17.2 LF FROM MH-40 TO MH-41

EXISTING 25% WATER LEVEL SAG 0 LF FROM MH-40 TO MH-41

EXIST MH-40
N:235327.5943
E:2005462.6243
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:5.50'
SE. OUT: 8" PVC
NE. IN: 8" VCP
NW. IN: 8" PVC

EXISTING TAP FACTORY 72.8 LF FROM MH-40 TO MH-41

EXISTING INFIL STAIN 88.6 LF FROM MH-40 TO MH-41

EXISTING INTRUDING SEALING GROUT 112.3 LF FROM MH-40 TO MH-41

EXISTING TAP FACTORY CAPPED 125.0 LF FROM MH-40 TO MH-41

EXISTING TAP BREAK-IN 127.7 LF FROM MH-40 TO MH-41

EXISTING INFIL STAIN 137.8 LF FROM MH-40 TO MH-41

EXISTING INFIL STAIN 143.9 LF FROM MH-40 TO MH-41

EXISTING INFIL STAIN 150 LF FROM MH-40 TO MH-41

EXISTING TAP BREAK-IN 167.9 LF FROM MH-40 TO MH-41

EXISTING INTRUDING SEALING GROUT 175.8 LF FROM MH-40 TO MH-41

EXISTING INTRUDING SEALING GROUT 176.9 LF FROM MH-40 TO MH-41

EXISTING TAP FACTORY 177.2 LF FROM MH-40 TO MH-41

EXISTING TAP FACTORY DEFECTIVE 260.3 LF FROM MH-40 TO MH-41

EXISTING TAP BREAK-IN 262.6 LF FROM MH-40 TO MH-41

EXISTING TAP BREAK-IN 253.1 LF FROM MH-40 TO MH-41

EXISTING TAP FACTORY 226.4 LF FROM MH-40 TO MH-41

EXISTING TAP FACTORY 192.5 LF FROM MH-40 TO MH-41

338 LF OF 8" VCP

EXISTING 20% WATER LEVEL SAG 311.9 LF FROM MH-40 TO MH-41

EXISTING GREASE DEPOSIT 319.1 LF FROM MH-40 TO MH-41

EXISTING GREASE DEPOSIT 320.5 LF FROM MH-40 TO MH-41

EXISTING 20% WATER LEVEL SAG 326.9 LF FROM MH-40 TO MH-41

EXISTING GREASE DEPOSIT 338.3 LF FROM MH-40 TO MH-41

EXIST MH-41
N:235641.7179
E:2005588.3150
48" Ø BRICK MH
IN ROADWAY
DEPTH:6.50'
SE. OUT: 8" VCP

EXIST MH-42
N:235602.2977
E:2005581.6226
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.25'
SE. OUT: 8" ORANGEBURG

W. MAIN STREET (S-336)

ORANGEBURG PIPE MATERIAL SURVEY ATTEMPT ABANDONED SIGNIFICANT SAND IN LINE

438 LF OF 8" ORANGEBURG

6" WATER MAIN MATERIAL UNKNOWN

ADAMS STREET (S-61)

6" WATER MAIN MATERIAL UNKNOWN

EXISTING CRACK 22.6 LF FROM MH-43 TO MH-238

EXISTING 25% WATER LEVEL SAG 40.9 LF FROM MH-43 TO MH-238

PIPE BROKEN AND LARGE JOINT OFFSET 59.9 LF FROM MH-43 TO MH-238

EXISTING TAP FACTORY CAPPED 73.6 LF FROM MH-43 TO MH-238

EXISTING MEDIUM JOINT OFFSET 119.2 LF FROM MH-43 TO MH-238

EXISTING 20% WATER LEVEL SAG 140.4 LF FROM MH-43 TO MH-238

EXISTING TAP BREAK-IN INTRUDING 180.9 LF FROM MH-43 TO MH-238

EXIST MH-238
N:235156.0167
E:2005879.2394
48" Ø BRICK MH
WITH COATING
IN ROADWAY
DEPTH:8.30'
NE. IN: 8" VCP
NW. IN: 10" HDPE
SE. OUT: 10" HDPE

EXISTING TAP FACTORY 304.9 LF FROM MH-43 TO MH-238

307 LF OF 8" VCP

EXIST MH-43
N:235442.7212
E:2005989.7993
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:5.30'
NW. IN: 8" ORANGEBURG
SW. OUT: 8" VCP

S. JACOB SMART BOULEVARD (HWY-17)

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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FOUR WATERS ENGINEERING, INC.
No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDITIONS
S. JACOB SMART BLVD TO S. GREEN ST

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G9.12

LAST EDITED BY: STEVE DUCHARME

CAD FILE: R:\17-1007-035 PART-2\X\CDS\RIDGELAND EDA PART 2 EC.DWG

PLOT DATE AND TIME: 6/1/2023 7:31:30 PM

6" WATER MAIN
MATERIAL UNKNOWN

EXISTING ROOTS VISIBLE (FINE)
227.5 LF FROM MH-193 TO MH-194

TAP FACTORY DEFECTIVE 229.9 LF
FROM MH-193 TO MH-194

EXISTING ROOTS VISIBLE (FINE)
230.3 LF FROM MH-193 TO MH-194

TAP BREAK-IN 244.3 LF
FROM MH-193 TO MH-194

EXIST MH-194
N:235840.2464
E:2005682.2606
48" Ø BRICK MH
IN ROADWAY
DEPTH:3.90'
NE. OUT: 8" VCP

EXISTING TAP BREAK-IN CAPPED
194.1 LF FROM MH-193 TO MH-194

EXISTING TAP BREAK-IN 193.3
LF FROM MH-193 TO MH-194

EXISTING TAP FACTORY 176.8 LF
FROM MH-194 TO MH-193

EXISTING TAP FACTORY 64.9 LF
FROM MH-193 TO MH-194

EXISTING ROOTS VISIBLE (FINE)
77.5 LF FROM MH-193 TO MH-194

348 LF OF 8" VCP

EXISTING ROOTS VISIBLE (MEDIUM)
50.2 LF FROM MH-193 TO MH-194

EXISTING ROOTS VISIBLE
(MEDIUM AND FINE) 44.0 LF
FROM MH-193 TO MH-194

EXISTING ROOTS VISIBLE (FINE)
25.7 LF FROM MH-193 TO MH-194

EXIST MH-193
N:236162.8746
E:2005811.3929
48" Ø BRICK MH
IN ROADWAY
DEPTH:6.10'
SE OUT: 8" VCP
SW. IN: 8" VCP
NW IN: 8" VCP
NE IN: 8" VCP

TAP FACTORY CAPPED 45.1 LF
FROM MH-193 TO MH-192

EXISTING ROOTS VISIBLE (TAP)
65.1 LF FROM MH-193 TO MH-192

EXISTING ROOTS VISIBLE (TAP AND
FINE) 101.4 LF FROM MH-193 TO MH-192

EXISTING TAP FACTORY 120.0 LF
FROM MH-193 TO MH-192

EXISTING TAP FACTORY 156.2 LF
FROM MH-193 TO MH-192

350.8 LF OF 8" VCP

EXSITING ROOTS VISIBLE (FINE)
209.6 LF FROM MH-193 TO MH-192

EXISTING TAP FACTORY 219.7 LF
FROM MH-193 TO MH-192

EXISTING TAP FACTORY 245.2 LF
FROM MH-193 TO MH-192

EXISTING TAP BREAK-IN 276.3
LF FROM MH-193 TO MH-192

EXISTING TAP BREAK-IN CAPPED
279.0 LF FROM MH-193 TO MH-192

TAP FACTORY DEFECTIVE 296.8
LF FROM MH-193 TO MH-192

EXISTING ROOTS VISIBLE (TAP)
329.1 LF FROM MH-193 TO MH-192

EXISTING ROOTS VISIBLE (FINE)
334.8 LF FROM MH-193 TO MH-192

EXISTING TAP FACTORY 348.5 LF
FROM MH-193 TO MH-192

EXISTING FRACTURE 349.7 LF
FROM MH-193 TO MH-192

EXIST MH-192
N:236028.9522
E:2006138.2556
48" Ø BRICK MH
IN ROADWAY
DEPTH:7.70'
SW. IN: 8" VCP
NW. IN: 8" VCP
SE. OUT: 8" VCP

SEE SHEET G9.14 FOR PIPE
SEGMENT EXISTING CONDITIONS

EXIST MH-191
N:235992.5400
E:2006222.2764
48" Ø BRICKE MH
WITH COATING
IN ROADWAY
DEPTH:8.80'
NW. IN: 8" VCP
N. IN: 8" VCP

SEE SHEET G9.14 FOR PIPE
SEGMENT EXISTING CONDITIONS

EXIST MH-44
N:235804.9801
E:2005726.1456
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:5.80'
SE. OUT: 8" VCP

EXISTING ROOTS VISIBLE (TAP)
10.6 LF FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (TAP)
14.1 LF FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (TAP)
17.6 LF FROM MH-44 TO MH-45

EXISTING TAP BREAK-IN INTRUDING 17.7 LF
FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (FINE)
23.7 LF FROM MH-44 TO MH-45

EXISTING TAP BREAK-IN 25.0 LF
FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (FINE)
38.7 LF FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (FINE)
44.4 LF FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (FINE)
57.2 LF FROM MH-44 TO MH-45

EXISTING TAP FACTORY 67.5 LF
FROM MH-44 TO MH-45

EXISTING HOLE SOIL VISIBLE 79.7 LF
FROM MH-44 TO MH-45

EXISTING TAP BREAK-IN 80.2
LF FROM MH-44 TO MH-45

EXISTING TAP BREAK-IN 98.0
LF FROM MH-44 TO MH-45

297 LF OF 8" VCP

EXISTING TAP BREAK-IN (INTRUDING) 99.7
LF FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (FINE)
109.8 LF FROM MH-44 TO MH-45

EXISTING TAP BREAK-IN CAPPED 128.9 LF
FROM MH-44 TO MH-45

6" WATER MAIN
MATERIAL UNKNOWN

EXISTING TAP FACTORY CAPPED
181.4 LF FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (TAP)
183.7 LF FROM MH-44 TO MH-45

EXISTING ROOTS VISIBLE (FINE)
189.5 LF FROM MH-44 TO MH-45

EXISTING HOLE SOIL VISIBLE
198.8 LF FROM MH-44 TO MH-45

EXISTING FRACTURE 199.1 LF
FROM MH-44 TO MH-45

EXISTING HOLE VOID VISIBLE 199.7 LF
FROM MH-44 TO MH-45

EXISTING TAP FACTORY 215.7 LF
FROM MH-44 TO MH-45

EXISTING TAP FACTORY 137.8 LF
FROM MH-193 TO MH-194

EXISTING ROOTS VISIBLE (FINE)
132.1 LF FROM MH-193 TO MH-194

EXISTING ROOTS VISIBLE (FINE)
107.8 LF FROM MH-193 TO MH-194

EXISTING TAP BREAK-IN DEFECTIVE
98.5 LF FROM MH-193 TO MH-194

EXIST MH-45
N:235695.3414
E:2006002.4146
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:5.80'
NW. IN: 8" VCP
NE. OUT: 8" VCP

W. MAIN STREET (S-336)

N. GREEN STREET (S-32)

E. WILSON STREET (S-59)

3RD AVENUE (US-278)

N. JACOB SMART BOULEVARD (HWY-17)

CONTINUES ON G9.14

AREA B KEY MAP

LEGEND:

	DESCRIPTION
Ⓢ	– DENOTES EXISTING MANHOLE
SAN	– DENOTES EXISTING SANITARY SEWER PIPE
WAT	– DENOTES EXISTING WATER MAIN
▭	– DENOTES EXISTING LATERAL CONNECTION
●	– DENOTES EXISTING MAJOR SANITARY DEFECT
⊗	– DENOTES EXISTING MINOR SANITARY DEFECT

0 30' 60'

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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No. 5166
CERTIFICATE OF AUTHORIZATION

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDTIONS
N. JACOB SMART BLVD TO N. GREEN ST

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	APRIL 2023
		ISSUE	BID

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

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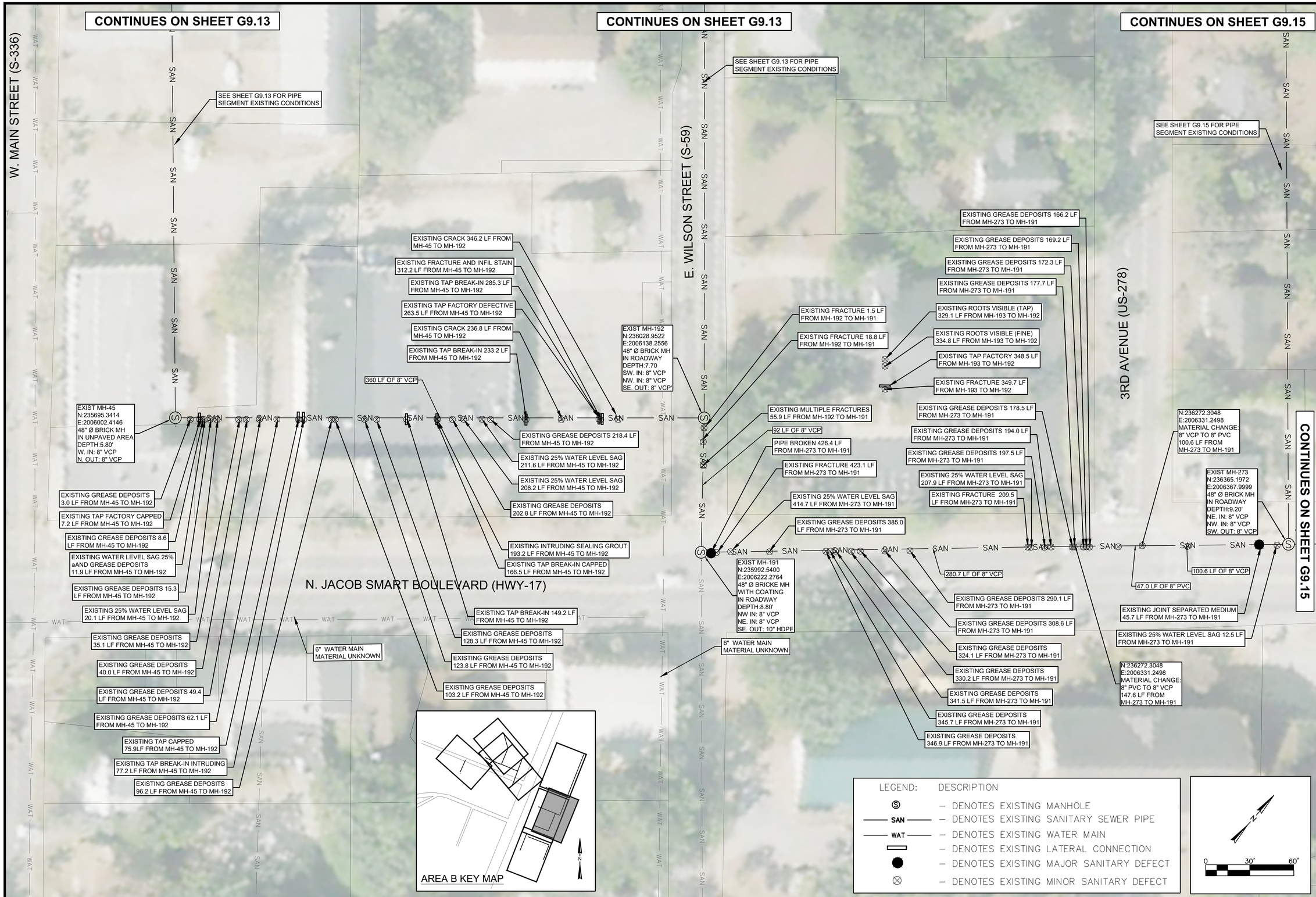

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No. 21839
ANGELA B. BRYAN

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2				
3				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDITIONS
N. JACOB SMART BLVD TO N. GREEN ST

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	17-1007	APRIL 2023
	JOB #	ISSUE DATE	ISSUE
			BID

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324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G9.14

EXIST MH-184
N:236532.1094
E:2005952.1476
48" Ø BRICK MH
IN ROADWAY
DEPTH:7.25'
NE. IN: 6" PVC
SW. IN: 6" PVC
SE. OUT: 8" VCP

EXISTING 20% WATER LEVEL SAG 6.0 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN 81.3 LF FROM MH-184 TO MH-273
EXISTING INTRUDING SEALING GROUT 94.1 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (FINE) 99.0 LF FROM MH-184 TO MH-273
EXISTING TAP FACTORY 115.8 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN CAPPED 118.5 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN - DEFECTIVE 133.9 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (FINE) 148.5 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (FINE) 154.8 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (FINE) 167.0 LF FROM MH-184 TO MH-273
448 LF OF 8" VCP
EXISTING GREASE DEPOSITS 185.7 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (TAP) 216.0 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (TAP) 222.4 LF FROM MH-184 TO MH-273
EXISTING TAP FACTORY-DEFECTIVE 223.5 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (TAP) 225.5 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN CAPPED 230.8 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (TAP) 237.8 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN 267.5 LF FROM MH-184 TO MH-273
EXISTING TAP FACTORY 282.0LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN 312.9 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (FINE) 338.9 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN 356.3 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN 361.3 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN 381.0LF FROM MH-184 TO MH-273

6" WATER MAIN MATERIAL UNKNOWN

6" WATER MAIN MATERIAL UNKNOWN

EXISTING TAP FACTORY CAPPED 383.1 LF FROM MH-184 TO MH-273
EXISTING TAP FACTORY CAPPED 384.1 LF FROM MH-184 TO MH-273
EXISTING ROOTS VISIBLE (FINE) 385.2 LF FROM MH-184 TO MH-273
EXISTING TAP FACTORY 386.3 LF FROM MH-184 TO MH-273
EXISTING TAP BREAK-IN 396.4 LF FROM MH-184 TO MH-273
EXISTING 25% WATER LEVEL SAG 401.2 LF FROM MH-184 TO MH-273
EXISTING 25% WATER LEVEL SAG 407.2 LF FROM MH-184 TO MH-273
EXISTING FRACTURE 446.6 LF FROM MH-184 TO MH-273
EXISTING TAP FACTORY 447.3 LF FROM MH-184 TO MH-273

EXISTING TAP FACTORY 0 LF FROM MH-273 TO MH-182
EXISTING 25% WATER LEVEL SAG 11.1 LF FROM MH-273 TO MH-182
EXISTING ROOTS VISIBLE (FINE) 14.2 LF FROM MH-273 TO MH-182
EXISTING ROOTS VISIBLE (FINE) 17.3 LF FROM MH-273 TO MH-182
EXISTING ROOTS VISIBLE (FINE) 29.7 LF FROM MH-273 TO MH-182
EXISTING ROOTS VISIBLE (FINE) 51.5 LF FROM MH-273 TO MH-182
EXISTING ROOTS VISIBLE (FINE) 60.8 LF FROM MH-273 TO MH-182

EXIST MH-273
N:236365.1972
E:2006367.9999
48" Ø BRICK MH
IN ROADWAY
DEPTH:9.20'
NE. IN: 8" VCP
NW. IN: 8" VCP
SW. OUT: 8" VCP

EXISTING ROOTS VISIBLE (MEDIUM AND FINE) 92 LF FROM MH-273 TO MH-182
EXISTING ROOTS VISIBLE (TAP) 88.9 LF FROM MH-273 TO MH-182
281 LF OF 8" VCP
EXISTING TAP FACTORY CAPPED 184.8 LF FROM MH-273 TO MH-182
EXISTING ROOTS VISIBLE (FINE) 169.8 LF FROM MH-273 TO MH-182

EXIST MH-182
N:236626.9533
E:2006471.5618
48" Ø BRICK MH
IN ROADWAY
DEPTH:8.40'
NE. IN: 8" VCP
NW. IN: 8" VCP
SW. OUT: 8" VCP

EXISTING TAP FACTORY CAPPED 374.4 LF FROM MH-189 TO MH-182
EXISTING TAP FACTORY CAPPED 477.2 LF FROM MH-189 TO MH-182
EXISTING CRACK 310.6 LF FROM MH-189 TO MH-182
EXISTING TAP FACTORY 271.3 LF FROM MH-189 TO MH-182
576 LF OF 8" VCP
EXISTING CRACK 122.2 LF FROM MH-189 TO MH-182
EXISTING TAP FACTORY CAPPED 168.2 LF FROM MH-189 TO MH-182
EXISTING TAP FACTORY CAPPED 65.1 LF FROM MH-189 TO MH-182
EXISTING 25% WATER LEVEL SAG 55.3 LF FROM MH-189 FROM MH-182
EXISTING FRACTURE 54.6 LF FROM MH-189 TO MH-182
EXISTING 25% WATER LEVEL SAG 48.6 LF FROM MH-189 TO MH-182
EXISTING FRACTURE 2.0 LF FROM MH-189 TO MH-182

EXIST MH-189
N:237162.4692
E:2006683.4322
48" Ø BRICK MH
IN ROADWAY
DEPTH:4.80'
NW. IN: 8" VCP
SW. OUT: 8" VCP

N. GREEN STREET (S-32)

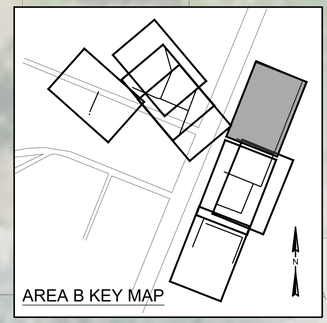
MALPHRUS STREET (S-45)

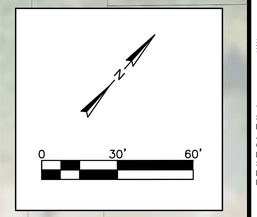
HWY 17 - N. JACOB SMART BOULEVARD

CONTINUES ON SHEET G9.14

LEGEND: DESCRIPTION

- (S) – DENOTES EXISTING MANHOLE
- SAN – DENOTES EXISTING SANITARY SEWER PIPE
- WAT – DENOTES EXISTING WATER MAIN
- – DENOTES EXISTING LATERAL CONNECTION
- ● – DENOTES EXISTING MAJOR SANITARY DEFECT
- ⊗ – DENOTES EXISTING MINOR SANITARY DEFECT





SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B EXISTING CONDITIONS
N. GREEN ST TO MALPHRUS ST (S-45)

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	APRIL 2023	BID
	JOB # 17-1007	ISSUE DATE	ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
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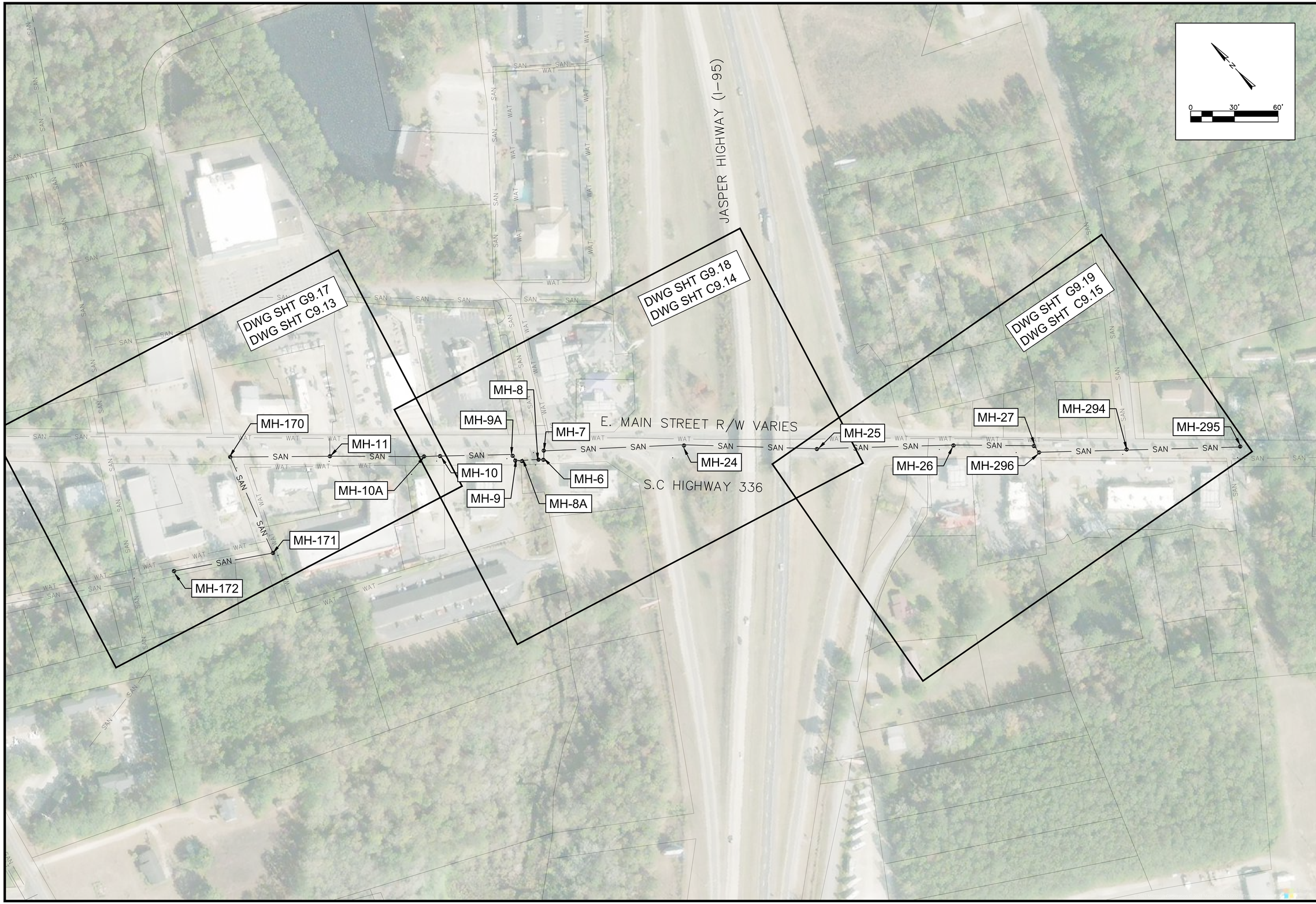
G9.15



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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA C EXISTING CONDITIONS AND PROPOSED IMPROVEMENTS KEY MAP

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	DRAWN	JMC
JOB #	17-1007	ISSUE DATE	APRIL 2023
ISSUE		ISSUE	BID

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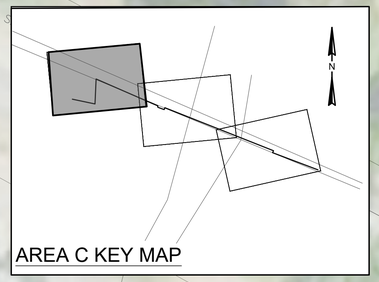

LEGEND: DESCRIPTION

- (S) – DENOTES EXISTING MANHOLE
- SAN – DENOTES EXISTING SANITARY SEWER PIPE
- WAT – DENOTES EXISTING WATER MAIN
- – DENOTES EXISTING LATERAL CONNECTION
- – DENOTES EXISTING MAJOR SANITARY DEFECT
- – DENOTES EXISTING MINOR SANITARY DEFECT

N

0 30' 60'

S.C. HIGHWAY 336
E. MAIN STREET R/W VARIES

WILSON STREET (S-157)

JAMES L TAYLOR DRIVE

BUCKNER ROAD

E. ADAMS STREET (S-61)

ADAMS STREET

6" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

EXIST MH-170
N:234827.0770
E:2007710.6664
48" Ø CONCRETE MH
IN ROADWAY (ADAMS ST)
(FRAME OFFSET)
DEPTH:6.70'
S. IN: 8" PVC
E. OUT: 8" PVC

EXISTING 15% WATER LEVEL SAG
218.2 LF FROM MH-171 TO MH-170

EXISTING 15% WATER LEVEL SAG
205.2 LF FROM MH-171 TO MH-170

EXISTING TAP BREAK 165.1 LF
FROM MH-171 TO MH-170

EXISTING 15% WATER LEVEL SAG
132.9 LF MH-171 TO MH-170

EXISTING 15% WATER LEVEL SAG
123.7 LF MH-171 TO MH-170

240 LF OF 8" PVC

EXISTING TAP BREAK IN AND 25% WATER
LEVEL SAG 92.0 LF MH-171 TO MH-170

EXISTING FRACTURE 90.9 LF
FROM MH-171 TO MH-170

EXISTING 25% WATER LEVEL SAG
72.2 LF FROM MH-171 TO MH-170

230 LF OF 8" PVC

EXISTING 25% WATER LEVEL SAG
174.1 LF FROM MH-11 TO MH-170

EXISTING 25% WATER LEVEL SAG
158.9 LF FROM MH-11 TO MH-170

EXISTING GREASE DEPOSIT 112.7 LF
FROM MH-11 TO MH-170

EXISTING 25% WATER LEVEL SAG
AND GREASE DEPOSIT 93.1 LF
FROM MH-11 TO MH-170

EXISTING 25% WATER LEVEL SAG
AND GREASE DEPOSIT 81.2 LF
FROM MH-11 TO MH-170

228 LF OF 8" PVC

EXISTING 25% WATER LEVEL SAG
9.4 LF FROM MH-11 TO MH-170

EXISTING GREASE DEPOSIT 7.2 LF
FROM MH-11 TO MH-170

EXISTING GREASE DEPOSIT 6.9 LF
FROM MH-11 TO MH-170

EXISTING 25% WATER LEVEL SAG
6.0 LF FROM MH-11 TO MH-170

EXIST MH-11
N:234742.4795
E:2007922.0173
48" Ø CONCRETE MH
IN CONCRETE DRIVEWAY
(BROKEN CONCRETE)
DEPTH:5.70'
S. IN: 4" PVC
W. IN: 8" PVC
SE. OUT: 8" PVC

EXISTING GREASE DEPOSIT 2.0 LF
FROM MH-11 TO MH-10A

EXISTING GREASE DEPOSIT 6.0 LF
FROM MH-11 TO MH-10A

EXISTING GREASE DEPOSIT 41.5 LF
FROM MH-11 TO MH-10A

EXISTING GREASE DEPOSIT 42.7 LF
FROM MH-11 TO MH-10A

EXISTING TAP FACTORY 55.0 LF
FROM MH-11 TO MH-10A

EXISTING 25% WATER LEVEL SAG
78.6 LF FROM MH-11 TO MH-10A

EXISTING 25% WATER LEVEL SAG
89.3 LF FROM MH-11 TO MH-10A

EXISTING TAP BREAK-IN ACTIVE
107.3 LF FROM MH-11 TO MH-10A

211.9 LF OF 8" PVC

EXIST MH-10
N:234648.2530
E:2008155.2880
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:4.70'
S. IN: 6" PVC
W. IN: 8" PVC
E. OUT: 8" PVC

EXISTING TAP BREAK-IN 203.5 LF
FROM MH-11 TO MH-10A

EXIST BURIED MH-10A
N:234660.6296
E:2008119.8549
48" Ø CONCRETE MH
IN PARKING LOT
DEPTH:3.20'
NW. IN: 8" PVC
E. OUT: 8" PVC

EXISTING GREASE DEPOSITS 23.3 LF
FROM MH-10 TO MH-10A

35 LF OF 8" PVC

EXIST MH-172
N:234634.3706
E:2007493.2350
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:6.30'
E. OUT: 8" PVC

EXISTING CRACK 199.5 LF
FROM MH-171 TO MH-172

EXISTING TAP FACTORY 171.4 LF
FROM MH-171 TO MH-172

EXISTING TAP FACTORY CAPPED 145.5 LF
FROM MH-171 TO MH-172

EXISTING TAP BREAK-IN 127.3 LF
IN FROM MH-171 TO MH-172

EXISTING GREASE DEPOSITS 109.1 LF
FROM MH-171 TO MH-172

EXISTING GREASE DEPOSITS 103.3 LF
FROM MH-171 TO MH-172

EXISTING TAP BREAK-IN 84.2 LF
FROM MH-171 TO MH-172

EXISTING TAP FACTORY CAPPED
69.7 LF FROM MH-171 TO MH-172

EXIST MH-171
N:234587.1502
E:2007718.0743
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:5.90'
W. IN: 8" PVC
N. OUT: 8" PVC
S. IN: 4" PVC
DROP PIPE (INSIDE)

CONTINUES ON SHEET G9.18

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 21839
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CERTIFICATE OF AUTHORIZATION
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA C EXISTING CONDTIONS
E. ADAM STREET TO MAIN STREET

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID

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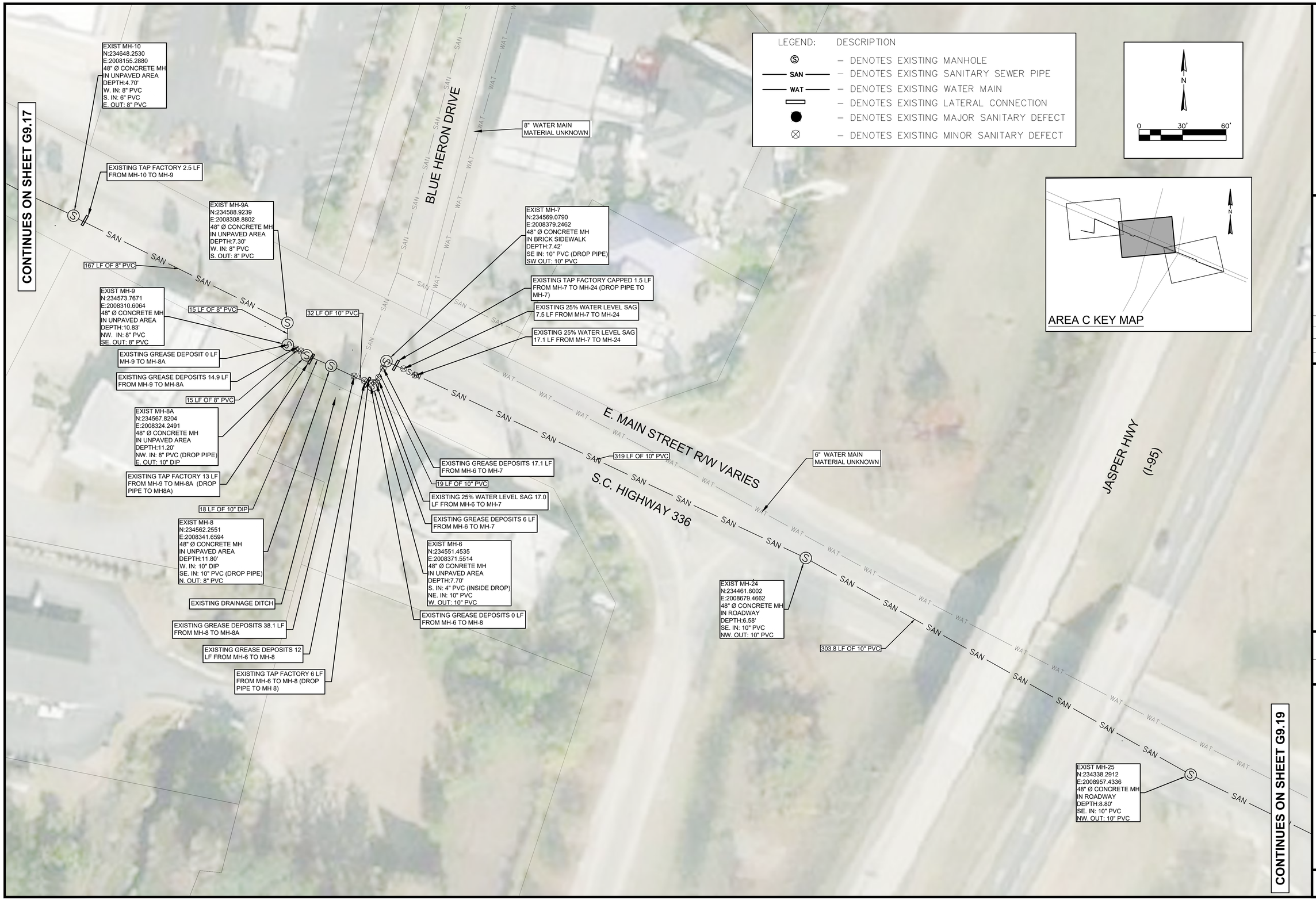
G9.17



LEGEND: DESCRIPTION

- (S) – DENOTES EXISTING MANHOLE
- SAN – DENOTES EXISTING SANITARY SEWER PIPE
- WAT – DENOTES EXISTING WATER MAIN
- – DENOTES EXISTING LATERAL CONNECTION
- ● – DENOTES EXISTING MAJOR SANITARY DEFECT
- ⊗ – DENOTES EXISTING MINOR SANITARY DEFECT

N

0 30' 60'

SOUTH CAROLINA
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No. 5166
CERTIFICATE OF AUTHORIZATION

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA C EXISTING CONDTIONS MAIN STREET

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	BID
DRAWN JMC			ISSUE

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DRAWING NUMBER
G9.18

CONTINUES ON SHEET G9.18

EXIST MH-25
N:234338.2912
E:2008957.4336
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:8.80'
SE. IN: 10" PVC
NW. OUT: 10" PVC

313 LF OF 10" PVC

GRAHAMVILLE ROAD (S-336)

EXISTING 25% WATER LEVEL SAG
244.9 LF MH-25 TO MH-26

EXIST MH-26
N:234227.9514
E:2009250.3559
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:10.50'
SE. IN: 10" PVC
SE. IN: 6" PVC
SW. IN: 6" CIP
(INSIDE DROP)
NW. OUT: 10" PVC

183.0 LF OF 10" PVC

EXISTING TAP BREAK-IN ACTIVE
69.9 LF FROM MH-27 TO MH-26

EXIST MH-27
N:234157.4069
E:2009419.1443
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:8.60'
S. IN: 10" PVC
S. IN: 4" PVC
NW. OUT: 10" PVC

EXIST MH-296
N:234137.3082
E:2009424.2165
48" Ø CONCRETE MH
IN BRICK SIDEWALK
DEPTH:7.70'
SE. IN: 10" PVC
N. OUT: 10" PVC

21 LF OF 10" PVC

EXISTING TAP FACTORY DEFECTIVE
26.4 LF FROM MH-296 TO MH-294

EXISTING GREASE DEPOSITS 33.5 LF
FROM MH-296 TO MH-294

EXISTING GREASE DEPOSITS 40.5 LF
FROM MH-296 TO MH-294

201.8 LF OF 10" PVC

EXISTING GREASE DEPOSITS 201.8 LF
FROM MH-296 TO MH-294

EXIST BURIED MH-294
N:234067.4025
E:2009613.2212
48" Ø CONCRETE MH
IN BRICK SIDEWALK
DEPTH:8.60'
SE. IN: 10" PVC
NE. IN: 8" PVC
NW. OUT: 10" PVC

EXISTING TAP FACTORY 44.0
LF FROM MH-294 TO MH-295

263 LF OF 10" PVC

EXIST MH-295
N:233974.7681
E:2009859.0189
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:8.30'
SE. IN: 10" PVC
SW. IN: 8" PVC
NW. OUT: 10" PVC

EXISTING TAP FACTORY 192.0 LF
FROM MH-294 TO MH-295

EXISTING TAP FACTORY 220.2 LF
FROM MH-294 TO MH-295

8" WATER MAIN
MATERIAL UNKNOWN

SYCAMORE DRIVE

HENRY LAWTON ROAD (SR-S-27-405)

LEGEND: DESCRIPTION

- Ⓢ – DENOTES EXISTING MANHOLE
- SAN – DENOTES EXISTING SANITARY SEWER PIPE
- WAT – DENOTES EXISTING WATER MAIN
- ▭ – DENOTES EXISTING LATERAL CONNECTION
- ● – DENOTES EXISTING MAJOR SANITARY DEFECT
- ⊗ – DENOTES EXISTING MINOR SANITARY DEFECT

N

0 30' 60'

AREA C KEY MAP

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA C EXISTING CONDTIONS
GRAHAMVILLE ROAD

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID	

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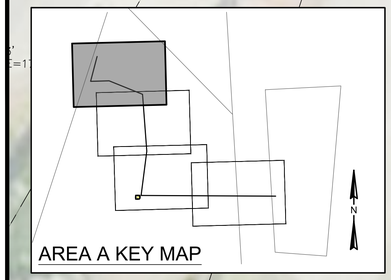

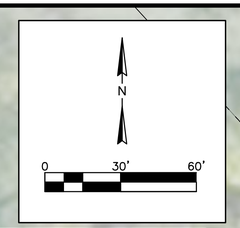

NOTES:
1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
2. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEBRIS AND MATERIALS FROM WITHIN THE MANHOLES OR PIPELINES PRIOR TO REHABILITATION. ALL COSTS FOR PROPER DISPOSAL SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAYMENT WILL BE MADE FOR DISPOSAL. CONTRACTOR SHALL PREPARE ALL MANHOLES AND PIPES FOR REHABILITATION IN ACCORDANCE WITH REHABILITATION PRODUCT MANUFACTURERS' REQUIREMENTS.
3. CONTRACTOR SHALL REMOVE STEPS OR ANY REMAINING COMPONENTS OF STEPS IN MANHOLES PRIOR TO INSTALLING LINER OR SEALING SYSTEMS.
4. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY SEWER BYPASSING OPERATIONS NECESSARY FOR THE SEWER REHABILITATION PROJECT. COORDINATE ALL BYPASSING WITH TOWN OF RIDGELAND WATER AND SEWER SUPERINTENDENT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ALL DISTURBED AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS WITHIN PROJECT LIMITS WITH HYDROSEEDING AND/OR PERMANENT VEGETATION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY MATERIALS (SOIL, STONE, MATS) AND EQUIPMENT TO DEVELOP APPROPRIATE ACCESS AND SUITABLE WORKING SURFACE FOR PROPOSED CONSTRUCTION. ALL TEMPORARY MATERIALS AND EQUIPMENT USED SHALL BE REMOVED AFTER CONSTRUCTION AND SITE RESTORED. ALL COSTS FOR SUCH TEMPORARY MATERIALS SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAY ITEM WILL BE MADE.
8. CONTRACTOR SHALL ADHERE TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS. ALL WORK WITHIN WETLAND AREAS SHALL ADHERE TO REQUIREMENTS OF US ARMY CORPS OF ENGINEERST. ALL WORK IN SCDOT RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH SCDOT ENCROACHMENT PERMIT AND APPROVED PAVING RESTORATION AND MOT REQUIREMENTS.

LEGEND: DESCRIPTION (1)

- (S) - DENOTES EXISTING MANHOLE
- SAN - DENOTES EXISTING SANITARY SEWER PIPE
- WAT - DENOTES EXISTING WATER MAIN
- DENOTES SILT FENCE
- DENOTES WETLAND LINE
- DENOTES WETLAND
- (S) - DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
- DENOTES MILL AND RESURFACE
- DENOTES ASPHALT REMOVE AND REPLACE
- (S) - DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
- DENOTES SEWER LATERAL CONNECTION RESTORATION
- DENOTES EXISTING SEWER LATERAL
- SAN - DENOTES PIPE REMOVAL AREA
- DENOTES MAJOR DEFECT
- DENOTES POINT REPAIR

EXIST MH-127
N:239377.9444
E:2007526.7757
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:6.50'
N. IN: 6" PVC
W. IN:10" PVC
S. OUT: 10" VCP

MH-127
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL SEAMLESS EPDM RUBBER SEAL FOR EXTERNAL CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-205-00
RIGHT SHOULDER CLOSURE
(CASE I/ CASE II)
PRIMARY ROUTES

8" WATER MAIN
MATERIAL UNKNOWN

REHAB BY PIPEBURST 257 LF
EXISTING 10" VCP TO 12"
HDPE GRAVITY SEWER
FROM MH-128 TO MH-127

MH-128
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING RIM ELEVATION OF 23.7' (APPROXIMATELY .75' ABOVE GRADE).
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL SEAMLESS EPDM RUBBER SEAL FOR EXTERNAL CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

REHAB BY PIPEBURST 180 LF
EXISTING 10" VCP TO 12" HDPE
GRAVITY SEWER
FROM MH-128 TO MH-129

EXIST MH-128
N:239133.1812
E:2007462.9049
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:8.20'
S. IN: 8"
N. IN:10" VCP
E. OUT: 10" VCP

EXIST MH-129
N:239139.5030
E:2007638.6961
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:8.84'
W. IN: 10" VCP
E. OUT: 10" VCP

MH-129
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL SEAMLESS EPDM RUBBER SEAL FOR EXTERNAL CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

REHAB BY PIPEBURST 359 LF
EXISTING 10" VCP TO 12" HDPE
GRAVITY SEWER
FROM MH-129 TO MH-130

MH-130
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING RIM ELEVATION OF 22.6' (APPROXIMATELY 3.1' ABOVE GRADE).
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL SEAMLESS EPDM RUBBER SEAL FOR EXTERNAL CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-130
N:239007.5519
E:2007965.9519
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:9.50'
W. IN: 10" VCP
S. OUT: 10" VCP

TTC: 610-205-00
RIGHT SHOULDER CLOSURE
(CASE I/ CASE II)
PRIMARY ROUTES

CONTROL POINT – NAIL IN DISC
ELEV=25.5' (88 DATUM)

N. JACOB SMART BLVD (US 17)

CAPTAIN BILL CREEK

WETLANDS
(SEE "FLAT #1" - SEE NOTE #3)

END OF WETLAND FLAGS

HIGHGROUND

SSMH #128
TOP=23.71'
IE 8"VCP FLOWLINE=15.51'

SSMH #129
TOP=23.50'
IE 8"VCP FLOWLINE=14.66'

SSMH #130
TOP=22.59'
IE 8"VCP FLOWLINE=13.75'

063-27-13-001

(SEE NOTE #6)

APPROXIMATE PARCEL LINES (TYP.)
PER JASPER COUNTY GIS MAPS

30-01-001

CONTINUES ON SHEET C9.2

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
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FOUR WATERS ENGINEERING, INC.
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA A PROPOSED IMPROVEMENTS
CAPTAIN BILL CREEK

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	APRIL 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.1

SEE SHEET C9.1 FOR MH IMPROVEMENTS

SSMH - #130
TOP=22.59'
IE 8" VCP FLOWLINE=13.75'

EXIST MH-130
N:239007.5519
E:2007965.9519
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:9.50'
W. IN: 10" VCP
S. OUT: 10" VCP

CONTINUES ON SHEET C9.1

(SEE NOTE #6)

LINES (TYP.)
GIS MAPS

LEGEND: DESCRIPTION

SEE SHEET G9.4 FOR EXISTING CONDITIONS

REHAB BY PIPEBURST 284 LF
EXISTING 10" VCP TO 12" HDPE
GRAVITY SEWER FROM MH-130 TO
MH-121A.

MH-121A
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING RIM ELEVATION OF 23.1' (APPROXIMATELY 2.3' ABOVE GRADE).
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL SEAMLESS EPDM RUBBER SEAL FOR EXTERNAL CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-121A
N:238727.4424
E:2007986.8787
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:11.30'
N. IN: 10" VCP
S. OUT: 10" VCP

WETLAND LINE (TYP.)

SSMH - #121A
TOP=23.14'
IE 8" VCP
FLOWLINE=11.88'

063-27-13-019

063-30-01-001

REHAB BY PIPEBURST 280 LF
EXISTING 10" VCP TO 12"
HDPE GRAVITY SEWER
FROM MH-121A TO MH-121

APPROXIMATE PARCEL LINES (TYP.)
PER JASPER COUNTY GIS MAPS
(SEE NOTE #6)

MH-121
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING RIM ELEVATION OF 23.8' (APPROXIMATELY 2' ABOVE GRADE).
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL SEAMLESS EPDM RUBBER SEAL FOR EXTERNAL CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-121
N:238452.2372
E:2008007.4962
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:13.00'
N. IN: 10" VCP
W. IN: 8"
S. OUT: 10" VCP

SSMH
TOP=23.66'
IE 8" VCP=IN=11.51'
IE 8" PVC
IE 8" PVC

SSMH - #121
TOP=23.75'
IE 8" VCP FLOWLINE=10.82'
IE 8" PVC
IE 8" PVC
IE 8" PVC

063-27-13-007

CONTINUES ON SHEET C9.3

CAPTAIN BILL CREEK

AREA A KEY MAP

N

0 30' 60'

LEGEND: DESCRIPTION

- (S) - DENOTES EXISTING MANHOLE
- SAN - DENOTES EXISTING SANITARY SEWER PIPE
- WAT - DENOTES EXISTING WATER MAIN
- DENOTES SILT FENCE
- DENOTES WETLAND LINE
- DENOTES WETLAND
- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
- DENOTES MILL AND RESURFACE
- DENOTES ASPHALT REMOVE AND REPLACE
- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
- DENOTES SEWER LATERAL CONNECTION RESTORATION
- DENOTES EXISTING SEWER LATERAL
- DENOTES PIPE REMOVAL AREA
- DENOTES MAJOR DEFECT
- DENOTES POINT REPAIR

NOTES:
1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
2. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEBRIS AND MATERIALS FROM WITHIN THE MANHOLES OR PIPELINES PRIOR TO REHABILITATION. ALL COSTS FOR PROPER DISPOSAL SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAYMENT WILL BE MADE FOR DISPOSAL. CONTRACTOR SHALL PREPARE ALL MANHOLES AND PIPES FOR REHABILITATION IN ACCORDANCE WITH REHABILITATION PRODUCT MANUFACTURERS' REQUIREMENTS.
3. CONTRACTOR SHALL REMOVE STEPS OR ANY REMAINING COMPONENTS OF STEPS IN MANHOLES PRIOR TO INSTALLING LINER OR SEALING SYSTEMS.
4. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY SEWER BYPASSING OPERATIONS NECESSARY FOR THE SEWER REHABILITATION PROJECT. COORDINATE ALL BYPASSING WITH TOWN OF RIDGELAND WATER AND SEWER SUPERINTENDENT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ALL DISTURBED AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS WITHIN PROJECT LIMITS WITH HYDROSEEDING AND/OR PERMANENT VEGETATION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY MATERIALS (SOIL, STONE, MATS) AND EQUIPMENT TO DEVELOP APPROPRIATE ACCESS AND SUITABLE WORKING SURFACE FOR PROPOSED CONSTRUCTION. ALL TEMPORARY MATERIALS AND EQUIPMENT USED SHALL BE REMOVED AFTER CONSTRUCTION AND SITE RESTORED. ALL COSTS FOR SUCH TEMPORARY MATERIALS SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAY ITEM WILL BE MADE.
8. CONTRACTOR SHALL ADHERE TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS. ALL WORK WITHIN WETLAND AREAS SHALL ADHERE TO REQUIREMENTS OF US ARMY CORPS OF ENGINEERST. ALL WORK IN SCDOT RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH SCDOT ENCROACHMENT PERMIT AND APPROVED PAVING RESTORATION AND MOT REQUIREMENTS.

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA A PROPOSED IMPROVEMENTS
CAPTAIN BILL CREEK

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	JOB #	17-1007
DRAWN	JMC	ISSUE DATE	APRIL 2023
		ISSUE	BID

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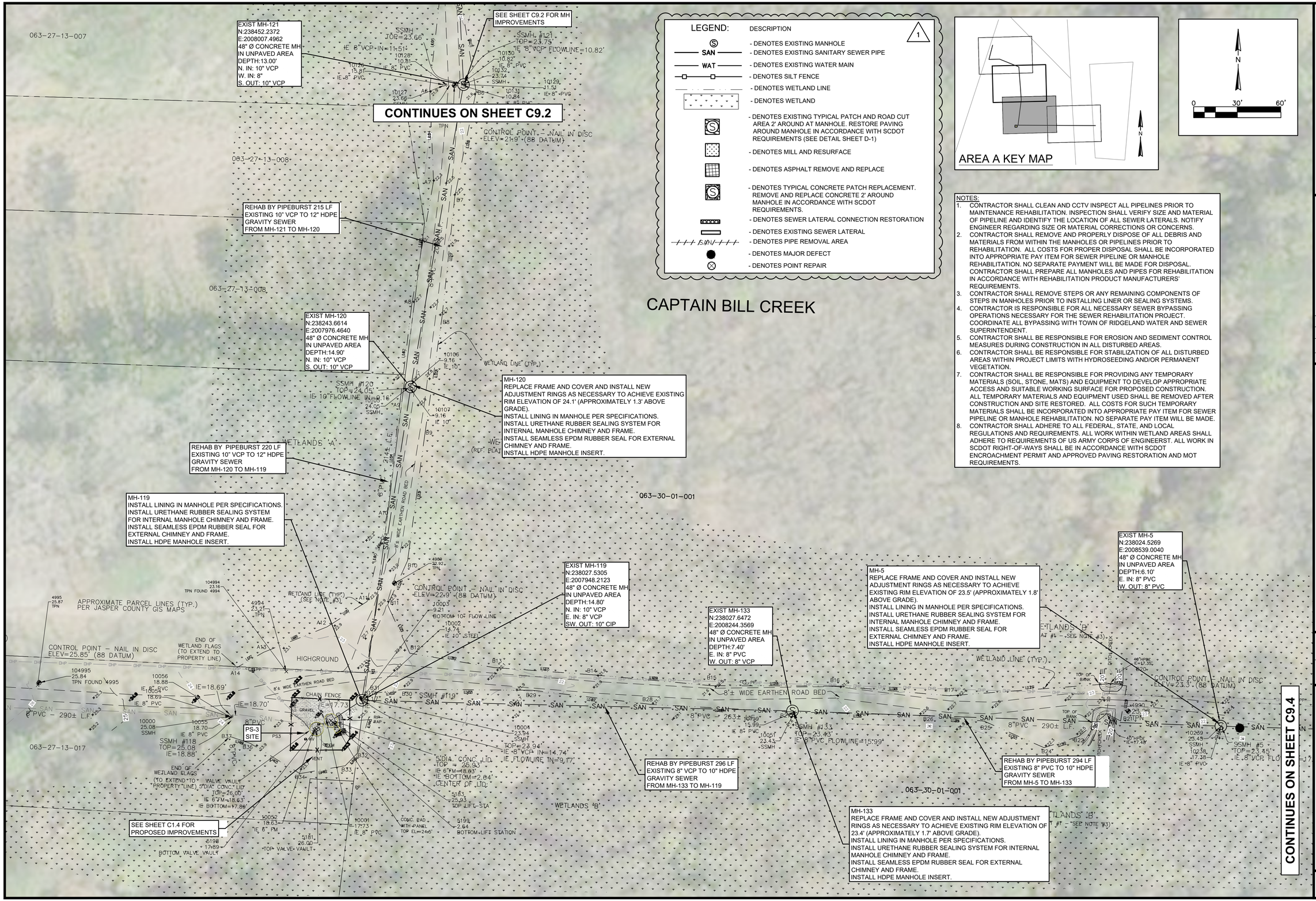
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.2



LEGEND:

	DESCRIPTION
Ⓢ	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
Ⓢ	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
Ⓢ	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
⊗	- DENOTES POINT REPAIR

AREA A KEY MAP

NOTES:

1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
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5. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ALL DISTURBED AREAS.
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SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2
AREA A PROPOSED IMPROVEMENTS
CAPTAIN BILL CREEK
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	APRIL 2023	BID

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

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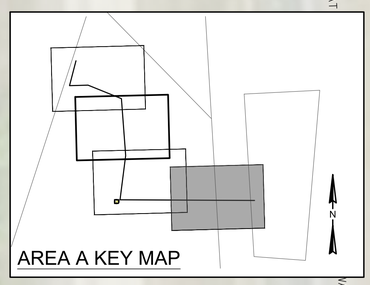
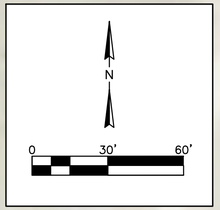
C9.3

CAPTAIN BILL CREEK

JASPER HIGHWAY (I-95)

AREA A KEY MAP





EXIST MH-5
N:238024.5269
E:2008539.0040
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:6.10'
E. IN: 8" PVC
W. OUT: 8" PVC

CONTINUES ON SHEET C9.3

SEE SHEET C9.3 FOR MH-5 IMPROVEMENTS

SEE SHEET G9.6 FOR EXISTING CONDITIONS

APPROXIMATE PARCEL LINES (TYP.) PER JASPER COUNTY GIS MAPS

063-30-01-002

CONTROL POINT - NAIL IN DISC ELEV=23.3' (88 DATUM)

REHAB BY PIPEBURST 335 LF EXISTING 8" VCP AND PVC TO 10" HDPE GRAVITY SEWER FROM MH-4 TO MH-5

EXIST MH-4
N:238022.7486
E:2008874.1643
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:10.90'
E. IN: 8" PVC
W. OUT: 8" PVC
WITH OUTSIDE DROP PIPE
(EAST SIDE)

6" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC AND VCP PIPE.
CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

MH-123
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING RIM ELEVATION.
REMOVE EXISTING INSIDE DROP AND REPLACE WITH 6" PVC INSIDE DROP. SEE DETAIL FOR TYPICAL FORCEMAIN CONNECTION TO MANHOLE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

MH-4
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING RIM ELEVATION OF 29.6' (APPROXIMATELY 2.5' ABOVE GRADE).
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL SEAMLESS EPDM RUBBER SEAL FOR EXTERNAL CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-123
N:238020.8263
E:2009259.7857
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:17.00'
N IN: 6" FM WITH INSIDE DROP
E. IN: 8" PVC
W. OUT: 8" PVC

SSMH #5
TOP=23.45'
IE 8" VCP FLOWLINE=17.38'

SSMH #4
TOP=29.62'

SSMH #123
TOP=43.54'
8"PVC IN=36.52'
(OPPOSITE SIDE OF I-95)

IE 8"PVC=24.74'

IE 8"PVC=18.71'

NOTES:
1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
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LEGEND:

	DESCRIPTION
S	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA A PROPOSED IMPROVEMENTS
CAPTAIN BILL CREEK TO JASPER HIGHWAY

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007	APRIL 2023	BID
ISSUE		DATE	ISSUE

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324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.4

NOTES:

1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
2. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEBRIS AND MATERIALS FROM WITHIN THE MANHOLES OR PIPELINES PRIOR TO REHABILITATION. ALL COSTS FOR PROPER DISPOSAL SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAYMENT WILL BE MADE FOR DISPOSAL. CONTRACTOR SHALL PREPARE ALL MANHOLES AND PIPES FOR REHABILITATION IN ACCORDANCE WITH REHABILITATION PRODUCT MANUFACTURERS' REQUIREMENTS.
3. CONTRACTOR SHALL REMOVE STEPS OR ANY REMAINING COMPONENTS OF STEPS IN MANHOLES PRIOR TO INSTALLING LINER OR SEALING SYSTEMS.
4. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY SEWER BYPASSING OPERATIONS NECESSARY FOR THE SEWER REHABILITATION PROJECT. COORDINATE ALL BYPASSING WITH TOWN OF RIDGELAND WATER AND SEWER SUPERINTENDENT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ALL DISTURBED AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS WITHIN PROJECT LIMITS WITH HYDROSEEDING AND/OR PERMANENT VEGETATION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY MATERIALS (SOIL, STONE, MATS) AND EQUIPMENT TO DEVELOP APPROPRIATE ACCESS AND SUITABLE WORKING SURFACE FOR PROPOSED CONSTRUCTION. ALL TEMPORARY MATERIALS AND EQUIPMENT USED SHALL BE REMOVED AFTER CONSTRUCTION AND SITE RESTORED. ALL COSTS FOR SUCH TEMPORARY MATERIALS SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAY ITEM WILL BE MADE.
8. CONTRACTOR SHALL ADHERE TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS. ALL WORK WITHIN WETLAND AREAS SHALL ADHERE TO REQUIREMENTS OF US ARMY CORPS OF ENGINEERST. ALL WORK IN SCDOT RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH SCDOT ENCROACHMENT PERMIT AND APPROVED PAVING RESTORATION AND MOT REQUIREMENTS.

JASPER STREET (S-63)

3RD AVENUE (S-64)

RUSSELL STREET (SC-366)

OWENS STREET (S-78)

2ND AVENUE (S-74)

EXIST MH-161
N:237054.9905
E:2004399.5805
48" Ø CONCRETE MH
IN ROADWAY (BRICK PAVERS)
DEPTH:5.80'
SW OUT: 8" PVC
NE IN: 8" PVC
NW IN: 6" PVC
SW. IN: 8" PVC

TTC: 610-005-20
FLAGGING OPERATIONS, WORKING ZONES CONTINUING THROUGH STOP SIGN CONTROLLED SIDE ROADS

MH-161
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

6" WATER MAIN
MATERIAL UNKNOWN

JASPER COUNTY GOVERNMENT BUILDINGS COMPLEX AND VEHICLE RESTRICTED BRICK PAVER PEDESTRIAN AREA

REHAB BY CIPP 232 LF EXISTING 8" PVC GRAVITY SEWER FROM MH-161 TO MH-149

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

MH-149
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-149
N:236827.8219
E:2004299.7731
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:7.80'
NE IN: 8" PVC
NW IN: 8" CLAY
SE. OUT: 8" CLAY

6" WATER MAIN
MATERIAL UNKNOWN

0 30' 60'

LEGEND:

	DESCRIPTION
Ⓢ	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
Ⓢ	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
Ⓢ	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR

1

AREA B KEY MAP

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	ABB	UPDATE TO LEGEND
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B PROPOSED IMPROVEMENTS
3RD AVENUE TO 2ND AVENUE

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN
ABB	JMC

JOB #	ISSUE DATE	
17-1007	APRIL 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.5

SEE INSET A THIS SHEET FOR NORTH WEST PIPE

8" WATER MAIN MATERIAL UNKNOWN

GRETSCH BUILDING

EXIST MH-79
N:237526.0182
E:2005138.3914
48" Ø BRICK MH
IN PAVED AREA
DEPTH:3.30'
N. IN: 8" VCP
S. OUT: 8" VCP

MH-79
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
FORM INVERT CHANNEL AND BENCH.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

8" WATER MAIN MATERIAL UNKNOWN

REHAB BY CIPP 274 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-79 TO MH-256

EXIST MH-256
N:237262.3510
E:2005212.3216
48" Ø BRICK MH
IN ROADWAY
DEPTH:4.30'
N. IN: 8" VCP
S. OUT: 8" VCP

MH-256
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

REHAB BY CIPP 186 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-256 TO MH-255

EXIST MH-255
N:237091.0156
E:2005141.8694
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:4.20'
N. IN: 8" VCP
W. IN: 8" VCP
SW. OUT: 8" VCP

MH-255
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-005-20
FLAGGING OPERATIONS, WORKING ZONES CONTINUING THROUGH STOP SIGN CONTROLLED SIDE ROADS

REMOVE AND REPLACE ASPHALT ROADWAY (~22 SY) FOR GRAVITY SEWER PIPE REPLACEMENT. SEE DETAIL SHEET D-1

4TH AVENUE (S-65)

MILL AND RESURFACE ASPHALT ROADWAY WITH 1-1/2" SCDOT TYPE "C" ASPHALT (~64 SY). TAPER OVERLAY ASPHALT TO TIE INTO EXISTING ASPHALT. RE-STRIPE ROADWAY TO MATCH EXISTING (PAINT OR THERMOPLASTIC TO BE DETERMINED BY SCDOT) AS NECESSARY PER SCDOT SPECIFICATIONS. MILL AND RESURFACE AREA SHALL BE FULL WIDTH OF BOTH LANES AND A MIN 5' BACK FROM EXCAVATION

POINT REPAIR 10 LF OF EXISTING 8" VCP WITH 8" PVC CENTERED AT OBSTRUCTION FROM MH-255 TO MH-257

REHAB BY CIPP 142 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-255 TO MH-257

TTC: 610-610-00
DETOUR SIGNING FOR
SECONDARY ROUTES

TOWN SQUARE (S-65)

SEE SHEET G9.9 FOR EXISTING CONDITIONS

SEE SHEET C9.7 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.7 FOR FOR PROPOSED MH IMPROVEMENTS

EXIST MH-257
N:236960.2217
E:2005087.3042
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.20'
W. IN: 8" VCP
NE. IN: 8" VCP
SE. OUT: 8" VCP

SEE SHEET C9.7 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.7 FOR FOR PROPOSED MH IMPROVEMENTS

EXIST MH-321
N:236970.2919
E:2005040.1233
48" Ø BRICK MH
IN UNPAVED AREA (GRAVEL)
DEPTH:5.50'
NW. IN: 8" VCP
E. OUT: 8" VCP

CONTINUES ON SHEET C9.7

CONTINUES ON SHEET C9.7

INSET A

REMOVE EXISTING 109 LF DIP GRAVITY SEWER AND REPLACE WITH 8" PVC. 70 LF 8" PVC GRAVITY SEWER SHALL BE INSTALLED IN 12" STEEL CASING PIPE WITH END CAPS FROM 5 LF NORTHWEST OF VOLUNTEER PARK ROAD TO MH-270. 8" PVC GRAVITY SEWER SHALL MAINTAIN EXISTING SLOPE

REMOVE AND REPLACE ASPHALT ROADWAY (~28 SY) FOR GRAVITY SEWER PIPE REPLACEMENT. SEE DETAIL SHEET D-1

MILL AND RESURFACE ASPHALT ROADWAY WITH 1-1/2" SCDOT TYPE "C" ASPHALT (~60 SY). TAPER OVERLAY ASPHALT TO TIE INTO EXISTING ASPHALT. RESTRIPE ROADWAY WITH PAINT AS NECESSARY PER SCDOT SPECIFICATIONS. MILL AND RESURFACE AREA SHALL BE FULL WIDTH AND A MIN 5' BACK FROM EXCAVATION.

VOLUNTEER PARK ROAD

MH-270
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE RIM ELEVATION APPROXIMATELY 1' ABOVE GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL SEAMLESS EPDM RUBBER SEAL FOR EXTERNAL CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-270
N:238037.9114
E:2004983.5485
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:2.06'
NW. IN: 6" DIP
SE. OUT: 6" DIP

8" WATER MAIN MATERIAL UNKNOWN

6" WATER MAIN MATERIAL UNKNOWN

TTC:610-601-00 DETOUR SIGNING FOR SECONDARY ROADS

GRETSCH BUILDING

GRAVITY SEWER PIPING PASSES THROUGH DRAINAGE SWALE. MAINTAIN DRAINAGE DURING CONSTRUCTION AND RESTORE SWALE AND EMBANKMENT

GRAYS HIGHWAY (US-278)

EXIST MH-80
N:238113.8779
E:2004906.1312
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:1.71'
NW. IN: 6"
SE. OUT 6" DIP

MH-80
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

AREA B KEY MAP

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LEGEND:

	DESCRIPTION
Ⓢ	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR

0 30' 60'

SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	LEGEND AN OTHER EDITS
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2
AREA B PROPOSED IMPROVEMENTS TOWN SQUARE
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB | DRAWN JMC
JOB # 17-1007 | ISSUE DATE APRIL 2023 | BID
ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.6

LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-2\X\CDS\RIDGELAND EDA PART 2 PROPOSED IMPROVEMENTS.DWG
PLOT DATE AND TIME: 6/1/2023 7:33:03 PM

NOTES:
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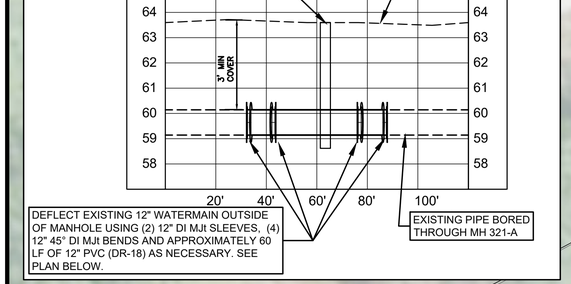
LEGEND:

	DESCRIPTION
S	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
S	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
S	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR



DEFLECT EXISTING 12" WATERMAIN OUTSIDE OF MANHOLE USING (2) 12" DI MJt BENDS AND APPROXIMATELY 60 LF OF 12" PVC (DR-18) AS NECESSARY. SEE PLAN BELOW.

EXISTING PIPE BORED THROUGH MH 321-A

SEE SHEET C9.6 FOR PROPOSED MH IMPROVEMENTS

EXIST MH-79
N:237526.0182
E:2005138.3914
48" Ø BRICK MH
IN PAVED AREA
DEPTH:3.30'
N. IN: 8" VCP
S. OUT: 8" VCP

SEE SHEET C9.6 FOR PROPOSED PIPE IMPROVEMENTS

EXIST MH-256
N:237262.3510
E:2005212.3216
48" Ø BRICK MH
IN ROADWAY
DEPTH:4.30'
N. IN: 8" VCP
S. OUT: 8" VCP

SEE SHEET C9.6 FOR PROPOSED MH IMPROVEMENTS

SEE SHEET C9.6 FOR PROPOSED PIPE IMPROVEMENTS

EXIST MH-255
N:237091.0156
E:2005141.8694
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:4.20'
N. IN: 8" VCP
W. IN: 8" VCP
SW. OUT: 8" VCP

SEE SHEET C9.6 FOR PROPOSED MH IMPROVEMENTS

SEE SHEET C9.6 FOR PROPOSED PIPE IMPROVEMENTS

EXIST MH-257
N:236960.2217
E:2005087.3042
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.20'
W. IN: 8" VCP
NE. IN: 8" VCP
SE. OUT: 8" VCP

SEE SHEET C9.8 FOR PROPOSED MH IMPROVEMENTS

EXIST MH-254
N:237042.1412
E:2005481.7471
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:3.00'
SW. OUT: 8" VCP
"FLUSH WELL"
SYSTEM WITH STAND PIPES

SEE SHEET C9.8 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.8 FOR PROPOSED MH-254A IMPROVEMENTS

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

SEE SHEET C9.8 FOR PROPOSED MH IMPROVEMENTS

EXIST MH-253
N:236829.2922
E:2005394.5959
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.10'
W. IN: 8" VCP
N. IN: 8" VCP
S. OUT: 8" VCP

SEE SHEET G9.10 FOR EXISTING CONDITIONS

REHAB BY CIPP 332 LF
EXISTING 8" VCP AND NEW 8" PVC
GRAVITY SEWER
FROM MH-253 TO MH-257

EXISTING HOLE SOIL VISIBLE 209.8 LF
FROM MH-253 TO MH-257

POINT REPAIR 88 LF OF EXISTING 8" VCP WITH 8" PVC (SDR 26) FROM 10' OUTSIDE OF THE NOTED MAJOR DEFECTS BETWEEN MH-253 TO MH-257

ABANDONED SURVEY DUE TO COLLAPSED PIPE WITH CONSTRUCTION DEBRIS OBSTACLE 269.9 LF FROM 253 TO MH-257

EXCAVATE 4'X6' AREA AND RESTORE 1 EXISTING SEWER SERVICE LATERALS BETWEEN MH-253 TO MH-257 (TYP OF 1)

SEE SHEET C9.8 FOR PROPOSED PIPE IMPROVEMENTS

6" WATER MAIN
MATERIAL UNKNOWN

EXIST MH-252
N:236547.3865
E:2005278.7761
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.70'

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

SEE SHEET C9.8 FOR PROPOSED MH IMPROVEMENTS

AREA B KEY MAP

4TH AVENUE (S-65)

TOWN SQUARE (S-65)

GRAYS HIGHWAY (US-278)

N PERRY STREET (S-67)

3RD AVENUE (US-278)

12" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

CUT EXISTING 12" WATER MAIN AT SEWER CONFLICT MANHOLE WALL LEAVING PIPE WITHIN WALL IN PLACE. INSTALL BRICK AND MORTAR PLUG AND SEAL WITHIN THE REMAINING PIPE FOR ABANDONMENT. EXISTING BRICK MANHOLE TO REMAIN INTACT AND OPERATIONAL. ANY DAMAGE TO MANHOLE SHALL BE RESTORED IN ACCORDANCE WITH SPECIFICATIONS.

MAINTAIN MINIMUM 18" CLEARANCE OVER GRAVITY SEWER

REMOVE AND REPLACE ASPHALT ROADWAY (~30 SY) FOR WATER MAIN PIPE REPLACEMENT. SEE DETAIL SHEET D-1

10' MIN (TYP)

DEFLECT EXISTING 12" WATERMAIN OUTSIDE OF MANHOLE USING (2) 12" DI MJt SLEEVES, (4) 12" 45° DI MJt BENDS AND APPROXIMATELY 60 LF OF 12" PVC (DR-18) AS NECESSARY, SEE PROFILE ABOVE

REHAB BY CIPP 107 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-78 TO MH-321A

SEE SHEET G9.10 FOR EXISTING CONDITIONS

MH-78
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

EXIST MH-78
N:237088.4649
E:2004772.7862
22" Ø BRICK MH
IN ROADWAY
DEPTH:4.40'
NW. IN: VCP
SE. OUT: 8" VCP

RUSSELL ST

3' MIN

TTC: PRIMARY ROUTE
US278 DETOUR

EXISTING PIPE BORED THROUGH MH 321-A

MH-321A
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO RAISE BURIED MANHOLE AND ACHIEVE EXISTING GRADE. INSTALL LINING IN MANHOLE PER SPECIFICATIONS. INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME. INSTALL HDPE MANHOLE INSERT.

MILL AND RESURFACE ASPHALT ROADWAY WITH 1-1/2" SCDOT TYPE "C" ASPHALT (~282 SY). TAPER OVERLAY ASPHALT TO TIE INTO EXISTING ASPHALT. RESTRIPE ROADWAY TO MATCH EXISTING (PAINT OR THERMOPLASTIC TO BE DETERMINED BY SCDOT) NECESSARY PER SCDOT SPECIFICATIONS. MILL AND RESURFACE AREA SHALL BE FULL WIDTH OF BOTH LANES AND A MIN 10' BACK FROM EXCAVATION

EXIST BURIED MH-321A
N:237045.3347
E:2004869.8337
48" Ø BRICK MH
IN ROADWAY
PIPE BORED THROUGH MH
DEPTH: ~5.00'
NW. IN: 8" VCP
SE. OUT: 8" VCP

REHAB BY CIPP 48 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-321 TO MH-257

MH-321
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

REHAB BY CIPP 186 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-321A TO MH-321

EXIST MH-321
N:236970.2919
E:2005040.1233
48" Ø BRICK MH
IN UNPAVED AREA (GRAVEL)
DEPTH:5.50'
NW. IN: 8" VCP
E. OUT: 8" VCP

MH-257
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TOWN SQUARE (S-65)

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	ABJ	LEGEND PROFILE AND GENERAL EDITS
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B PROPOSED IMPROVEMENTS
GRAYS HIGHWAY TO N. PERRY STREET

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB
DRAWN	JMC
JOB #	17-1007
ISSUE DATE	APRIL 2023
ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.7

CONTINUES ON SHEET C9.7

EXIST MH-256
N:237262.3510
E:2005212.3216
48" Ø BRICK MH
IN ROADWAY
DEPTH:4.30'
N. IN: 8" VCP
S. OUT: 8" VCP

SEE SHEET C9.6 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.6 FOR PROPOSED MH IMPROVEMENTS

EXIST MH-255
N:237091.0156
E:2005141.8694
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:4.20'
N. IN: 8" VCP
W. IN: 8" VCP
SW. OUT: 8" VCP

4TH AVENUE (S-65)

TOWN SQUARE (S-66)

SEE SHEET C9.6 FOR PROPOSED PIPE IMPROVEMENTS

EXIST MH-257
N:236960.2217
E:2005087.3042
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.20'
W. IN: 8" VCP
NE. IN: 8" VCP
SE. OUT: 8" VCP

SEE SHEET C9.7 FOR PROPOSED PIPE IMPROVEMENTS

EXIST MH-321
N:236970.2919
E:2005040.1233
48" Ø BRICK MH
IN UNPAVED AREA (GRAVEL)
DEPTH:5.50'
NW. IN: 8" VCP
E. OUT: 8" VCP

SEE SHEET C9.7 FOR PROPOSED MH IMPROVEMENTS

SEE SHEET C9.7 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.7 FOR PROPOSED MH IMPROVEMENTS

SEE SHEET C9.7 FOR PROPOSED PIPE IMPROVEMENTS

EXIST MH-254
N:237042.1412
E:2005481.7471
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:3.00'
SW. OUT: 8" VCP
"FLUSH WELL"
SYSTEM WITH STAND PIPES

MH-254
REMOVE EXISTING MANHOLE FULL DEPTH, BACKFILL AND RESTORE AREA. CUT AND CAP ANY WATER SERVICES TO MANHOLE.

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

REMOVE AND REPLACE ASPHALT ROADWAY (~42 SY) FOR GRAVITY SEWER PIPE REPLACEMENT. SEE DETAIL SHEET D-1

CONTRACTOR TO REMOVE APPROXIMATELY 105 LF OF 8" VCP. BACKFILL AND RESTORE AREA.

EXISTING CONDUIT (POTENTIAL FIBER OPTIC) INTERSECTING MAIN SEWER LINE
124 LF FROM MH-253 TO MH-254
SEE SHEET G9.10 FOR EXISTING CONDITIONS

UNOPENED ROW

1

MILL AND RESURFACE ASPHALT ROADWAY WITH 1-1/2" SCDOT TYPE "C" ASPHALT (~103 SY). TAPER OVERLAY ASPHALT TO TIE INTO EXISTING ASPHALT. RESTRIPE ROADWAY TO MATCH EXISTING (PAINT OR THERMOPLASTIC TO BE DETERMINED BY SCDOT) AS NECESSARY PER SCDOT SPECIFICATIONS. MILL AND RESURFACE AREA SHALL BE FULL WIDTH OF BOTH LANES, SHALL EXTEND TO EDGE OF PAVEMENT ON UNOPENED ROW AND SHALL EXTEND A MIN 5' BACK FROM EXCAVATION

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

REHAB BY CIPP 124 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-253 TO MH-254A

NEW MH-254A
N:236945.4113
E:2005441.6087
INSTALL NEW PRECAST SEWER MANHOLE
(SEE DETAIL D-1) INSTALL LINING IN MANHOLE PER SPECIFICATIONS. INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME. INSTALL HDPE MANHOLE INSERT.
DEPTH ~4.00'
S. OUT 8" VCP
CONNECT EXISTING 8" GRAVITY SEWER TO MANHOLE WITH BOOT

EXIST MH-253
N:236829.2922
E:2005394.5959
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.10'
N. IN: 8" VCP
S. OUT: 8" VCP

MH-253
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

N PERRY STREET (S-67)

6" WATER MAIN
MATERIAL UNKNOWN

REHAB BY CIPP 302 LF EXISTING 8" VCP AND 8" CAST IRON GRAVITY SEWER FROM MH-253 TO MH-252

RAILROAD TRACKS

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

EXIST MH-252
N:236547.3865
E:2005278.7761
48" Ø BRICK MH
IN ROADWAY
DEPTH:5.70'
N. IN: 8" VCP
S. OUT: 8" VCP

MH-252
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

3RD AVENUE (US-278)

12" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

LEGEND:

	DESCRIPTION
S	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
S	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
S	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR

NOTES:
1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
2. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEBRIS AND MATERIALS FROM WITHIN THE MANHOLES OR PIPELINES PRIOR TO REHABILITATION. ALL COSTS FOR PROPER DISPOSAL SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAYMENT WILL BE MADE FOR DISPOSAL. CONTRACTOR SHALL PREPARE ALL MANHOLES AND PIPES FOR REHABILITATION IN ACCORDANCE WITH REHABILITATION PRODUCT MANUFACTURERS' REQUIREMENTS.
3. CONTRACTOR SHALL REMOVE STEPS OR ANY REMAINING COMPONENTS OF STEPS IN MANHOLES PRIOR TO INSTALLING LINER OR SEALING SYSTEMS.
4. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY SEWER BYPASSING OPERATIONS NECESSARY FOR THE SEWER REHABILITATION PROJECT. COORDINATE ALL BYPASSING WITH TOWN OF RIDGELAND WATER AND SEWER SUPERINTENDENT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ALL DISTURBED AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS WITHIN PROJECT LIMITS WITH HYDROSEEDING AND/OR PERMANENT VEGETATION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY MATERIALS (SOIL, STONE, MATS) AND EQUIPMENT TO DEVELOP APPROPRIATE ACCESS AND SUITABLE WORKING SURFACE FOR PROPOSED CONSTRUCTION. ALL TEMPORARY MATERIALS AND EQUIPMENT USED SHALL BE REMOVED AFTER CONSTRUCTION AND SITE RESTORED. ALL COSTS FOR SUCH TEMPORARY MATERIALS SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAY ITEM WILL BE MADE.
8. CONTRACTOR SHALL ADHERE TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS. ALL WORK WITHIN WETLAND AREAS SHALL ADHERE TO REQUIREMENTS OF US ARMY CORPS OF ENGINEERST. ALL WORK IN SCDOT RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH SCDOT ENCROACHMENT PERMIT AND APPROVED PAVING RESTORATION AND MOT REQUIREMENTS.

0 30' 60'

AREA B KEY MAP

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	UPDATE TO LEGEND AND CALLOUTS
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

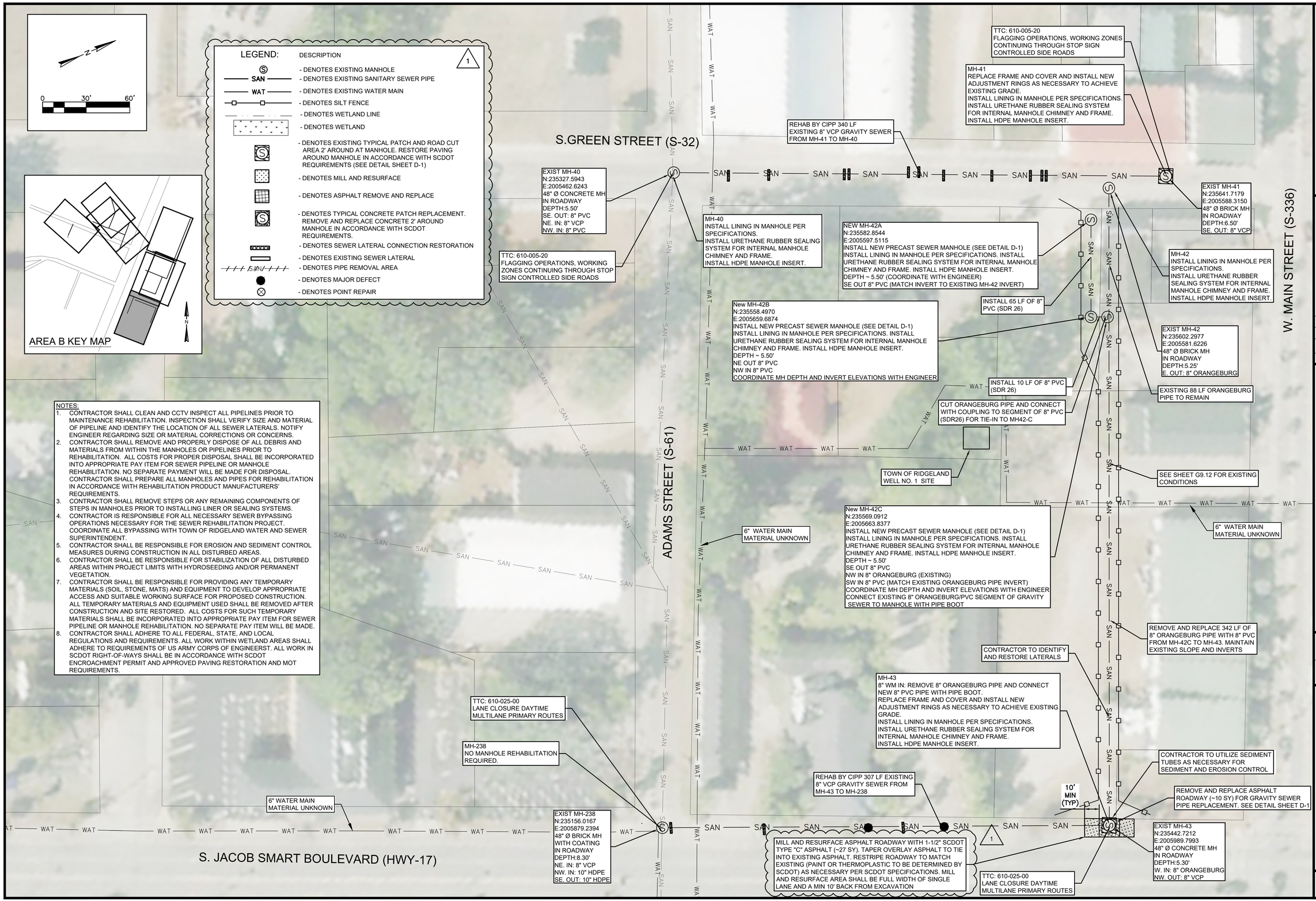
AREA B PROPOSED IMPROVEMENTS
4TH AVENUE TO 3RD AVENUE

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	APRIL 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.8



NOTES:
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8. CONTRACTOR SHALL ADHERE TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS. ALL WORK WITHIN WETLAND AREAS SHALL ADHERE TO REQUIREMENTS OF US ARMY CORPS OF ENGINEERST. ALL WORK IN SCDOT RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH SCDOT ENCROACHMENT PERMIT AND APPROVED PAVING RESTORATION AND MOT REQUIREMENTS.

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
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1	5/23	SD	AB	UPDATE TO LEGEND AND CALLOUT
2				
3				
4				
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6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B PROPOSED IMPROVEMENTS
S. JACOB SMART BLVD TO S. GREEN ST

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.9

LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-2\X\CDS\RIDGELAND EDA PART 2 PROPOSED IMPROVEMENTS.DWG
PLOT DATE AND TIME: 6/1/2023 7:33:17 PM

6" WATER MAIN
MATERIAL UNKNOWN

W. MAIN STREET (S-336)

EXIST MH-194
N:235840.3594
E:2005681.9702
48" Ø BRICK MH
IN ROADWAY
DEPTH:3.90'
NE. OUT: 8" VCP

TTC: 610-610-00
DETOUR SIGNING FOR
SECONDARY ROUTES

REHAB BY CIPP 348 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-193 TO MH-194

EXIST MH-44
N:235804.9801
E:2005726.1456
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:5.80'
SE. OUT: 8" VCP

MH-194
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

MH-44
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

POINT REPAIR 10 LF OF EXISTING 8" VCP WITH 8" PVC (SDR26) CENTER AT MAJOR DEFECT FROM MH-44 TO MH-45

REHAB BY CIPP 297 LF EXISTING 8" VCP GRAVITY SEWER FREOM MH-44 TO MH-45

CONTRACTOR TO UTILIZE SEDIMENT TUBES AS NECESSARY FOR SEDIMENT AND EROSION CONTROL

SEE SHEET G9.13 FOR EXISTING CONDITIONS

MH-45
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-45
N:235695.3414
E:2006002.4146
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:5.80'
NW. IN: 8" VCP
NE. OUT: 8" VCP

REHAB BY CIPP 360 LF EXISTING 8" VCP GRAVITY SEWER FROM MH-45 TO MH-192

6" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

N. JACOB SMART BOULEVARD (HWY-17)

N. GREEN STREET (S-32)

EXIST MH-193
N:236162.8746
E:2005811.3929
48" Ø BRICK MH
IN ROADWAY
DEPTH:6.10'
SE OUT: 8" VCP
SW IN: 8" VCP
NW IN: 8" VCP
NE IN: 8" VCP

TTC: 610-610-00
DETOUR SIGNING FOR
SECONDARY ROUTES

MH-193
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

REHAB BY CIPP 351 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-193 TO MH-192

W. WILSON STREET (S-59)

SEE SHEET C9.11 FOR MH PROPOSED IMPROVEMENTS

TTC: 610-610-00
DETOUR SIGNING FOR
SECONDARY ROUTES

EXIST MH-192
N:236028.9522
E:2006138.2556
48" Ø BRICK MH
IN ROADWAY
DEPTH:7.70'
SW. IN: 8" VCP
NW. IN: 8' VCP
SE. OUT: 8" VCP

SEE SHEET C9.11 FOR MH PROPOSED IMPROVEMENTS

TTC: 610-025-00
LANE CLOSURE DAYTIME
MULTILANE PRIMARY ROUTES

EXIST MH-191
N:235992.5400
E:2006222.2764
48" Ø BRICK MH
WITH COATING
IN ROADWAY
DEPTH:8.80'
NW. IN: 8" VCP
N. IN: 8" VCP
SE OUT: 10" HDPE

SEE SHEET C9.11 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.11 FOR PROPOSED PIPE IMPROVEMENTS

3RD AVENUE (US-278)

CONTINUES ON C9.11

NOTES:
1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
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4. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY SEWER BYPASSING OPERATIONS NECESSARY FOR THE SEWER REHABILITATION PROJECT. COORDINATE ALL BYPASSING WITH TOWN OF RIDGELAND WATER AND SEWER SUPERINTENDENT.
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0 30' 60'

AREA B KEY MAP

LEGEND:

	DESCRIPTION
Ⓢ	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
Ⓢ	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
Ⓢ	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
Ⓧ	- DENOTES POINT REPAIR

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	UPDATE TO LEGEND
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B PROPOSED IMPROVEMENTS
N. JACOB SMART BLVD TO N. GREEN ST

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	JOB #	17-1007
DRAWN	JMC	ISSUE DATE	APRIL 2023
			BID
			ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.10

CONTINUES ON SHEET C9.10

CONTINUES ON SHEET C9.10

CONTINUES ON SHEET C9.12

W. WILSON STREET (S-59)

3RD AVENUE (US-278)

N. JACOB SMART BOULEVARD (HWY-17)

SEE SHEET C9.10 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.10 FOR PROPOSED MH IMPROVEMENTS

SEE SHEET C9.10 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.10 FOR PROPOSED PIPE IMPROVEMENTS

SEE SHEET C9.12 FOR PROPOSED PIPE IMPROVEMENTS

EXIST MH-45
N:235695.3414
E:2006002.4146
48" Ø BRICK MH
IN UNPAVED AREA
DEPTH:5.80'
W. IN: 8" VCP
N. OUT: 8" VCP

EXIST MH-192
N:236028.9522
E:2006138.2556
48" Ø BRICK MH
IN ROADWAY
DEPTH:7.70
SW. IN: 8" VCP
NW. IN: 8" VCP
SE. OUT: 8" VCP

MH-192
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-610-00
DETOUR SIGNING FOR SECONDARY ROUTES

REHAB BY CIPP 92 LF EXISTING 8" VCP GRAVITY SEWER FROM MH-192 TO MH-191

REHAB BY CIPP 428 LF EXISTING 8" VCP AND 8" PVC GRAVITY SEWER FROM MH-273 TO MH-191

TTC: 610-025-00
LANE CLOSURE DAYTIME
MULTILANE PRIMARY ROUTES

TTC: 610-025-00
LANE CLOSURE DAYTIME
MULTILANE PRIMARY ROUTES

EXIST MH-191
N:235992.5400
E:2006222.2764
48" Ø BRICK MH
WITH COATING
IN ROADWAY
DEPTH:8.80'
NW IN: 8" VCP
NE. IN: 8" VCP
SE. OUT: 10" HDPE

EXIST MH-273
N:236365.1972
E:2006367.9999
48" Ø BRICK MH
IN ROADWAY
DEPTH:9.20'
NE. IN: 8" VCP
NW. IN: 8" VCP
SW. OUT: 8" VCP

MH-273
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

MH-191
NO MANHOLE REHABILITATIONS REQUIRED

6" WATER MAIN
MATERIAL UNKNOWN

6" WATER MAIN
MATERIAL UNKNOWN

NOTES:
1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
2. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEBRIS AND MATERIALS FROM WITHIN THE MANHOLES OR PIPELINES PRIOR TO REHABILITATION. ALL COSTS FOR PROPER DISPOSAL SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAYMENT WILL BE MADE FOR DISPOSAL. CONTRACTOR SHALL PREPARE ALL MANHOLES AND PIPES FOR REHABILITATION IN ACCORDANCE WITH REHABILITATION PRODUCT MANUFACTURERS' REQUIREMENTS.
3. CONTRACTOR SHALL REMOVE STEPS OR ANY REMAINING COMPONENTS OF STEPS IN MANHOLES PRIOR TO INSTALLING LINER OR SEALING SYSTEMS.
4. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY SEWER BYPASSING OPERATIONS NECESSARY FOR THE SEWER REHABILITATION PROJECT. COORDINATE ALL BYPASSING WITH TOWN OF RIDGELAND WATER AND SEWER SUPERINTENDENT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ALL DISTURBED AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS WITHIN PROJECT LIMITS WITH HYDROSEEDING AND/OR PERMANENT VEGETATION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY MATERIALS (SOIL, STONE, MATS) AND EQUIPMENT TO DEVELOP APPROPRIATE ACCESS AND SUITABLE WORKING SURFACE FOR PROPOSED CONSTRUCTION. ALL TEMPORARY MATERIALS AND EQUIPMENT USED SHALL BE REMOVED AFTER CONSTRUCTION AND SITE RESTORED. ALL COSTS FOR SUCH TEMPORARY MATERIALS SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAY ITEM WILL BE MADE.
8. CONTRACTOR SHALL ADHERE TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS. ALL WORK WITHIN WETLAND AREAS SHALL ADHERE TO REQUIREMENTS OF US ARMY CORPS OF ENGINEERST. ALL WORK IN SCDOT RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH SCDOT ENCROACHMENT PERMIT AND APPROVED PAVING RESTORATION AND MOT REQUIREMENTS.

AREA B KEY MAP

LEGEND:

	DESCRIPTION
Ⓢ	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
Ⓢ	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
Ⓢ	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR

1

0 30' 60'

SOUTH CAROLINA PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
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CONTINUES ON SHEET C9.12

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B PROPOSED IMPROVEMENTS
N. JACOB SMART BLVD TO N. GREEN ST

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JKC	17-1007	APRIL 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.11

EXIST MH-184
N:236532.1094
E:2005952.1476
48" Ø BRICK MH
IN ROADWAY
DEPTH:7.25'
NE. IN: 6" PVC
SW. IN: 6" PVC
SE. OUT: 8" VCP

TTC: 610-610-00
DETOUR SIGNING FOR
SECONDARY ROUTES

MH-184
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

6" WATER MAIN
MATERIAL UNKNOWN

REHAB BY CIPP 448 LF EXISTING
8" VCP GRAVITY SEWER FROM
MH-184 TO MH-273

6" WATER MAIN
MATERIAL UNKNOWN

AREA B KEY MAP

N. GREEN STREET (S-32)

MALPHRUS STREET (S-45)

HWY 17 - N. JACOB SMART BOULEVARD

EXIST MH-273
N:236365.1972
E:2006367.9999
48" Ø BRICK MH
IN ROADWAY
DEPTH:9.20'
S. IN: 8" VCP
W. IN: 8" VCP
N. OUT: 8" VCP

REHAB BY CIPP 282 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-182 TO MH-273

EXIST MH-182
N:236626.9533
E:2006471.5618
48" Ø BRICK MH
WITH COATING
IN ROADWAY
DEPTH:8.40'
NE. IN: 8" VCP
NW. IN: 8" VCP
SW. OUT: 8" VCP

MH-182
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM
FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-025-00
LANE CLOSURE DAYTIME
MULTILANE PRIMARY ROUTES

REHAB BY CIPP 576 LF
EXISTING 8" VCP GRAVITY SEWER
FROM MH-189 TO MH-182

MH-189
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM
FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-025-00
LANE CLOSURE DAYTIME
MULTILANE PRIMARY ROUTES

EXIST MH-189
N:237162.4692
E:2006683.4322
48" Ø BRICK MH
IN ROADWAY
DEPTH:4.80'
NW. IN: 8" VCP
SW. OUT: 8" VCP

SEE SHEET C9.11 FOR
PROPOSED MH IMPROVEMENTS

CONTINUES ON SHEET G9.11

LEGEND:

	DESCRIPTION
Ⓢ	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
Ⓢ	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
Ⓢ	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
⊗	- DENOTES POINT REPAIR

NOTES:
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0 30' 60'

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA B PROPOSED IMPROVEMENTS
GREEN ST TO MALPHRUS ST (S-45)

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.12

LEGEND:

	DESCRIPTION
S	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
S	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
S	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR

1

AREA C KEY MAP

NOTES:
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N

0 30' 60'

S.C. HIGHWAY 336
E. MAIN STREET R/W VARIES

WILSON STREET (S-157)

BUCKNER ROAD

E. ADAMS STREET (S-61)

ADAMS ST

JAMES L TAYLOR DRIVE

6" WATER MAIN MATERIAL UNKNOWN

6" WATER MAIN MATERIAL UNKNOWN

6" WATER MAIN MATERIAL UNKNOWN

6" WATER MAIN MATERIAL UNKNOWN

EXIST MH-170
N:234827.0770
E:2007710.6664
48" Ø CONCRETE MH
IN ROADWAY (ADAMS ST)
(FRAME OFFSET)
DEPTH:6.70'
S. IN: 8" PVC
E. OUT: 8" PVC

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

MH-170
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

EXIST MH-10
N:234645.4969
E:2008151.4165
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:4.70'
S. IN: 6" PVC
W. IN: 8" PVC
E. OUT: 8" PVC

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

MH-10
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

MH-11
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-11
N:234740.4491
E:2007922.7149
48" Ø CONCRETE MH
IN CONRETE DRIVEWAY
(BROKEN CONCRETE)
DEPTH:5.70'
SE. OUT: 8" PVC

EXIST BURIED MH-10A
N:234658.8862
E:2008118.6742
48" Ø CONCRETE MH
IN PARKING LOT
DEPTH:3.20'
NW IN: 8" PVC
E. OUT: 8" PVC

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

MH-10A
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

EXIST MH-172
N:234634.3706
E:2007493.2350
48" Ø CONRETE MH
IN UNPAVED AREA
DEPTH:6.30'
E. OUT: 8" PVC

MH-172
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

MH-171
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-171
N:234587.1502
E:2007718.0743
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:5.90'
W. IN: 8" PVC
N. OUT: 8" PVC
S. IN: 4" PVC
DROP PIPE (INSIDE)

CONTINUES ON SHEET C9.14

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2
AREA C PROPOSED IMPROVEMENTS
E. ADAM ST TO MAIN ST
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.13

CONTINUES ON SHEET C9.13

SEE SHEET C9.13 FOR PROPOSED MH IMPROVEMENTS

EXIST MH-10
N:234645.4969
E:2008151.4165
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:4.70'
W. IN: 8" PVC
S. IN: 6" PVC
E. OUT: 8" PVC

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

EXIST MH-9
N:234573.7671
E:2008310.6064
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:10.83'
NW. IN: 8" PVC
SE. OUT: 8" PVC

MH-9
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-8A
N:234567.8204
E:2008324.2491
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:11.20'
NW.IN"8" PVC (DROP PIPE)
E. OUT: 10" DIP

MH-8A
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.INSTALL HDPE MANHOLE INSERT.

EXIST MH-8
N:234561.9261
E:2008342.6150
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:11.80'
W. IN: 10" DIP
SE. IN: 10" PVC(DROP PIPE)
N. OUT: 8" PVC

MH-8
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-9A
N:234587.0486
E:2008310.8569
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:7.30'
W. IN: 8" PVC
S. OUT: 8" PVC

MH-9A
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

8" WATER MAIN
MATERIAL UNKNOWN

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

NO PIPE REHABILITATION REQUIRED FOR EXISTING 8" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

REHAB BY CIPP 18 LF
EXISTING 10" DIP GRAVITY SEWER
FROM MH-8A TO MH-8

EXIST MH-7
N:234569.0790
E:2008379.2462
48" Ø CONCRETE MH
IN BRICK SIDEWALK
DEPTH:7.40'
SE. IN: 10" PVC (DROP PIPE)
SW. OUT: 10" PVC

MH-7
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

MH-6
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST MH-6
N:234551.4535
E:2008371.5514
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:7.70'
S. IN: 4" PVC (INSIDE DROP)
NE. IN: 10" PVC
W. OUT: 10" PVC

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE

6" WATER MAIN
MATERIAL UNKNOWN

MH-24
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE

EXIST MH-24
N:234461.6002
E:2008679.4662
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:6.58'
SE. IN: 10" PVC
NW. OUT: 10" PVC

EXIST MH-25
N:234338.2912
E:2008957.4336
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:8.80'
SE. IN: 10" PVC
NW. OUT: 10" PVC

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

MH-25
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

CONTINUES ON SHEET C9.15

BLUE DRIVE

JASPER HWY (I-95)

E. MAIN STREET R/W VARIES

S.C. HIGHWAY 336

LEGEND:

	DESCRIPTION
Ⓢ	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
Ⓢ	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
Ⓢ	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR

1

N

0 30' 60'

AREA C KEY MAP

NOTES:
1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
2. CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL DEBRIS AND MATERIALS FROM WITHIN THE MANHOLES OR PIPELINES PRIOR TO REHABILITATION. ALL COSTS FOR PROPER DISPOSAL SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAYMENT WILL BE MADE FOR DISPOSAL. CONTRACTOR SHALL PREPARE ALL MANHOLES AND PIPES FOR REHABILITATION IN ACCORDANCE WITH REHABILITATION PRODUCT MANUFACTURERS' REQUIREMENTS.
3. CONTRACTOR SHALL REMOVE STEPS OR ANY REMAINING COMPONENTS OF STEPS IN MANHOLES PRIOR TO INSTALLING LINER OR SEALING SYSTEMS.
4. CONTRACTOR IS RESPONSIBLE FOR ALL NECESSARY SEWER BYPASSING OPERATIONS NECESSARY FOR THE SEWER REHABILITATION PROJECT. COORDINATE ALL BYPASSING WITH TOWN OF RIDGELAND WATER AND SEWER SUPERINTENDENT.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ALL DISTURBED AREAS.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR STABILIZATION OF ALL DISTURBED AREAS WITHIN PROJECT LIMITS WITH HYDROSEEDING AND/OR PERMANENT VEGETATION.
7. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY TEMPORARY MATERIALS (SOIL, STONE, MATS) AND EQUIPMENT TO DEVELOP APPROPRIATE ACCESS AND SUITABLE WORKING SURFACE FOR PROPOSED CONSTRUCTION. ALL TEMPORARY MATERIALS AND EQUIPMENT USED SHALL BE REMOVED AFTER CONSTRUCTION AND SITE RESTORED. ALL COSTS FOR SUCH TEMPORARY MATERIALS SHALL BE INCORPORATED INTO APPROPRIATE PAY ITEM FOR SEWER PIPELINE OR MANHOLE REHABILITATION. NO SEPARATE PAY ITEM WILL BE MADE.
8. CONTRACTOR SHALL ADHERE TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS AND REQUIREMENTS. ALL WORK WITHIN WETLAND AREAS SHALL ADHERE TO REQUIREMENTS OF US ARMY CORPS OF ENGINEERST. ALL WORK IN SCDOT RIGHT-OF-WAYS SHALL BE IN ACCORDANCE WITH SCDOT ENCROACHMENT PERMIT AND APPROVED PAVING RESTORATION AND MOT REQUIREMENTS.

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

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1	5/23	SD	AB	UPDATE TO LEGEND
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

AREA C PROPOSED IMPROVEMENTS
MAIN STREET

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	BID
DRAWN JMC			ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C9.14

CONTINUES ON SHEET C9.14

SEE SHEET C9.14 FOR PROPOSED MH IMPROVEMENTS

EXIST MH-25
N:234338.2912
E:2008957.4336
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:8.80'
SE. IN: 10" PVC
NW. OUT: 10" PVC

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

GRAHAMVILLE ROAD (S-336)

TTC: 610-005-10
FLAGGING OPERATIONS,
TWO LANE TWO-WAY ROADWAYS WITHOUT INTERSECTIONS

MH-26
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

EXIST MH-26
N:234227.9514
E:2009250.3559
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:10.50'
SE. IN: 10" PVC
SE. IN: 6" PVC
SW. IN: 6" CIP
(INSIDE DROP)
NW. OUT: 10" PVC

MH-27
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

EXIST MH-27
N:234157.4069
E:2009419.1443
48" Ø CONCRETE MH
IN UNPAVED AREA
DEPTH:8.60'
S. IN: 10" PVC
S. IN: 4" PVC
NW. OUT: 10" PVC

8" WATER MAIN
MATERIAL UNKNOWN

EXIST MH-296
N:234137.3082
E:2009424.2165
48" Ø CONCRETE MH
IN BRICK SIDEWALK
DEPTH:7.70'
SE. IN: 10" PVC
N. OUT: 10" PVC

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

MH-296
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

HENRY LAWTON ROAD (SR-S-27-405)

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

MH-294
REPLACE FRAME AND COVER AND INSTALL NEW ADJUSTMENT RINGS AS NECESSARY TO ACHIEVE EXISTING GRADE.
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

EXIST BURIED MH-294
N:234067.4025
E:2009613.2212
48" Ø CONCRETE MH
IN BRICK SIDEWALK
DEPTH:8.60'
SE. IN: 10" PVC
NE. IN: 8" PVC
NW. OUT: 10" PVC

EXIST MH-295
N:233974.7681
E:2009859.0189
48" Ø CONCRETE MH
IN ROADWAY
DEPTH:8.30'
SE. IN: 10" PVC
SW. IN: 8" PVC
NW. OUT: 10" PVC

NO PIPE REHABILITATION REQUIRED FOR EXISTING 10" PVC PIPE. CONTRACTOR SHALL FLUSH AND CLEAN SEWER LINE.

MH-295
REPLACE MANHOLE COVER
INSTALL LINING IN MANHOLE PER SPECIFICATIONS.
INSTALL URETHANE RUBBER SEALING SYSTEM FOR INTERNAL MANHOLE CHIMNEY AND FRAME.
INSTALL HDPE MANHOLE INSERT.

TTC: 610-205-00
RIGHT SHOULDER CLOSURE (CASE I/ CASE II)
PRIMARY ROUTES

CAMORE DRIVE

AREA C KEY MAP

0 30' 60'

NOTES:
1. CONTRACTOR SHALL CLEAN AND CCTV INSPECT ALL PIPELINES PRIOR TO MAINTENANCE REHABILITATION. INSPECTION SHALL VERIFY SIZE AND MATERIAL OF PIPELINE AND IDENTIFY THE LOCATION OF ALL SEWER LATERALS. NOTIFY ENGINEER REGARDING SIZE OR MATERIAL CORRECTIONS OR CONCERNS.
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5. CONTRACTOR SHALL BE RESPONSIBLE FOR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION IN ALL DISTURBED AREAS.
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LEGEND:

	DESCRIPTION
S	- DENOTES EXISTING MANHOLE
SAN	- DENOTES EXISTING SANITARY SEWER PIPE
WAT	- DENOTES EXISTING WATER MAIN
	- DENOTES SILT FENCE
	- DENOTES WETLAND LINE
	- DENOTES WETLAND
S	- DENOTES EXISTING TYPICAL PATCH AND ROAD CUT AREA 2' AROUND AT MANHOLE. RESTORE PAVING AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS (SEE DETAIL SHEET D-1)
	- DENOTES MILL AND RESURFACE
	- DENOTES ASPHALT REMOVE AND REPLACE
S	- DENOTES TYPICAL CONCRETE PATCH REPLACEMENT. REMOVE AND REPLACE CONCRETE 2' AROUND MANHOLE IN ACCORDANCE WITH SCDOT REQUIREMENTS.
	- DENOTES SEWER LATERAL CONNECTION RESTORATION
	- DENOTES EXISTING SEWER LATERAL
SAN	- DENOTES PIPE REMOVAL AREA
	- DENOTES MAJOR DEFECT
	- DENOTES POINT REPAIR

1

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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FOUR WATERS ENGINEERING, INC.
No. 5166

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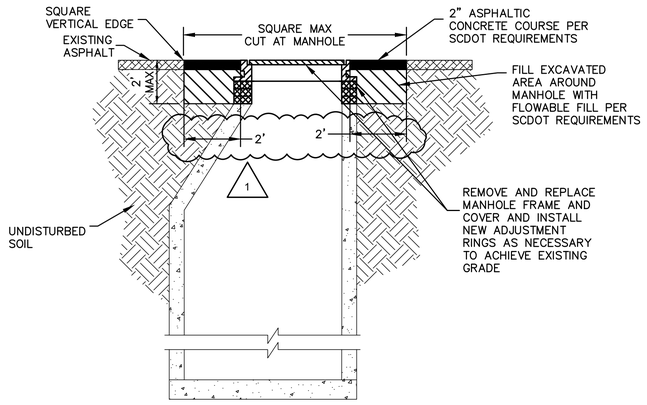
WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2
AREA C PROPOSED IMPROVEMENTS GRAHAMVILLE ROAD
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

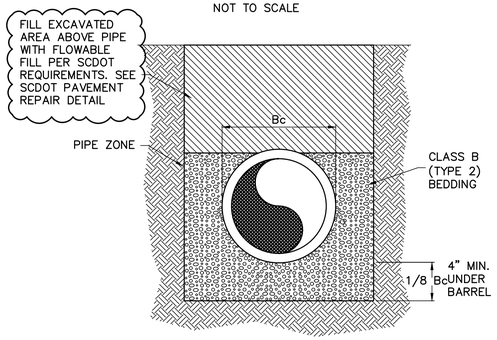
DRAWING NUMBER
C9.15



SECTION

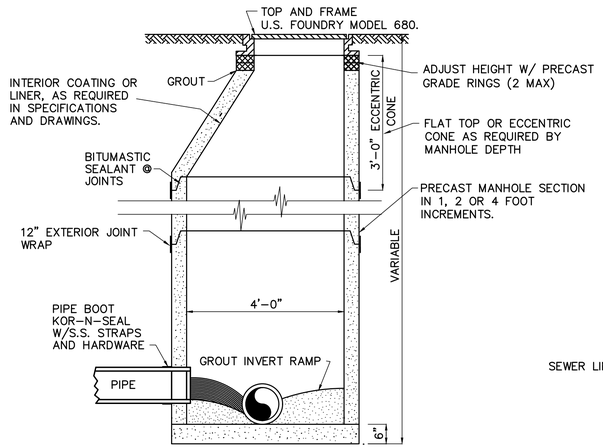
OPEN CUT SCDOT PAVEMENT REPAIR FOR LOW VOLUME ASPHALT AT MANHOLE

NOT TO SCALE



BEDDING FOR PVC GRAVITY SEWER PIPE

NOT TO SCALE

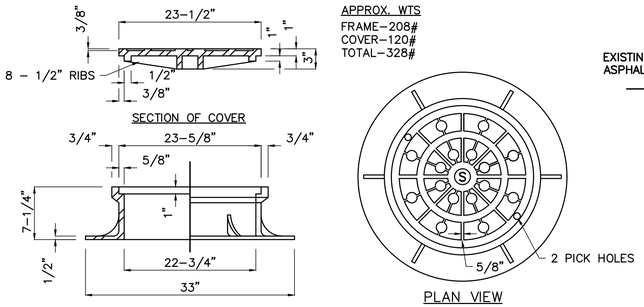


NOTES:
1. GROUT ALL JOINTS INSIDE AND OUTSIDE USING NON-SHRINK GROUT.
2. INSTALL INTERIOR COATING OR LINER AS REQUIRED IN THE SPECIFICATIONS AND DRAWINGS.
3. INSTALL SEAL WRAP EXTERIOR JOINT SEALER AS MANUFACTURED BY MAR-MAC.

SECTION

PRECAST SEWER MANHOLE

NOT TO SCALE

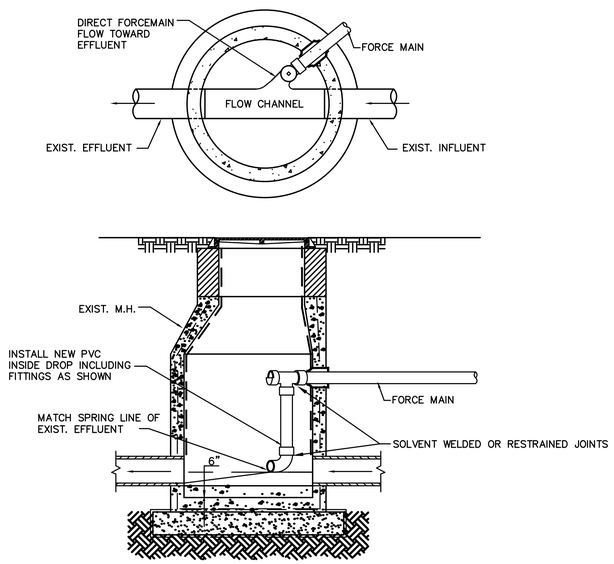


HALF SECTION FRAME HALF ELEVATION FRAME

NOTES:
1. AS MANUFACTURED U.S. FOUNDRY MODEL 680. PROVIDE WITH 2 COATS OF BITUMASTIC PAINT.
2. MACHINED BEARING SURFACES BETWEEN COVER AND FRAME.

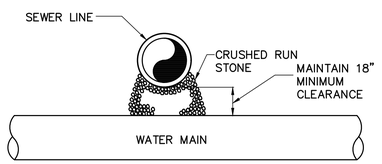
STANDARD SEWER MANHOLE FRAME & COVER

NOT TO SCALE



TYPICAL FORCE MAIN CONNECTION TO MANHOLE

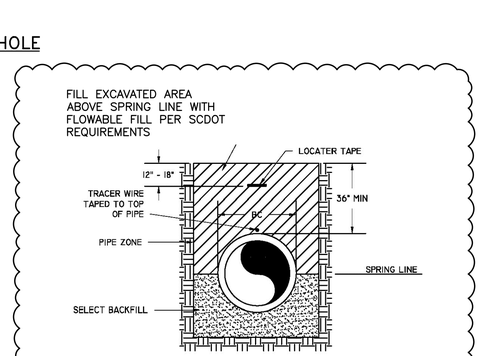
NOTE:
1. PVC PIPE AND FITTINGS SHALL BE (SCH 80) WITH SOLVENT WELDED JOINTS OR C900 PVC WITH INTEGRAL RESTRAINED JOINTS



NOTE:
FULL JOINT OF DUCTILE IRON PIPE FOR BOTH WATER AND SEWER TO BE CENTERED AT CROSSING.

SEWER CROSSING ABOVE WATER LINE DETAIL

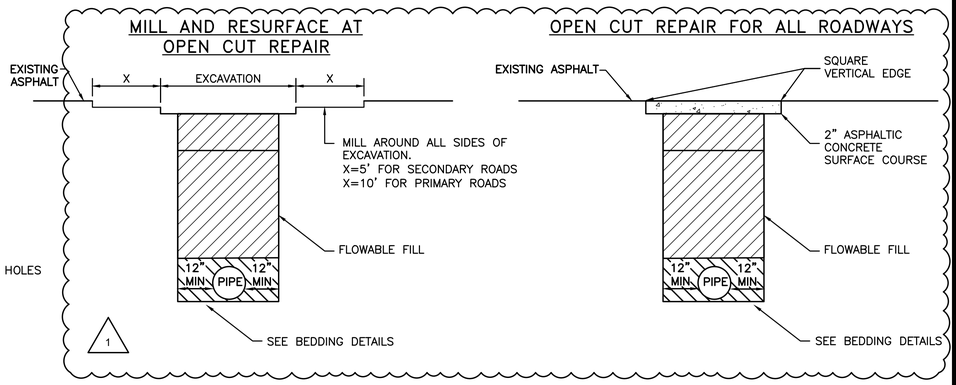
NOT TO SCALE



TYPICAL PRESSURE PIPE BEDDING DETAIL

NOT TO SCALE

1



NOTES:
1. COMPACTION TESTS TO BE CONDUCTED BY A GEOTECHNICAL PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA AND SUBMITTED TO THE TOWN AND SCDOT FOR REVIEW AND APPROVAL PRIOR TO PAVING. TESTING RESULTS SHALL BE PROVIDED DIRECTLY TO SCDOT BY TESTING LAB.
2. COMPACTION TESTS SHALL BE CONDUCTED ON EACH SIDE OF THE MANHOLE (2 TOTAL) ABOVE THE PIPE INSTALLATION AND AS REQUIRED BY SCDOT FOR THE STRUCTURE. TESTS TO BE CONDUCTED BY A GEOTECHNICAL PROFESSIONAL ENGINEER LICENSED IN THE STATE OF SOUTH CAROLINA AND SUBMITTED TO THE TOWN AND SCDOT FOR REVIEW AND APPROVAL PRIOR TO PAVING
3. ALL EXCAVATION AREAS SHALL BE COVERED WITH STEEL PLATE TO SCDOT STANDARDS AND TRAFFIC RESTORED AT THE END OF THE WORK DAY
4. ALL DISTRIBUTED PAVEMENT STRIPING AND MARKINGS SHALL BE RESTORED TO SCDOT STANDARDS (THERMOPLASTIC IN PRIMARY ROADS AND PAINT IN SECONDARY ROADS) TO BE DETERMINED BY SCDOT)

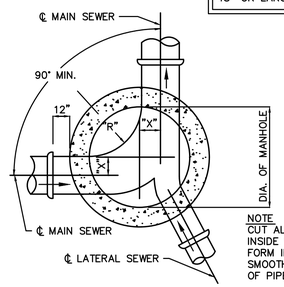
1

SCDOT PAVEMENT REPAIR

NOT TO SCALE

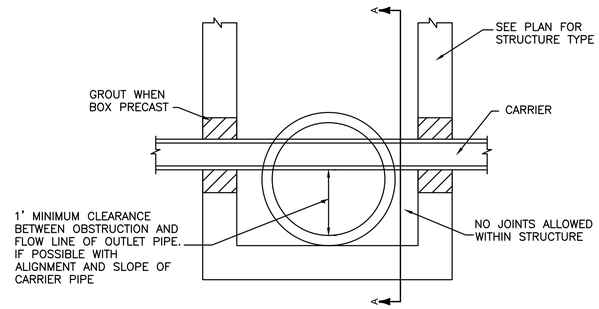
STANDARD MANHOLES
SCHEDULE OF GOVERNING DIMENSIONS

PIPE SIZE	ANGLE △	MANHOLE DIAMETER	"R"	"X"
8" TO 15"	0° TO 90°	4'-0"	2'-0"	0"
18" TO 30"	0° TO 90°	5'-0"	2'-0"	6"
36" TO 42"	0° TO 60°	6'-0"	3'-0"	9"
36" TO 42"	60° TO 90°	6'-0	3'-0"	1'-2"
48" OR LARGER	0° TO 45°	7'-0	4'-0"	6"
48" OR LARGER	45° TO 90°	8'-0	3'-0"	1'-3"



NOTE
CUT ALL PIPE FLUSH WITH INSIDE WALL OF MANHOLE FORM INVERT UNIFORM AND SMOOTH. CUT OFF TOP HALF OF PIPE AT WALL.

TYPICAL PLAN STANDARD MANHOLE



SECTION LONGITUDINAL TO CARRIER PIPE

UTILITY CONFLICT CONDITION 1
(NON-PRESSURE OR NON-FLUID CARRIER)

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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1	5/23	SD	AB	DETAIL UPDATES
2				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

CONSTRUCTION DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007	ISSUE DATE	APRIL 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

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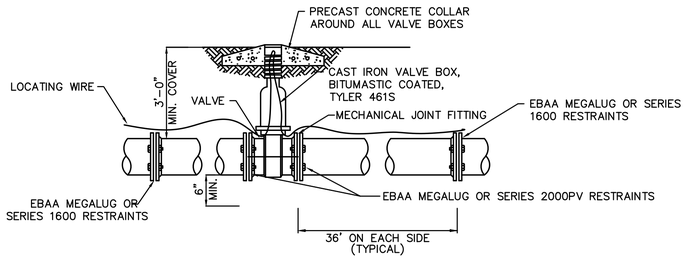
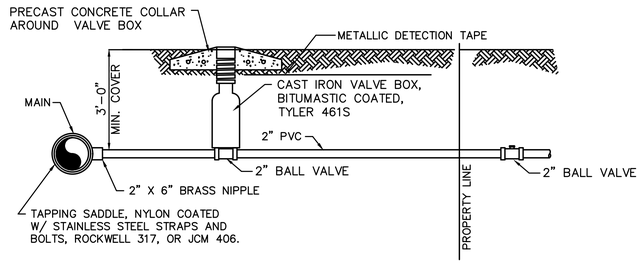


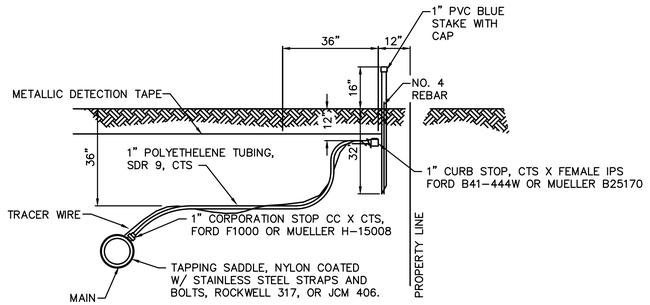
GATE VALVE SETTING DETAIL

NOT TO SCALE



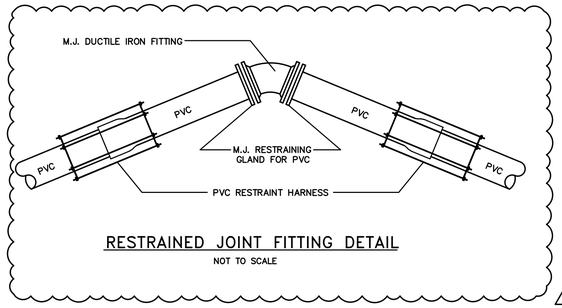
2" SERVICE CONNECTION DETAIL

NOT TO SCALE



1" WATER SERVICE CONNECTION DETAIL

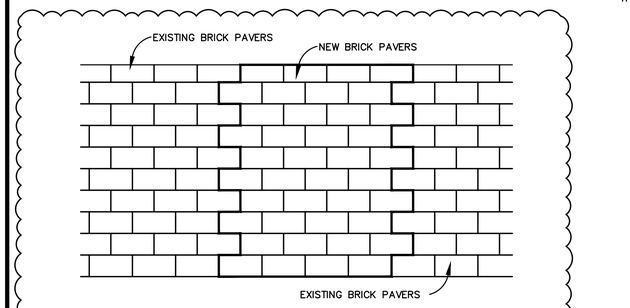
NOT TO SCALE

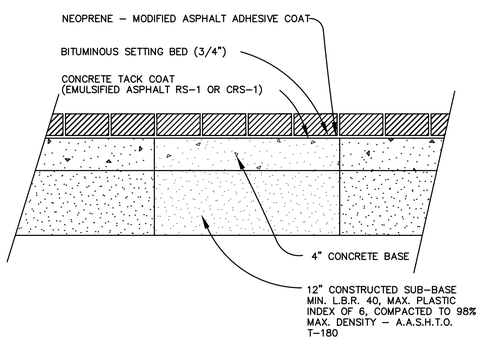


RESTRAINED JOINT FITTING DETAIL

NOT TO SCALE

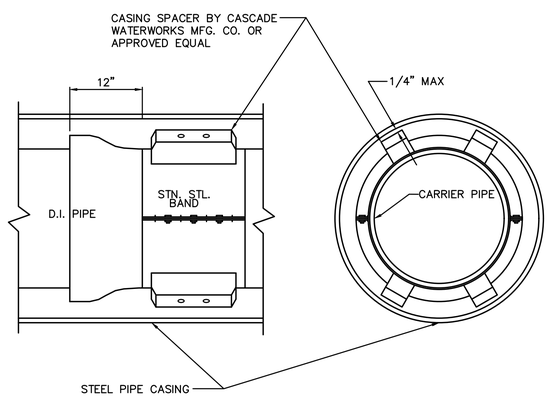
1

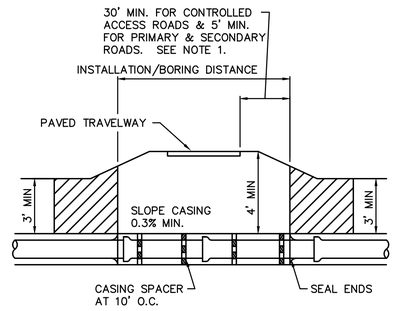




STANDARD BRICK SIDEWALK REPAIR DETAIL

1





CARRIER PIPE INSTALLATION IN CASING

NOT TO SCALE

NOTES:

1. THE NEAR EDGE OF THE PIT CAN BE NO CLOSER TO THE EDGE OF THE TRAVELWAY THAN ITS DEPTH BELOW THE SURFACE OF THE TRAVELWAY UNLESS BULKHEADED.
2. STEEL CASING PIPE SHALL HAVE A 0.25 INCH WALL THICKNESS.

PVC PIPE RESTRAINT NOTES:

1. THIS SCHEDULE SHALL BE UTILIZED ON ALL WATER, SEWER FORCE MAIN OR RECLAIMED WATER SYSTEMS. ALL FITTINGS SHALL BE RESTRAINED TO LENGTHS INDICATED ON THE ABOVE SCHEDULE, AT A MINIMUM.
2. ASSUMPTIONS: PVC PIPE, SAFETY FACTOR=1.5, TEST PRESSURE=150PSI, SOIL=GM OR SM, TRENCH TYPE 3, DEPTH OF COVER=30 INCHES FOR 20" AND SMALLER PIPE SIZE OR 36 INCHES FOR 24" AND LARGER PIPE SIZE.
3. BENDS AND VALVES: SHALL BE RESTRAINED ON EACH SIDE OF FITTING.
4. VERTICAL OFFSETS: ARE APPROX. 3 FEET COVER ON TOP AND APPROX. 8 FEET COVER ON BOTTOM. PER THE DETAILS, Lu IS THE RESTRAINED LENGTH FOR THE UPPER (TOP) LEVEL. Ll IS THE RESTRAINED LENGTH FOR THE LOWER (DEEPER) LEVEL. ASSUME 45 DEGREE BENDS.
5. TEES: TOTAL LENGTH BETWEEN FIRST JOINTS OR RESTRAINED LENGTH ON EITHER SIDE OF TEE (RUN) SHALL BE A TOTAL DISTANCE OF 30 FEET (MIN). SEE SCHEDULE ABOVE FOR RESTRAINT LENGTH ON TEE "BRANCH" LINE.
6. HDPE TO PVC TRANSITIONS: THE PVC PIPE SIDE SHALL BE RESTRAINED 35 FT (MIN).
7. THE INSTALLATION OF BELL HARNESS RESTRAINTS AT PVC JOINTS (DR-18 & 25 PIPE) SHALL BE COMPLETED PER THE MANUFACTURERS RECOMMENDATION, WHICH INCLUDES NOT OVER TIGHTENING THE PARALLEL RODS/NUTS. THESE NUTS SHOULD ONLY BE SNUG TIGHT. THE HOME MARKS ON THE PIPE SHOULD ALWAYS BE VISIBLE AFTER THE RESTRAINT IS INSTALLED. OVERHOMING THE JOINT MAY CAUSE A FAILURE AT THE BELL RESULTING IN A SERVICE OUTAGE.

LENGTH (L) TO BE RESTRAINED (SEE PLATE Nos. 38C & 38D FOR ADDITIONAL DETAILS)

NOMINAL PIPE SIZE (IN.)	HORIZONTAL BENDS				VERTICAL OFFSETS 45° BENDS (SEE NOTE 4)		VALVES OR DEAD ENDS
	90° BENDS L (FT.)	45° BENDS L (FT.)	22.5° BENDS L (FT.)	11.25° BENDS L (FT.)	UPPER L (FT.)	LOWER L (FT.)	L (FT.)
4	21	9	5	3	17	3	47
6	30	13	6	3	23	4	66
8	38	16	8	4	30	6	86
10	45	19	9	5	36	7	103
12	53	22	11	6	43	8	121
14	61	26	13	6	50	9	140
16	66	28	14	7	55	10	154
18	73	30	15	8	60	11	170
20	79	33	16	8	66	12	186
24	79	33	16	8	77	15	185
30	93	39	19	10	97	17	222
36	106	39	21	11	107	20	257
42	117	49	24	12	120	24	289
48	144	53	26	13	133	26	321

PVC RESTRAINT JOINT SCHEDULE

1

REDUCERS	
SIZE (IN.)	L (FT.)
6x4	34
8x6	36
8x4	62
10x8	35
10x6	63
12x10	36
12x8	64
16x12	66
16x10	92
20x18	35
20x16	66
20x12	117
24x20	56
24x18	80
24x16	101
30x24	78
30x20	121
36x30	78
36x24	141
42x36	75
42x30	140
48x42	75
48x36	139

TEES SEE NOTE 5		
RUN SIZE (IN.)	BRANCH SIZE (IN.)	L (FT.)
4	4	F.O.
4	6	10
	4 < LESS	F.O.
8	8	29
	6 < LESS	F.O.
10	10	45
	8	13
	6 < LESS	F.O.
12	12	62
	10	32
	8 < LESS	F.O.
16	16	94
	12	39
	10	5
	10 < LESS	F.O.
20	20	125
	16	76
	12	14
	10 < LESS	F.O.
24	24	124
	20	84
	16	36
	12 < LESS	F.O.
30	30	159
	24	104
	20	60
	16	5
	16 < LESS	F.O.
36	36	192
	30	142
	24	83
	20	33
	16 < LESS	F.O.
42	42	223
	36	178
	30	124
	24	59
	20	5
	16 < LESS	F.O.
48	48	253
	42	209
	36	162
	30	104
	24	34
	20 < LESS	F.O.

F.O. = FITTING ONLY

SOUTH CAROLINA PROFESSIONAL ENGINEER
LICENSED
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

CONSTRUCTION DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	APRIL 2023	BID

FOUR WATERS ENGINEERING
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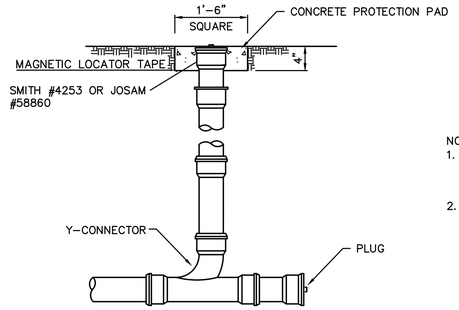
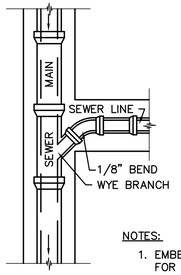


CLEANOUT DETAIL

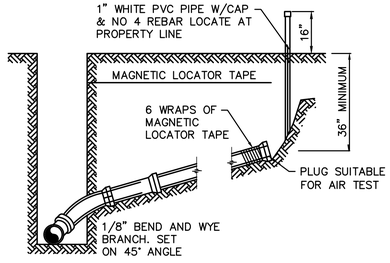
NOT TO SCALE

NOTES:
1. THE CLEANOUT SHOULD BE THE SAME SIZE DIAMETER AS THE LINE THAT IT IS INSTALLED ON.
2. CLEANOUT SHOULD CONSIST OF A PLUG SUITABLE FOR AIR TEST.



PLAN

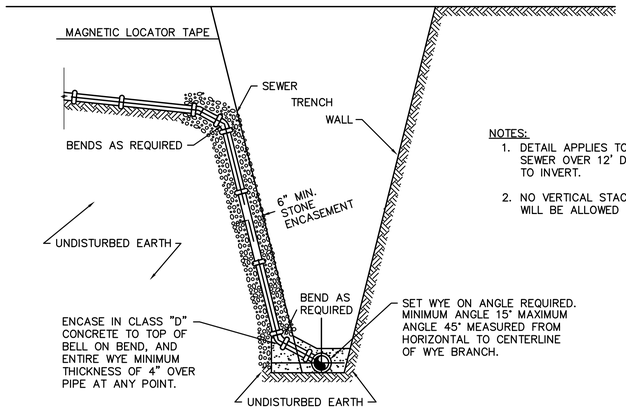
NOTES:
1. EMBEDMENT SAME AS FOR SEWER LINE.
2. SERVICE LINE SHALL BE ON SUCH A GRADE THAT WILL PERMIT SERVICING OF PROPERTY. MINIMUM GRADE SHALL BE 1.0%. MAXIMUM GRADE SHALL BE 50%
3. NO VERTICAL STACKING WILL BE ALLOWED.



SECTION

SEWER SERVICE CONNECTION DETAIL

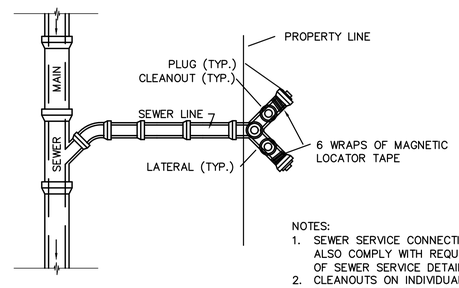
NOT TO SCALE



NOTES:
1. DETAIL APPLIES TO SEWER OVER 12' DEEP TO INVERT.
2. NO VERTICAL STACKING WILL BE ALLOWED

DEEP SEWER SERVICE DETAIL

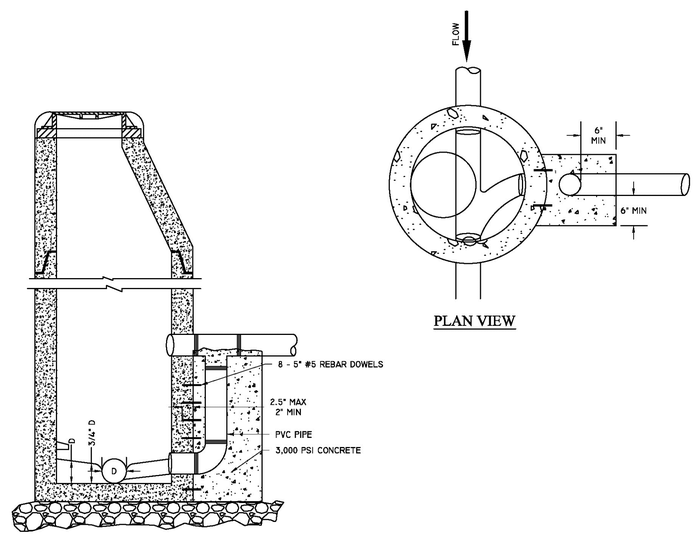
NOT TO SCALE



NOTES:
1. SEWER SERVICE CONNECTION SHOULD ALSO COMPLY WITH REQUIREMENTS OF SEWER SERVICE DETAIL.
2. CLEANOUTS ON INDIVIDUAL LATERALS SHALL BE PLACED AT PROPERTY LINE.
3. CONNECTION TO MAIN SHALL BE 6" PIPE. SERVICES MAY BE 4".

DOUBLE SEWER SERVICE

NOT TO SCALE



PLAN VIEW

SECTION VIEW

DROP MANHOLE

NOT TO SCALE

1

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

CONSTRUCTION DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
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DRAWING NUMBER
D9.3

REFERENCES

NATIONAL DOCUMENTS

SCDOT DOCUMENTS

RELATED DRAWINGS & KEYWORDS

THIS DRAWING IS ONLY VALID FOR CONSTRUCTION WHEN SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF SOUTH CAROLINA. CHECK WWW.SCDOT.ORG FOR LATEST UPDATE.

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
NO. 21242
JAMES W. KENDALL, JR.

James W. Kendall
SIGNATURE

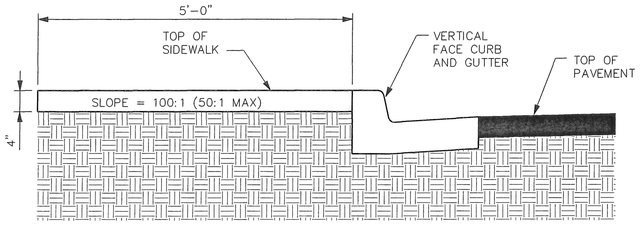
10/30/2015
DATE

#	DATE	CHK	DESCRIPTION
6	---	---	---
5	---	---	---
4	---	---	---
3	---	---	---
2	---	---	---
1	---	---	---
0	1/2016	DSO	NEW DRAWING

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

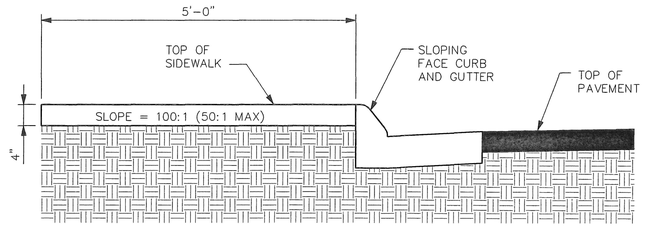
STANDARD DRAWING
SIDEWALK ADJACENT TO CURB

720-150-00
EFFECTIVE LETTING DATE: JAN., 2016

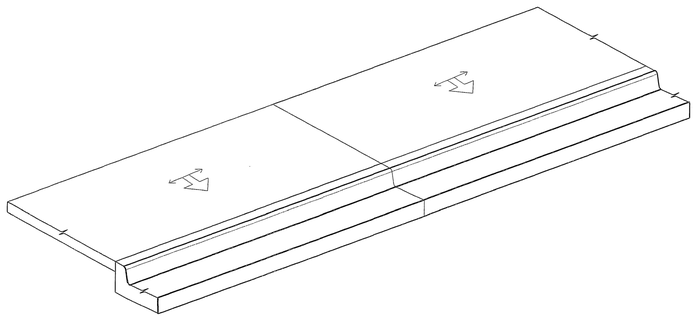


DETAIL 1
1/2" = 1'-0"
SIDE ELEVATIONS

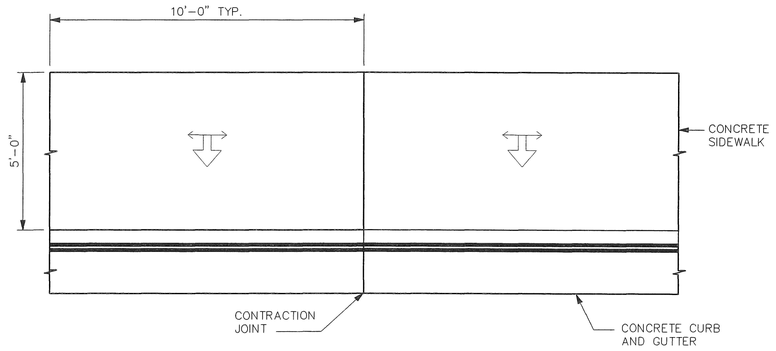
NOTES:
1 SEE DRAWING 720-105-01 FOR STANDARD CURB AND GUTTER DETAILS.
2 SEE DRAWING 720-901-03 FOR SYMBOLS AND CONSTRUCTION TOLERANCE.
3 PLACE TRANSVERSE EXPANSION JOINTS (FULL DEPTH ACROSS THE ENTIRE SIDEWALK WIDTH) WHEN NEAR TURNS IN THE SIDEWALK, AND IN LONG CONTINUOUS RUNS OF SIDEWALK AS DIRECTED IN THE STANDARD SPECIFICATIONS.
4 PLACE EXPANSION JOINTS BETWEEN THE SIDEWALK EDGE AND THE BACK OF CURB WHEN ALONG A RADIUS LESS THAN 100'.
5 PLACE EXPANSION JOINTS BETWEEN THE SIDEWALK EDGE AND ANY ADJACENT STRUCTURE (RETAINING WALLS, BUILDINGS, ETC.)
6 PLACE CONTRACTION JOINTS AT REGULAR INTERVALS BETWEEN EXPANSION JOINTS NOT TO EXCEED STANDARD SPECIFICATION SPACING.
7 MEASURE SIDEWALK IN SQUARE YARDS BY THE ACTUAL PLACED AREA OF CONCRETE UP TO THE ADJACENT PAY ITEM LIMITS (CURBS, PEDESTRIAN RAMPS, DRIVEWAYS, ETC.).



DETAIL 2
1/2" = 1'-0"
SIDE ELEVATIONS



DETAIL 4
ISOMETRIC VEIW



DETAIL 3
SCALE: 1/4" = 1'-0"
PLAN VEIW

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2
CONSTRUCTION DETAILS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D9.4

1

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

6/1/2018

DATE

#	DATE	CHK	DESCRIPTION
5			
4			
3			
2			
1	4-27-18	WEM	REVISED FLAGGING OPERATIONS NOTE 1
0	1-14-15	JCS	NEW DRAWING

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING OPERATIONS TWO-LANE TWO-WAY PRIMARY & SECONDARY ROUTES

610-005-00

EFFECTIVE LETTING DATE | JAN 2019

FLAGGING OPERATIONS GENERAL NOTES

(ALL NOTES, SPECIFICATIONS AND REQUIREMENTS ON THIS STANDARD DRAWING APPLY TO ALL SUBSEQUENT STANDARD DRAWINGS REGARDING FLAGGING OPERATIONS UNLESS OTHERWISE NOTED)

FLAGGING OPERATIONS -

1. KEY FEATURES RELEVANT TO FLAGGING OPERATIONS:

   APPROACH TAPER - THIS IS A ONE-LANE TWO-WAY TAPER PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE. THIS TAPER PRECEDES THE BUFFER SPACE AND THE WORK ACTIVITY AREA. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES EQUALLY SPACED AT 10' TO 25' INTERVALS AS NECESSARY TO CORRESPOND WITH THE LENGTH OF THE TAPER.

   DOWNSTREAM TAPER - THIS TAPER, PLACED IN THE TRAVEL LANE WHERE THE WORK ACTIVITY TAKES PLACE, FOLLOWS THE WORK ACTIVITY AREA AND SERVES AS THE TERMINATION AREA FOR THE CLOSURE OF THE TRAVEL LANE. THE LENGTH OF THIS TAPER MAY VARY FROM 50 FEET TO 100 FEET. INSTALL AND MAINTAIN NO LESS THAN FIVE (5) TRAFFIC CONTROL DEVICES IN THIS TAPER.

   FLAGGER STATION - THIS IS THE SPECIFIC LOCATION OF THE FLAGGER.

   CLOSED LANE FLAGGER - THIS FLAGGER IS STATIONED ADJACENT TO THE FIRST TRAFFIC CONTROL DEVICE IN THE APPROACH TAPER WHO CONTROLS THE TRAFFIC THAT REQUIRES RELOCATION FROM THE TRAVEL LANE BEING CLOSED TO TRAFFIC.

   OPEN LANE FLAGGER - THIS FLAGGER IS STATIONED 100 FEET BEYOND THE LAST TRAFFIC CONTROL DEVICE IN THE DOWNSTREAM TAPER WHO CONTROLS THE TRAFFIC OPERATING IN THE TRAVEL LANE REMAINING OPEN TO TRAFFIC.

   SIDE ROAD FLAGGER - THIS FLAGGER IS STATIONED ON AN INTERSECTING SIDE ROAD AND CONTROLS THE SIDE ROAD TRAFFIC ENTERING INTO THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.

   BUFFER SPACE - THIS AREA IS LOCATED BETWEEN THE DOWNSTREAM END OF THE APPROACH TAPER AND THE NEAREST LIMITS OF THE WORK ACTIVITY AREA AND MAY PROVIDE SOME RECOVERY SPACE FOR AN ERRANT VEHICLE. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE BUFFER SPACE IS PROHIBITED. HOWEVER, WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE BUFFER SPACE ARE UNAVAILABLE, A TRUCK MOUNTED ATTENUATOR MAY TEMPORARILY ENCROACH UPON THE BUFFER SPACE IN ACCORDANCE WITH THE REQUIREMENTS SPECIFIED IN THE SECTION BELOW ENTITLED, "BUFFER SPACE", WHEN APPROVED BY THE ENGINEER.

   WORK ACTIVITY AREA - PERSONNEL, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. ARE PRESENT WITHIN THIS AREA TO CONDUCT THE WORK.

   LIMITS of the WORK ACTIVITY AREA - THIS IS THE BOUNDARY OF THE WORK ACTIVITY AREA FIRST ENCOUNTERED, FROM EITHER DIRECTION, BY MOTORISTS PASSING BY THE WORK ACTIVITY AREA IN THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC AND CONTROLLED BY THE FLAGGERS.

   APPROACH LANE - TRAFFIC APPROACHES AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.

   DEPARTURE LANE - TRAFFIC DEPARTS FROM AN INTERSECTION OR A SPECIFIC LOCATION IN THIS TRAVEL LANE.

   MAINLINE APPROACH - THIS IS AN APPROACH TO THE WORK ACTIVITY AREA ON THE ROADWAY WHERE THE WORK ACTIVITY AREA IS LOCATED.

   SIDE ROADS - THESE ROADS INTERSECT THE ROADWAY ON WHICH THE WORK ACTIVITY AREA IS LOCATED.

   LIMITS of the INTERSECTION - THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION OF STOP BARS WHEN PRESENT, WHEN STOP BARS ARE ABSENT, THE LIMITS OF OR THE PHYSICAL AREA WITHIN AN INTERSECTION IS DEFINED BY THE LOCATION POINTS WHERE THE CORNER RADII BETWEEN ADJACENT ROADWAY APPROACHES TIE TO THE EDGE OF PAVEMENT OR THE EDGE OF TRAVEL LANE ADJACENT TO THE EDGE OF PAVEMENT OF EACH ROADWAY.

2. INSTALL, CONDUCT AND MAINTAIN FLAGGING OPERATIONS IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, THE STANDARD DRAWINGS, THE MUTCD AND THE "SOUTH CAROLINA FLAGGER'S HANDBOOK" UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. INSTALL ALL SIGNS RELATIVE TO A FLAGGING OPERATION PRIOR TO INITIATION OF THE OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION. EQUIP EACH FLAGGER WITH A 24" x 24" STOP/SLOW PADDLE MOUNTED ON A RIGID HANDLE WITH A MINIMUM LENGTH OF 7 FEET. THE DEPARTMENT PROHIBITS THE USE OF FLAGS EXCEPT DURING EMERGENCY SITUATIONS.
3. LANE CLOSURES FOR FLAGGING OPERATIONS ARE RESTRICTED TO A MAXIMUM DISTANCE OF 2 MILES UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE WORK LIMITS WILL COMPLY WITH THE CONTRACT AND SHALL REQUIRE THE ENGINEER'S APPROVAL PRIOR TO BEGINNING THE WORK.
4. INSTALL AND MAINTAIN THE PROPER ARRAY OF ADVANCE WARNING SIGNS FOR EACH "MAINLINE APPROACH" WHEN A FLAGGING OPERATION IS IN PLACE AND ACTIVE. WHEN NECESSARY TO RELOCATE THE "FLAGGER STATION" WHILE ACTIVELY MAINTAINING THE FLAGGING OPERATION, INSTALL AN ADDITIONAL ARRAY OF ADVANCE WARNING SIGNS AT THE LOCATION RELATIVE TO THE NEW "FLAGGER STATION" AND REMOVE THE ORIGINAL ARRAY OF ADVANCE WARNING SIGNS IMMEDIATELY UPON COMPLETION OF THE RELOCATION OF THE FLAGGER TO THE NEW "FLAGGER STATION".
5. INSTALL ALL ADVANCE WARNING SIGNS IMMEDIATELY PRIOR TO INITIATING A FLAGGING OPERATION AND REMOVE OR COVER ALL SIGNS IMMEDIATELY UPON TERMINATION OF THE OPERATION.
6. MAINTAIN TWO-WAY RADIO COMMUNICATIONS BETWEEN ALL FLAGGERS.

NIGHTTIME FLAGGING OPERATIONS -

1. EACH FLAGGER SHALL WEAR SAFETY APPAREL IN COMPLIANCE WITH THE REQUIREMENTS OF ANSI / ISEA 107 STANDARD PERFORMANCE FOR CLASS 3 RISK EXPOSURE, LATEST REVISION, WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
2. ILLUMINATE EACH "FLAGGER STATION" WITH ANY COMBINATION OF PORTABLE LIGHTS, STANDARD ELECTRIC LIGHTS, EXISTING STREET LIGHTS, ETC. THAT WILL PROVIDE A MINIMUM ILLUMINATION LEVEL OF 108 Lx OR 10 fc WHEN CONDUCTING NIGHTTIME FLAGGING OPERATIONS.
3. SUPPLEMENT EACH ARRAY OF ADVANCE WARNING SIGNS ON EACH "MAINLINE APPROACH" WITH A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN. THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED ON THE "SIDE ROADS" INTERSECTING THE ROADWAY WHERE THE "WORK ACTIVITY AREA" IS LOCATED. ALSO, THESE CHANGEABLE MESSAGE SIGNS ARE NOT REQUIRED DURING DAYTIME FLAGGING OPERATIONS UNLESS OTHERWISE DIRECTED BY THE STANDARD DRAWINGS. INSTALL THE CHANGEABLE MESSAGE SIGNS IN ADVANCE OF THE ADVANCE WARNING SIGN ARRAYS. THE MESSAGES SHOULD BE "PREPARE TO STOP", "FLAGGER AHEAD". A TRUCK MOUNTED CHANGEABLE MESSAGE SIGN IS NOT AN ACCEPTABLE ALTERNATIVE TO A TRAILER MOUNTED CHANGEABLE MESSAGE SIGN DURING NIGHTTIME FLAGGING OPERATIONS.
4. UTILIZE PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES IN PLACE OF 36" STANDARD TRAFFIC CONES DURING NIGHTTIME FLAGGING OPERATIONS.

BUFFER SPACE -

1. THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE BASED UPON THE LEGAL POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING THE WORK.

SPEED LIMIT	DISTANCES
LOW SPEED ≤ 35 MPH	200 FEET
INTERMEDIATE SPEED 40 - 50 MPH	300 FEET
HIGH SPEED 55 MPH	400 FEET

2. THE PRESENCE OF PERSONNEL, TOOLS, MATERIALS, EQUIPMENT, WORK VEHICLES, ETC. WITHIN THE LIMITS OF THE "BUFFER SPACE" IS PROHIBITED. A TRUCK MOUNTED ATTENUATOR IS THE ONLY WORK VEHICLE THAT MAY TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" IN ACCORDANCE WITH THE CONDITIONS SPECIFIED IN THE FOLLOWING NOTE WHEN APPROVED BY THE ENGINEER. SEE NOTE NO. 3.
3. WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS, IT MAY BE NECESSARY FOR A TRUCK MOUNTED ATTENUATOR TO TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" WHEN APPROVED BY THE ENGINEER. A TRUCK MOUNTED ATTENUATOR IS THE ONLY VEHICLE PERMITTED TO TEMPORARILY ENCROACH UPON THE "BUFFER SPACE" AND THIS ENCROACHMENT IS ONLY PERMITTED WHEN ALL REASONABLE OPTIONS TO AVOID DOING SO HAVE BEEN EXHAUSTED. WHEN ENCROACHMENT UPON THE "BUFFER SPACE" IS APPROVED BY THE ENGINEER, MINIMIZE THE TIME DURATION OF THE ENCROACHMENT BY REMOVAL OF THE TRUCK MOUNTED ATTENUATOR FROM THE "BUFFER SPACE" AT THE FIRST OPPORTUNITY THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" BECOME AVAILABLE.

SIGNS AND TRAFFIC CONTROL DEVICES -

1. MEASURE THE ADVANCE WARNING SIGN LOCATIONS FOR EACH APPROACH FROM THE "FLAGGER STATION" LOCATED ON THAT APPROACH.
2. INSTALL THE ADVANCE WARNING SIGNS AS SPACING INTERVALS BASED UPON THE POSTED REGULATORY SPEED LIMIT OF THE ROADWAY PRIOR TO BEGINNING ANY WORK. THE ADVANCE WARNING SIGN SPACING INTERVALS INDICATED ARE FOR NORMAL CONDITIONS. ADJUSTMENTS TO THESE DISTANCES MAY BE NECESSARY DUE TO EXISTING SIGNS, INTERSECTING ROADWAYS, HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS. SEE TABLE A.
3. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH THE REQUIREMENTS OF NCHRP REPORT 350 OR THE AASHTO MANUAL FOR ASSESSING SAFETY HARDWARE (MASH) AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org .
7. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED IN THE EVENT A DAYTIME FLAGGING OPERATION EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE III OR GREATER FLEXIBLE MICROPRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
8. DELINEATE THE TANGENT AREA OF THE LANE CLOSURE WITH THE NECESSARY TRAFFIC CONTROL DEVICES TO MINIMIZE ENCROACHMENT BY MOTORISTS INTO THE CLOSED TRAVEL LANE UNLESS OTHERWISE DIRECTED BY THE ENGINEER. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 35 MPH OR LESS, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 25 FEET. ON ROADWAYS WITH POSTED REGULATORY SPEED LIMITS OF 40 MPH OR GREATER, INSTALL THE TRAFFIC CONTROL DEVICES AT SPACING INTERVALS OF 50 FEET. SEE TABLE B.

ADVANCE WARNING ARROW PANEL -

1. DURING FLAGGING OPERATIONS, AN ADVANCE WARNING ARROW PANEL SHALL OPERATE IN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS SPECIFIC TO A FLAGGING OPERATION. OPERATION OF AN ADVANCE WARNING ARROW PANEL IN AN ARROW, CHEVRON OR ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE WHEN LOCATED WITHIN OR IN BETWEEN THE LIMITS OF THE ADVANCE WARNING SIGN ARRAYS AS SPECIFIED HEREINBEFORE IS PROHIBITED.
2. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION. THE SPECIFIC LOCATION OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS.

TRUCK MOUNTED ATTENUATOR -

1. A TRUCK MOUNTED ATTENUATOR IS OPTIONAL. UTILIZATION OF A TRUCK MOUNTED ATTENUATOR SHOULD BE CONSIDERED WHEN THE MINIMUM DISTANCE REQUIREMENTS FOR THE "BUFFER SPACE" ARE UNAVAILABLE DUE TO FIELD CONDITIONS. HOWEVER, A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL MAY BE UTILIZED IN PLACE OF A TRUCK MOUNTED ATTENUATOR DURING TRAFFIC CONTROL SETUPS FOR WORK ACTIVITIES SUCH AS ASPHALT CONCRETE PLACEMENT OPERATIONS WHEN APPROVED BY THE ENGINEER.
2. WHEN UTILIZING A TRUCK MOUNTED ATTENUATOR, ENSURE THE TRUCK HAS THE CORRECT GROSS VEHICULAR WEIGHT (GVM) REQUIRED FOR THE TYPE OF TRUCK MOUNTED ATTENUATOR BEING UTILIZED. A DIRECT TRUCK MOUNTED TRUCK MOUNTED ATTENUATOR, A UNIT MOUNTED AND ATTACHED TO BRACKETS OR SIMILAR DEVICES CONNECTED TO THE FRAME OF THE TRUCK, REQUIRES A TRUCK WITH A MINIMUM GVM OF 15,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. A TRAILER TOWED TRUCK MOUNTED ATTENUATOR, A TRAILER TYPE UNIT TOWED FROM BEHIND AND ATTACHED TO THE FRAME OF THE TRUCK VIA A PINTLE HOOK / HITCH, REQUIRES A TRUCK WITH A MINIMUM GVM OF 10,000 POUNDS (ACTUAL WEIGHT) UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR (4) SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE IN ITS ENTIRETY AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
3. LOCATE THE TRUCK MOUNTED ATTENUATOR APPROXIMATELY 100 FEET IN ADVANCE OF THE "WORK ACTIVITY AREA" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
4. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

GENERAL -

1. CONDUCT THE WORK IN SUCH A MANNER SO AS NOT TO ENCROACH ONTO THE ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER DELINEATION OF THE WORK AREA.
2. IF WORK IS BEING CONDUCTED AT TWO DIFFERENT LOCATIONS AT THE SAME TIME, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 2 MILES FROM THE LAST TRAFFIC CONTROL DEVICE IN THE "DOWNSTREAM TAPER" OF THE FIRST LANE CLOSURE TO THE FIRST TRAFFIC CONTROL DEVICE IN THE "APPROACH TAPER" OF THE SECOND LANE CLOSURE ENCOUNTERED BY A MOTORIST UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
3. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
* ≤ 35 MPH LOW SPEED	200
* 40 - 50 MPH INTERMEDIATE SPEED	350
* 55 MPH HIGH SPEED	500

* REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

THIS DRAWING IS NOT TO SCALE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

TEMPORARY TRAFFIC CONTROL DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB | DRAWN JMC

JOB # 17-1007 | ISSUE DATE APRIL 2023 | ISSUE BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D9.5

LAST EDITED BY: STEVE DUCHARME

CAD FILE: R:\17-1007-035 PART-2\X\CDS\CONSTRUCTION DETAILS.DWG

PLOT DATE AND TIME: 6/1/2023 7:34:36 PM

DRAWING 610-005-10 NOTES

1. SEE STANDARD DRAWING NO. 610-005-00 FOR ALL GENERAL NOTES AND REQUIREMENTS.

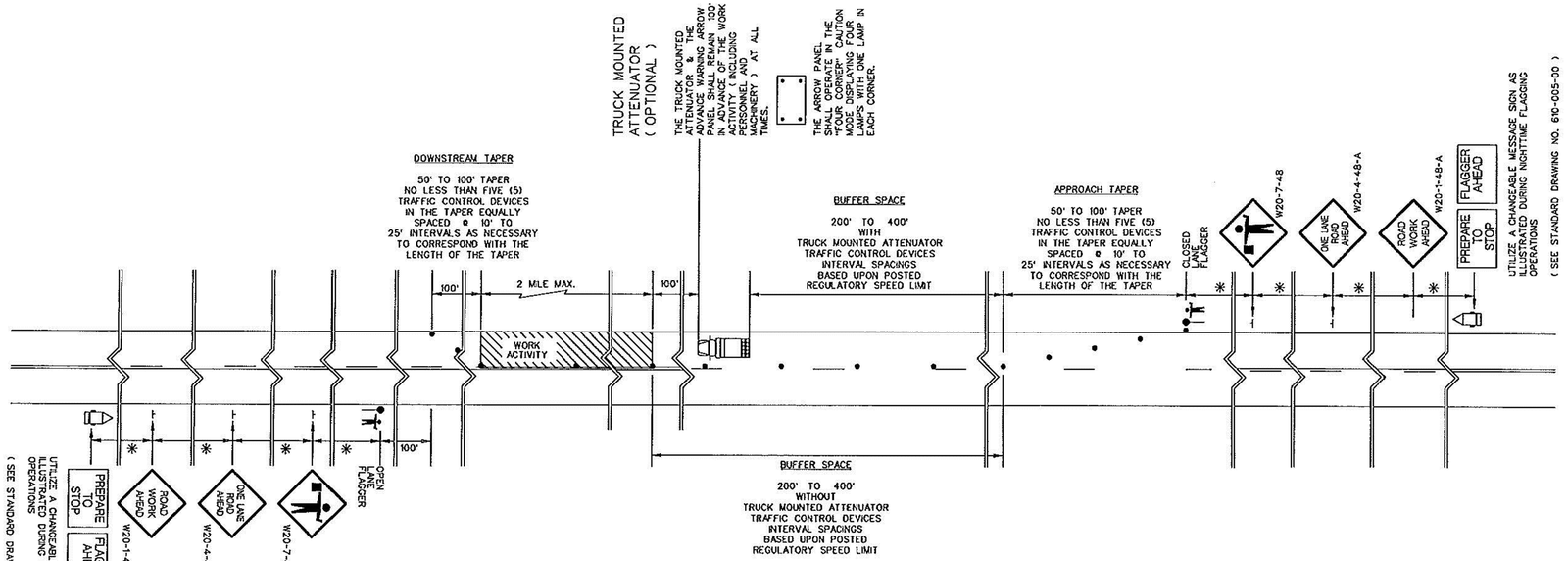

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
# ≤ 35 MPH LOW SPEED	200
# 40 - 50 MPH INTERMEDIATE SPEED	350
# 55 MPH HIGH SPEED	500

REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

THIS DRAWING IS NOT TO SCALE

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

7/27/15
DATE

#	DATE	CHK	DESCRIPTION
6			
5			
4			
3			
2			
1			
0	1-15-15	JCS	NEW DRAWING

SCDOT
SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING OPERATIONS TWO-LANE TWO-WAY ROADWAYS WITHOUT INTERSECTIONS

610-005-10

EFFECTIVE LETTING DATE | JAN 2016

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

TEMPORARY TRAFFIC CONTROL DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		BID
	JOB #	17-1007	
	ISSUE DATE	APRIL 2023	ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D9.6

LAST EDITED BY: STEVE DUCHARME
CAD FILE: R:\17-1007-035 PART-2\X\CDS\CONSTRUCTION DETAILS.DWG
PLOT DATE AND TIME: 6/1/2023 7:34:41 PM

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

6/1/2018
DATE

#	DATE	CHK	DESCRIPTION
5			
4			
3			
2			
1	4-27-18	WEM	REVISED WORK ACTIVITY DIMENSION AND NOTE 5
0	1-15-15	JCS	NEW DRAWING

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

FLAGGING OPERATIONS WORK ZONES CONTINUING THROUGH STOP SIGN CONTROLLED SIDE ROADS

610-005-20

EFFECTIVE LETTING DATE | JAN 2019

DRAWING 610-005-20 NOTES

1. SEE STANDARD DRAWING NO. 610-005-00 FOR ALL GENERAL NOTES AND REQUIREMENTS. THE FOLLOWING NOTES ARE SPECIFIC REQUIREMENTS FOR THIS STANDARD DRAWING.
2. WHEN THE WORK ZONE PROCEEDS THROUGH OR MUST ENCROACH UPON THE "LIMITS OF THE INTERSECTION", DO NOT ALLOW THE "APPROACH TAPER" OR THE "DOWNSTREAM TAPER" OF THE LANE CLOSURE TO ENCROACH UPON THE "LIMITS OF THE INTERSECTION". ONLY THE "BUFFER SPACE" OR THE "WORK ACTIVITY AREA" OF THE LANE CLOSURE MAY ENCROACH UPON THE "LIMITS OF THE INTERSECTION".
3. WHEN THE WORK ZONE PROCEEDS THROUGH OR MUST ENCROACH UPON THE "LIMITS OF THE INTERSECTION" WITH "STOP SIGN CONTROLLED" "SIDE ROADS", UTILIZE FLAGGERS TO CONTROL THE TRAFFIC FROM THE INTERSECTING "SIDE ROADS" UNLESS OTHERWISE DIRECTED BY THE ENGINEER. MAINTAIN THESE FLAGGERS IN PLACE FOR THE DURATION THAT ANY PORTION OF THE "BUFFER SPACE" OR THE "WORK ACTIVITY AREA" MAY ENCROACH UPON THE "LIMITS OF THE INTERSECTION".
4. WHEN THE WORK ZONE PROCEEDS THROUGH OR MUST ENCROACH UPON THE "LIMITS OF THE INTERSECTION" WITH "STOP SIGN CONTROLLED" "SIDE ROADS", THE CONTRACTOR SHOULD CONTINUE THE WORK OPERATIONS THROUGH THE INTERSECTION TO A LOCATION POINT BEYOND THE "LIMITS OF THE INTERSECTION". THAT WILL PERMIT THE WORK TRAIN TO CLEAR THE INTERSECTION AND THE LOCATION OF THE SUBSEQUENT "FLAGGER STATION" BE NO LESS THAN 200' PAST THE "LIMITS OF THE INTERSECTION" UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
5. WHEN THE WORK ZONE PROCEEDS THROUGH A "STOP SIGN CONTROLLED" "SIDE ROAD" INTERSECTION, CONTINUE THE WORK OPERATIONS THROUGH THE INTERSECTION TO A SPECIFIC LOCATION POINT WITHIN THE "DEPARTURE LANE" NO LESS THAN 300 FT TO 500 FT BEYOND THE LIMITS OF THE INTERSECTION TO ALLOW THE WORK TRAIN AND ALL PORTIONS OF THE LANE CLOSURE TO CLEAR THE INTERSECTION.
6. MAINTAIN THE MAXIMUM TIME DURATION OF 5 TO 7½ MINUTES FOR STOPPED TRAFFIC ON THE ROADWAY WHERE THE WORK ACTIVITY IS LOCATED AND BEING CONDUCTED UNLESS OTHERWISE DIRECTED BY THE ENGINEER. WHEN ANY PORTION OF THE "WORK ACTIVITY AREA" ENCROACHES UPON THE "LIMITS OF THE INTERSECTION", VARIOUS TYPES OF WORK MAY REQUIRE TRAFFIC TO AND FROM THE "SIDE ROADS" BE STOPPED FOR TIME DURATIONS GREATER THAN THE MAXIMUM TIME DURATION OF 5 TO 7½ MINUTES. ONLY WHEN APPROVED BY THE ENGINEER MAY THE MAXIMUM TIME DURATION OF 5 TO 7½ MINUTES FOR STOPPED TRAFFIC FOR THE SIDE ROAD TRAFFIC BE EXCEEDED. IN THE EVENT THE TYPE OF WORK REQUIRES THE SIDE ROAD TRAFFIC BE STOPPED FOR TIME DURATIONS GREATER THAN 5 TO 7½ MINUTES, THE SIDE ROAD TRAFFIC MAY BE STOPPED FOR TIME PERIODS UP TO 20 MINUTES IF APPROVED BY THE ENGINEER. IF THE SIDE ROAD TRAFFIC MUST BE STOPPED FOR TIME PERIODS GREATER THAN 20 MINUTES, CLOSURE OF THE "SIDE ROADS" MAY BE CONSIDERED IF APPROVED BY THE ENGINEER. IN THE EVENT CLOSURE OF THE "SIDE ROADS" IS APPROVED, CLOSE THE "SIDE ROADS" TO TRAFFIC IN ACCORDANCE WITH THE REQUIREMENTS OF STANDARD DRAWING NO. 610-510-00. INSTALL AND MAINTAIN APPROPRIATE DETOURS WHEN NECESSARY AND AS DIRECTED BY THE ENGINEER.

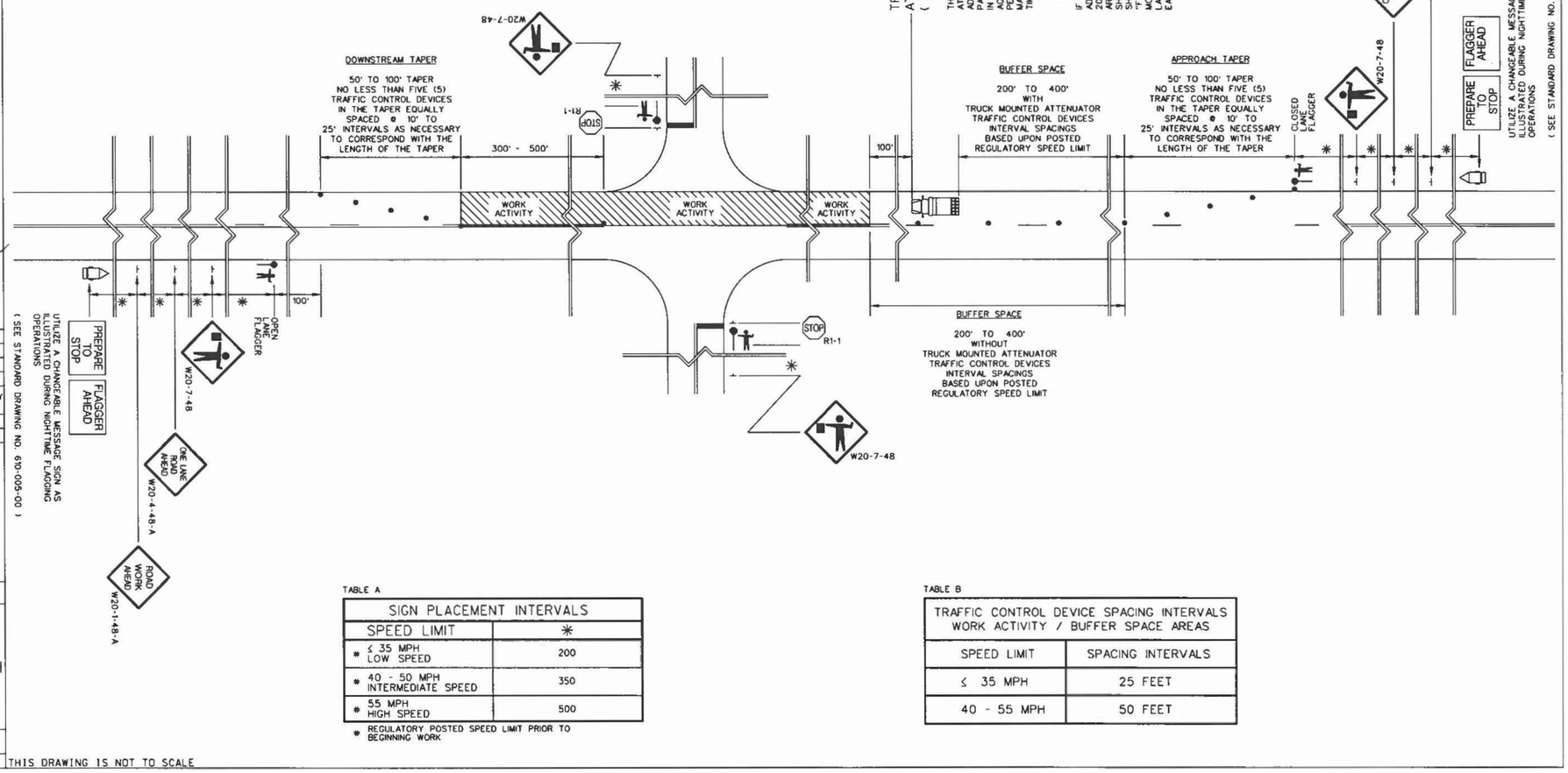

TABLE A

SIGN PLACEMENT INTERVALS	
SPEED LIMIT	*
* ≤ 35 MPH LOW SPEED	200
* 40 - 50 MPH INTERMEDIATE SPEED	350
* 55 MPH HIGH SPEED	500

* REGULATORY POSTED SPEED LIMIT PRIOR TO BEGINNING WORK

TABLE B

TRAFFIC CONTROL DEVICE SPACING INTERVALS WORK ACTIVITY / BUFFER SPACE AREAS	
SPEED LIMIT	SPACING INTERVALS
≤ 35 MPH	25 FEET
40 - 55 MPH	50 FEET

THIS DRAWING IS NOT TO SCALE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

TEMPORARY TRAFFIC CONTROL DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D9.7

LAST EDITED BY: STEVE DUCHARME
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PLOT DATE AND TIME: 6/1/2023 7:34:46 PM

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL JR

SIGNATURE

8/2/12
DATE

#	DATE	CHK	DESCRIPTION
6			
5			
4			
3			
2			
1	8-12-11	JCS	GENERAL UPDATE
0	8-23-07	JCS	DRAWING NO. UPDATE

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

RIGHT SHOULDER CLOSURE (CASE I / CASE II) PRIMARY ROUTES

610-205-00

EFFECTIVE LETTING DATE: JUNE, 2013

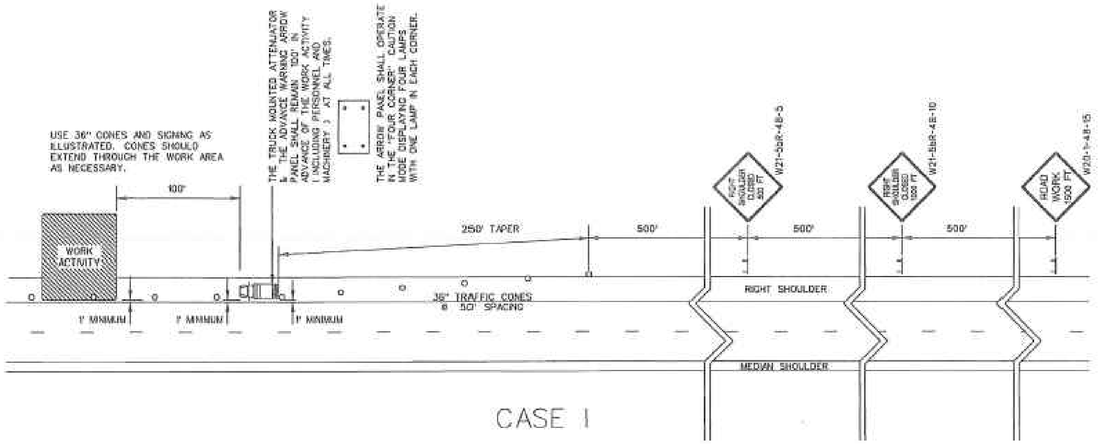
THIS DRAWING IS NOT TO SCALE

GENERAL NOTES

1. ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
2. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
3. SPACINGS INDICATED ARE FOR NORMAL CONDITIONS; ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL POSTS OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org .
7. THE CONTRACTOR SHALL PROVIDE AND UTILIZE ANY SPECIAL SIGN MOUNTING ASSEMBLIES AND HARDWARE THAT MAY BE NECESSARY FOR INSTALLING AND MOUNTING SIGNS IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS OR DOUBLEFACED GUARDRAIL.
8. THE PRIMARY TRAFFIC CONTROL DEVICES UTILIZED FOR DAYTIME SHOULDER CLOSURES ARE 36" CONES. THE PRIMARY TRAFFIC CONTROL DEVICES UTILIZED FOR NIGHTTIME SHOULDER CLOSURES ARE PORTABLE PLASTIC DRUMS. DURING DAYTIME SHOULDER CLOSURES, 42" OVERSIZED CONES MAY BE SUBSTITUTED FOR 36" CONES. DURING NIGHTTIME SHOULDER CLOSURES, 42" OVERSIZED CONES ARE PROHIBITED FOR USE. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE HOURS OF DARKNESS, REPLACE ALL CONES, 36" OR 42" OVERSIZED, WITH PORTABLE PLASTIC DRUMS.
9. THE 36" CONES UTILIZED DURING DAYLIGHT HOURS ARE NOT REQUIRED TO BE RETROREFLECTORIZED. RETROREFLECTORIZE ALL 42" OVERSIZED CONES UTILIZED DURING DAYTIME SHOULDER CLOSURES WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. RETROREFLECTORIZE ALL PORTABLE PLASTIC DRUMS WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
10. THE DEPARTMENT PROHIBITS CONDUCTING WORK ON PRIMARY AND SECONDARY ROUTES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE UNDER A SHOULDER CLOSURE. ALL WORK THAT MAY REQUIRE THE PRESENCE OF EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE SHALL BE CONDUCTED UNDER A LANE CLOSURE.

    CASE I: WHENEVER ANY PORTION OF THE SHOULDER AREA WITHIN 15' BUT NOT CLOSER THAN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE MUST BE OCCUPIED BY EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES TO CONDUCT THE WORK, INSTALL AND MAINTAIN THE SIGNING AND TRAFFIC CONTROL DEVICES AS ILLUSTRATED.

    CASE II: WHENEVER THE WORK IS CONDUCTED BEYOND 15' BUT WITHIN 30' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE, INCLUDING THE PRESENCE OF EQUIPMENT, PERSONNEL, MATERIALS OR WORK VEHICLES, INSTALL AND MAINTAIN THE SIGNING AND TRAFFIC CONTROL AS ILLUSTRATED.
12. CONDUCT THE WORK IN SUCH A MANNER THAT WILL NOT REQUIRE ENCROACHMENT OF TRAFFIC CONTROL DEVICES, EQUIPMENT, PERSONNEL, MATERIALS OR ANY WORK RELATED VEHICLES WITHIN 1' OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
13. PLACE THE TRUCK MOUNTED ATTENUATOR AT A LOCATION 100' IN ADVANCE OF THE WORK ACTIVITY AND NO CLOSER THAN 1' FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
14. FOR A CASE I SCENARIO IN THE RIGHT SHOULDER AREA, ADJUST THE TAPER AS NECESSARY TO FIT THE WIDTH OF THE SHOULDER WHILE MAINTAINING THE REQUIRED 250' TAPER LENGTH.
15. IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS AT THE SAME TIME UNDER CASE I SHOULDER CLOSURES, SEPARATE THE TWO LOCATIONS BY NO LESS THAN 1 MILE FROM THE END OF THE FIRST CASE I CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CASE I CLOSURE. A MINIMUM SEPARATION DISTANCE OF ONE-HALF MILE IS RECOMMENDED BETWEEN SHOULDER CLOSURES WHEN ONE OR BOTH SHOULDER CLOSURES IS A CASE II CLOSURE.
16. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.
17. THIS TYPICAL TRAFFIC CONTROL SETUP APPLIES TO THE INSTALLATION OF SHOULDER CLOSURES IN THE RIGHT SHOULDER AREAS OF PRIMARY AND SECONDARY ROADWAYS.



PORTABLE TRUCK MOUNTED ATTENUATOR

1. UTILIZE A TRUCK MOUNTED ATTENUATOR ATTACHED TO THE REAR OF A TRUCK WITH A MINIMUM GROSS VEHICULAR WEIGHT (GVW) OF 15,000 POUNDS (ACTUAL WEIGHT). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE ATTACHED TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
2. LOCATE THE TRUCK MOUNTED ATTENUATOR 100 FEET IN ADVANCE OF THE WORK AREA UNLESS OTHERWISE SPECIFIED.
3. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.

ADVANCE WARNING ARROW PANEL

ALL ADVANCE WARNING ARROW PANELS SHALL BE 48" x 96" WITH A MINIMUM LEGIBILITY DISTANCE OF 1 MILE. PLACEMENT OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS. THE PANEL FACE SHALL BE NONREFLECTIVE BLACK. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

WHEN AN ADVANCE WARNING ARROW PANEL IS REQUIRED TO OPERATE IN THE CAUTION MODE, THE ADVANCE WARNING ARROW PANEL SHALL DISPLAY THE "FOUR CORNERS" CAUTION MODE, WITH ONE LAMP IN EACH CORNER. DISPLAY OF ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE SUCH AS THE "FLASHING BAR" OR THE "ALTERNATING DIAMOND" CAUTION MODES ARE UNACCEPTABLE AND PROHIBITED.

LEGEND

⊙ 36" TRAFFIC CONES

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
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2				
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4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

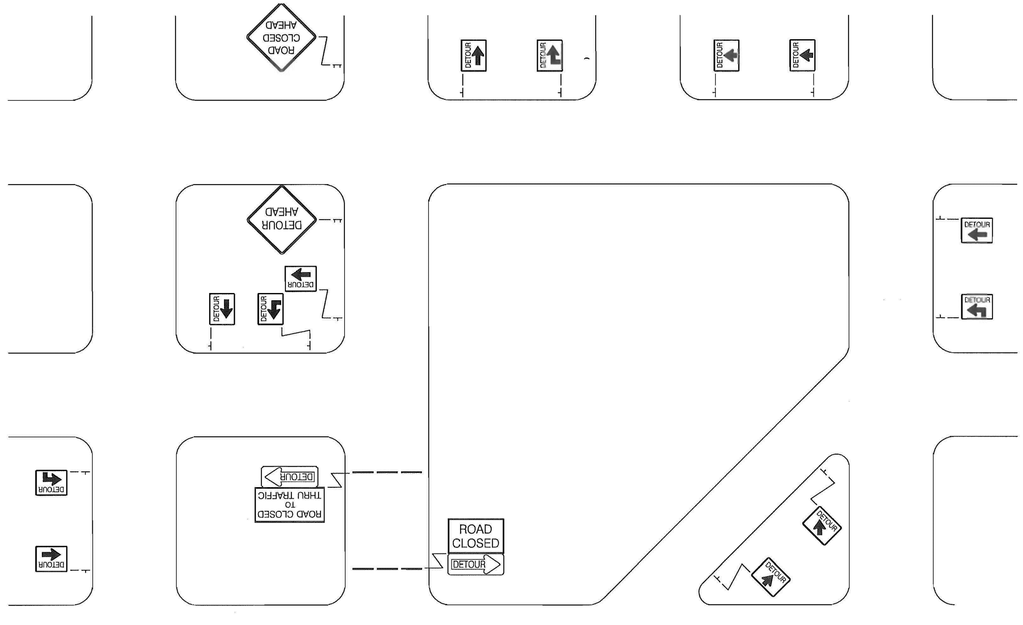
TEMPORARY TRAFFIC CONTROL DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	APRIL 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D9.8



GENERAL NOTES

1.) ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.

2.) IN AREAS WITH PAVED SHOULDERS OR CURB & GUTTER, GROUND MOUNT ALL DETOUR SIGN ASSEMBLIES 2 FEET FROM EITHER THE PAVEMENT EDGE OF A PAVED SHOULDER OR THE FACE OF A CURB. IN AREAS WITH NO PAVED SHOULDERS OR CURB & GUTTER, GROUND MOUNT ALL DETOUR SIGN ASSEMBLIES 6-12 FEET FROM THE NEAR EDGE OF AN ADJACENT TRAVEL LANE TO THE NEAREST EDGE OF THE SIGN ASSEMBLY. MOUNT EACH DETOUR SIGN ASSEMBLY SO THE BOTTOM EDGE OF THE BOTTOM SIGN HAS A MINIMUM MOUNTING HEIGHT OF NO LESS THAN 5 FEET ABOVE THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.

3.) SPACINGS INDICATED ARE FOR NORMAL CONDITIONS; ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.

4.) MOUNT ALL SIGNS SUCH THAT THEY ARE STRAIGHT AND LEVEL AND THE FACE OF THE SIGNS ARE PERPENDICULAR TO THE SURFACE OF THE ROADWAY.

5.) REFLECTORIZE ALL DETOUR MARKERS, DETOUR SIGNS, AND DETOUR ARROW SIGNS WITH A FLUORESCENT ORANGE COLORED PRISMATIC REFLECTIVE SHEETING.

6.) ALL TRAFFIC CONTROL DEVICES, INCLUDING TYPE III BARRICADES, PORTABLE SIGN SUPPORTS, SIGN SUBSTRATUMS, BREAKAWAY SYSTEMS FOR GROUND MOUNTED SIGN SUPPORTS, WARNING LIGHTS, ETC., SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL BE APPROVED BY THE DEPARTMENT. ALL APPROVED TRAFFIC CONTROL DEVICES ARE INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES". THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org .

7.) SPECIAL SIGN MOUNTING ASSEMBLIES MAY BE NECESSARY IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS, OR DOUBLEFACED GUARDRAIL AND SHALL BE PROVIDED BY THE CONTRACTOR.

8.) REFLECTORIZE ALL BARRICADES WITH A TYPE III HIGH INTENSITY REFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.

9.) ALL SUPPLEMENTAL SIGNS ATTACHED TO TYPE III BARRICADES SHALL BE CONSTRUCTED OF AN APPROVED REFLECTIVE ROLL-UP MATERIAL OR AN APPROVED ALUMINUM COMPOSITE MATERIAL. ONLY THOSE ALUMINUM COMPOSITE MATERIALS INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" SUCH AS "ALPOLIC", "DIBOND", OR "REYNOLITE" ARE APPROVED. ALL OTHER RIGID SIGN SUBSTRATUMS, INCLUDING .08 AND .10 ALUMINUM SIGN BLANKS, ARE PROHIBITED FOR ATTACHMENT TO A TYPE III BARRICADE.

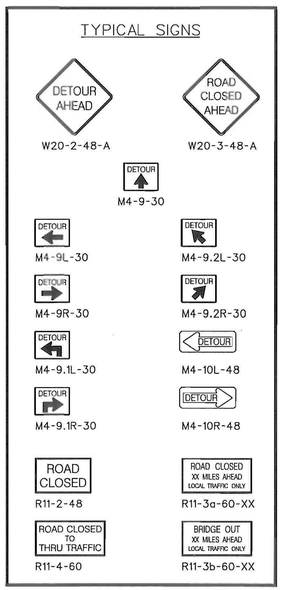
10.) THE TRAFFIC CONTROL SETUP SHOWN IS A TYPICAL INSTALLATION FOR A SECONDARY ROADWAY. SPECIFIC SIGNING WILL BE BASED ON SITE CONDITIONS AND SHALL REQUIRE THE ENGINEER'S APPROVAL PRIOR TO INSTALLATION. ROAD AND STREET NAMES MAY ALSO BE USED.

11.) THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT CONSTRUCTION OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS, AND/OR THE ENGINEER.

12.) THE TRAFFIC CONTROL SETUP ILLUSTRATED ON THIS STANDARD DRAWING, INCLUDING INSTALLATION AND MAINTENANCE OF THE DETOUR SIGNING AND ALL TRAFFIC CONTROL DEVICES PERTINENT TO THE DETOUR, SHALL BE INCLUDED IN THE CONTRACT LUMP SUM PRICE BID ITEM FOR TRAFFIC CONTROL.

13.) COORDINATE THE SIGNS IN EACH SIGN ASSEMBLY ACCORDING TO LOCATION, ROUTE, DIRECTION, SIZE, AND COLOR.

TYPICAL SIGNS



SIGN PLACEMENT AND SPACING INTERVALS

SPEED LIMIT	a	b	c	d
35 mph OR LESS	50'	100'	200'	200'
40 mph TO 50 mph	75'	150'	350'	350'
55 mph OR GREATER	100'	200'	500'	500'

LEGEND

- TYPE III BARRICADE (6 FEET)
- SINGLE POST SIGN ASSEMBLY
- DUAL POSTS SIGN ASSEMBLY

THIS DRAWING IS NOT TO SCALE

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE E. McCONNELL, JR

SIGNATURE

1-30-2008

DATE

#	DATE	CHK	DESCRIPTION
6			
5			
4			
3			
2			
1			
0	8-30-07	JCS	DRAWING NO. UPDATE

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

DETOUR SIGNING FOR SECONDARY ROUTES

610-610-00

EFFECTIVE LETTING DATE: MAY 2008

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK	DESCRIPTION
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

TEMPORARY TRAFFIC CONTROL DETAILS
DETOUR SIGNING - SECONDARY ROUTES

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007		
ISSUE DATE	APRIL 2023		
ISSUE	BID		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D9.9

REFERENCES

WORK ZONE TRAFFIC CONTROL ENGINEER

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER NO. 24242 WILLIE F. McCONNELL, JR

SIGNATURE

8/2/12

DATE

#	DATE	CHK	DESCRIPTION
6			
5			
4			
3			
2			
1	2-15-11	JCS	GENERAL UPDATE
0	8-22-07	JCS	DRAWING NO. UPDATE

SCDOT

SOUTH CAROLINA DEPARTMENT OF TRANSPORTATION

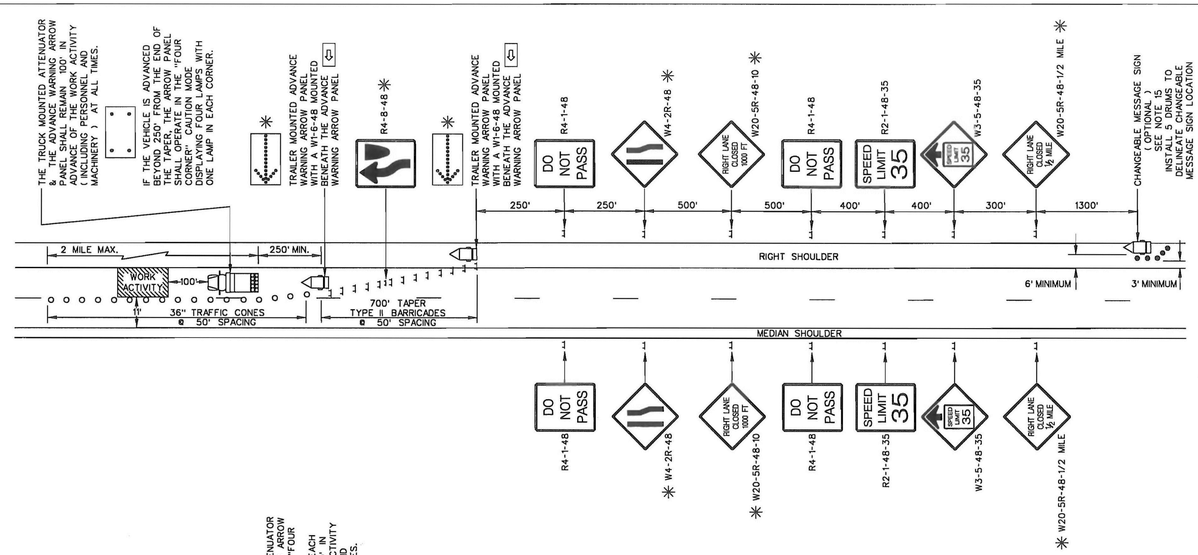
DESIGN STANDARDS OFFICE
955 PARK STREET
ROOM 405
COLUMBIA, SC 29201

STANDARD DRAWING

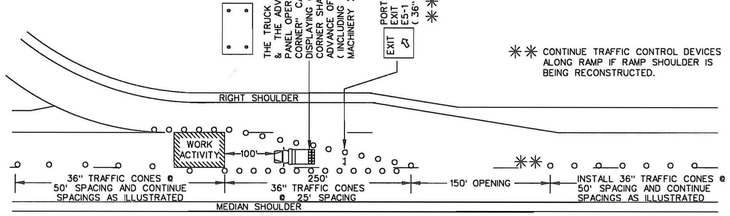
LANE CLOSURE
DAYTIME
MULTILANE
PRIMARY ROUTES

610-025-00

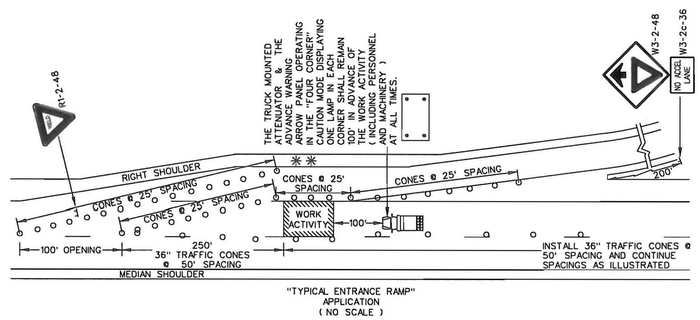
EFFECTIVE LETTING DATE JAN. 2013



"TYPICAL EXIT RAMP" APPLICATION (NO SCALE)



"TYPICAL EXIT RAMP" APPLICATION (NO SCALE)



"TYPICAL ENTRANCE RAMP" APPLICATION (NO SCALE)

GENERAL NOTES

1. ALL SIGN LOCATIONS ARE TO BE MEASURED FROM THE WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
2. INSTALL ADVANCE WARNING SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS NO LESS THAN 4 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH EARTH SHOULDERS AND NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE SIGN TO THE NEAR EDGE OF AN ADJACENT TRAVEL LANE ON ROADWAYS WITH PAVED SHOULDERS. WHEN CURB & GUTTER IS PRESENT, INSTALL THE SIGN NO LESS THAN 2 FEET FROM THE NEAR EDGE OF THE SIGN TO THE FACE OF THE CURB.
3. SPACINGS INDICATED ARE FOR NORMAL CONDITIONS; ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT DISTANCE RESTRICTIONS.
4. ALL SIGNS MOUNTED ON PORTABLE SIGN SUPPORTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 5 FEET FROM THE GROUND TO THE BOTTOM OF THE SIGN. ALL SIGNS MOUNTED ON GROUND MOUNTED U-CHANNEL POSTS OR SQUARE STEEL TUBE POSTS SHALL HAVE A MINIMUM MOUNTING HEIGHT OF 7 FEET FROM THE GRADE ELEVATION OF THE NEAR EDGE OF THE ADJACENT TRAVEL LANE TO THE BOTTOM OF THE SIGN UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT. MOUNT ALL SIGNS STRAIGHT AND LEVEL AND WITH THE FACE OF THE SIGNS PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ORANGE ADVANCE WARNING SIGNS AND ANY ORANGE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A FLUORESCENT ORANGE COLORED PRISMATIC RETROREFLECTIVE SHEETING. REFLECTORIZE WHITE REGULATORY SIGNS AND ANY WHITE AREAS OF A MULTI-COLORED ADVANCE WARNING SIGN WITH A WHITE COLORED PRISMATIC RETROREFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL REQUIRE APPROVAL BY THE DEPARTMENT. ONLY THOSE TRAFFIC CONTROL DEVICES INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" ARE CONSIDERED ACCEPTABLE FOR USE. THIS LIST MAY BE ACCESSED ON THE DEPARTMENT'S WEB SITE AT: www.scdot.org .
7. THE CONTRACTOR SHALL PROVIDE AND UTILIZE ANY SPECIAL SIGN MOUNTING ASSEMBLIES AND HARDWARE THAT MAY BE NECESSARY FOR INSTALLING AND MOUNTING SIGNS IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS OR DOUBLEFACED GUARDRAIL.
8. REFLECTORIZATION OF 36" TRAFFIC CONES USED DURING DAYLIGHT HOURS IS NOT REQUIRED. IF THIS TRAFFIC CONTROL SETUP EXTENDS INTO THE NIGHTTIME HOURS, REPLACE ALL 36" TRAFFIC CONES WITH EITHER PORTABLE PLASTIC DRUMS OR 42" OVERSIZED TRAFFIC CONES. REFLECTORIZE ALL PORTABLE PLASTIC DRUMS AND 42" OVERSIZED TRAFFIC CONES WITH TYPE III FLEXIBLE PRISMATIC RETROREFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
9. REFLECTORIZE ALL BARRICADES WITH A TYPE VIII OR IX PRISMATIC RETROREFLECTIVE SHEETING ON ALL PROJECTS LET TO CONTRACT AFTER MAY 1, 2012 UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
10. TYPE II BARRICADES SHALL HAVE A MINIMUM WIDTH OF 3 FEET UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
11. CONDUCT THE WORK IN SUCH A MANNER THAT WILL MINIMIZE ENCROACHMENT OF TRAFFIC CONTROL DEVICES, EQUIPMENT, PERSONNEL, MATERIALS OR ANY WORK RELATED VEHICLES ONTO AN ADJACENT TRAVEL LANE OPEN TO TRAFFIC. INSTALL, MAINTAIN AND ADJUST THE TRAFFIC CONTROL DEVICES AS NECESSARY TO ENSURE PROPER DELINEATION OF THE WORK AREA.
12. LANE CLOSURES ARE RESTRICTED TO MAXIMUM LENGTHS OF 2 MILES UNLESS OTHERWISE DIRECTED BY THE SPECIAL PROVISIONS AND/OR THE DEPARTMENT.
13. IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS WITHIN THE SAME TRAVEL LANE UNDER TWO SEPARATE LANE CLOSURES ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER, SEPARATE THE TWO LANE CLOSURES BY NO LESS THAN 2 MILES FROM THE END OF THE FIRST CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CLOSURE.
14. IF WORK IS BEING CONDUCTED SIMULTANEOUSLY AT TWO DIFFERENT LOCATIONS IN THE SAME DIRECTION BUT WITHIN DIFFERENT TRAVEL LANES UNDER TWO SEPARATE LANE CLOSURES ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER, SEPARATE THE TWO LANE CLOSURES BY NO LESS THAN 4 MILES FROM THE END OF THE FIRST CLOSURE THAT A MOTORIST WILL ENCOUNTER TO THE BEGINNING OF THE TAPER OF THE SECOND CLOSURE.
15. UTILIZATION OF A CHANGEABLE MESSAGE SIGN IS OPTIONAL WITH THIS TRAFFIC CONTROL SETUP. HOWEVER, WHEN A CHANGEABLE MESSAGE SIGN IS UTILIZED, INSTALL THE SIGN AS ILLUSTRATED ON THIS STANDARD DRAWING UNLESS OTHERWISE DIRECTED BY THE SPECIAL PROVISIONS, THE PLANS AND/OR THE ENGINEER. INSTALL THE CHANGEABLE MESSAGE SIGN NO LESS THAN 6 FEET FROM THE NEAR EDGE OF THE ADJACENT TRAVEL LANE AND SUPPLEMENT THE SIGN LOCATION WITH NO LESS THAN 5 PORTABLE PLASTIC DRUMS FOR DELINEATION AS ILLUSTRATED. 36" STANDARD TRAFFIC CONES OR 42" OVERSIZED TRAFFIC CONES ARE PROHIBITED AS SUBSTITUTES FOR THE PORTABLE PLASTIC DRUMS IN THIS APPLICATION. DURING A RIGHT LANE CLOSURE, THE SIGN SHOULD FLASH ALTERNATELY TO READ "RIGHT LANE CLOSED", "MERGE LEFT" AT A RATE THAT WILL PERMIT MOTORISTS TO READ BOTH MESSAGES AT LEAST ONCE.
16. THE DEPARTMENT RESERVES THE RIGHT TO RESTRICT WORK OPERATIONS AND/OR WITHHOLD THE MONTHLY ESTIMATE IF THE TRAFFIC CONTROL IS NOT PROPERLY INSTALLED AND MAINTAINED AS DIRECTED BY THE STANDARD SPECIFICATIONS, THE SPECIAL PROVISIONS, THE STANDARD DRAWINGS, THE PLANS AND/OR THE ENGINEER.
17. THIS TYPICAL TRAFFIC CONTROL SETUP APPLIES TO THE INSTALLATION OF A LANE CLOSURE ON A PRIMARY ROADWAY WITH A POSTED REGULATORY SPEED LIMIT OF 40 MPH OR GREATER.

✳ LEFT LANE CLOSURE

1. SIGNS ILLUSTRATED ARE FOR A RIGHT LANE CLOSURE.
2. WHEN CLOSING THE LEFT TRAVEL LANE, USE THE FOLLOWING:
   - 2 - W20-5L-48-10
   - 2 - W4-2L-48
   - 2 - W20-5L-48-1/2 MILE
   - 1 - R4-7-48
3. THE STRIPES ON THE BARRICADES TO THE LEFT OF TRAFFIC SHALL SLOPE DOWNWARD FROM THE UPPER LEFT TO THE LOWER RIGHT.
4. THE FLASHING ARROW AND THE "LARGE ARROW" SIGN (W1-6-48) SHALL POINT TO THE RIGHT.
5. THE CHANGEABLE MESSAGE SIGN SHALL FLASH ALTERNATELY TO READ "LEFT LANE CLOSED", "MERGE RIGHT".

PORTABLE TRUCK MOUNTED ATTENUATOR

1. UTILIZE A TRUCK MOUNTED ATTENUATOR ATTACHED TO THE REAR OF A TRUCK WITH A MINIMUM GROSS VEHICULAR WEIGHT (GVM) OF 15,000 POUNDS (ACTUAL WEIGHT). IF THE ADDITION OF SUPPLEMENTAL WEIGHT TO THE VEHICLE AS BALLAST IS NECESSARY, CONTAIN THE MATERIAL WITHIN A STRUCTURE CONSTRUCTED OF STEEL. CONSTRUCT THIS STEEL STRUCTURE TO HAVE A MINIMUM OF FOUR SIDES AND A BOTTOM. A TOP IS OPTIONAL. BOLT THIS STRUCTURE TO THE FRAME OF THE TRUCK. UTILIZE A SUFFICIENT NUMBER OF FASTENERS FOR ATTACHMENT OF THE STEEL STRUCTURE TO THE FRAME OF THE TRUCK TO ENSURE THE STRUCTURE WILL NOT SEPARATE FROM THE FRAME OF THE TRUCK DURING AN IMPACT UPON THE ATTACHED TRUCK MOUNTED ATTENUATOR. UTILIZE EITHER DRY LOOSE SAND OR STEEL REINFORCED CONCRETE FOR BALLAST MATERIAL WITHIN THE STEEL STRUCTURE TO ACHIEVE THE NECESSARY WEIGHT. THE BALLAST MATERIAL SHALL REMAIN CONTAINED WITHIN THE CONFINES OF THE STEEL STRUCTURE AND SHALL NOT PROTRUDE FROM THE STEEL STRUCTURE IN ANY MANNER.
2. LOCATE THE TRUCK MOUNTED ATTENUATOR 100 FEET IN ADVANCE OF THE WORK AREA UNLESS OTHERWISE SPECIFIED.
3. PROVIDE, INSTALL AND MAINTAIN THE TRUCK MOUNTED ATTENUATOR AS SPECIFIED BY THE STANDARD SPECIFICATIONS AND AS DIRECTED BY THE ENGINEER.
4. DUE TO THE WEIGHT OF A TRUCK MOUNTED ATTENUATOR, THE TRUCK MOUNTED ATTENUATOR SUPPLEMENTED WITH AN ADVANCE WARNING ARROW PANEL MAY BE REPLACED WITH A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL WHEN THIS TRAFFIC CONTROL SETUP IS UTILIZED FOR ASPHALT CONCRETE PAVEMENT OPERATIONS. REPLACEMENT WITH A TRAILER MOUNTED ADVANCE WARNING ARROW PANEL SHALL REQUIRE THE ENGINEER'S APPROVAL.

ADVANCE WARNING ARROW PANEL

ALL ADVANCE WARNING ARROW PANELS SHALL BE 48" x 96" WITH A MINIMUM LEGIBILITY DISTANCE OF 1 MILE. PLACEMENT OF AN ADVANCE WARNING ARROW PANEL MAY REQUIRE ADJUSTMENTS DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENT OR OTHER SIGHT DISTANCE RESTRICTIONS. THE PANEL FACE SHALL BE NONREFLECTIVE BLACK. ALL ADVANCE WARNING ARROW PANELS SHALL COMPLY WITH THE STANDARD SPECIFICATONS FOR HIGHWAY CONSTRUCTION, LATEST EDITION.

WHEN AN ADVANCE WARNING ARROW PANEL IS REQUIRED TO OPERATE IN THE CAUTION MODE, THE ADVANCE WARNING ARROW PANEL SHALL DISPLAY THE "FOUR CORNERS" CAUTION MODE, WITH ONE LAMP IN EACH CORNER. DISPLAY OF ANY OTHER TYPE OF CAUTION MODE OTHER THAN THE "FOUR CORNERS" CAUTION MODE SUCH AS THE "FLASHING BAR" OR THE "ALTERNATING DIAMOND" CAUTION MODES ARE UNACCEPTABLE AND PROHIBITED.

LEGEND

O 36" TRAFFIC CONES

THIS DRAWING IS NOT TO SCALE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

TEMPORARY TRAFFIC CONTROL DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE	ISSUE
ABB	JMC	17-1007	APRIL 2023	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D9.10

TYPICAL SIGNS

76 M1-4-24-XX	176 M1-4-30-XXX	M5-1L-21
S.C. 34 M1-6-24-XX	S.C. 219 M1-6-30-XXX	M5-1R-21
		M5-2L-21
NORTH M3-1-24	NORTH M3-1-30	M5-2R-21
EAST M3-2-24	EAST M3-2-30	M6-1-21
SOUTH M3-3-24	SOUTH M3-3-30	M6-2L-21
WEST M3-4-24	WEST M3-4-30	M6-2R-21
DETOUR M4-8-24	DETOUR M4-8-30	M6-3-21
DETOUR M4-10L-48	DETOUR M4-10R-48	M6-4-21

ROAD CLOSED — R11-2-48

ROAD CLOSED XX MILES AHEAD LOCAL TRAFFIC ONLY — R11-3a-60-XX

ROAD CLOSED TO THRU TRAFFIC — R11-4-60

BRIDGE OUT XX MILES AHEAD LOCAL TRAFFIC ONLY — R11-3b-60-XX

NOTE: ALWAYS INSTALL 24" SIGNS WITH 24" SIGNS AND 30" SIGNS WITH 30" SIGNS. SIGNING IS NOT LIMITED TO THOSE SIGNS ILLUSTRATED.

LEGEND

- TRAVEL DIRECTION
- SIGN
- TYPE III BARRICADE

N

0 30' 60'

GENERAL NOTES

1. ALL SIGN LOCATIONS ARE TO BE MEASURED FROM WORK AREA. WORK LIMITS FOR THE PROJECT WILL BE DETERMINED BY THE ENGINEER AND AS INDICATED IN THE CONTRACT.
2. IN AREAS WITH PAVED SHOULDERS OR CURB & GUTTER, GROUND MOUNT ALL DETOUR SIGN ASSEMBLIES 2 FEET FROM EITHER THE PAVEMENT EDGE OF A PAVED SHOULDER OR THE FACE OF A CURB. IN AREAS WITH NO PAVED SHOULDERS OR CURB & GUTTER, GROUND MOUNT ALL DETOUR SIGN ASSEMBLIES 6-12 FEET FROM THE NEAR EDGE OF AN ADJACENT TRAVEL LANE TO THE NEAREST EDGE OF THE SIGN ASSEMBLY. MOUNT EACH DETOUR SIGN ASSEMBLY SO THE BOTTOM EDGE OF THE BOTTOM SIGN HAS A MINIMUM MOUNTING HEIGHT OF NO LESS THAN 5 FEET ABOVE THE NEAR EDGE OF THE ADJACENT TRAVEL LANE.
3. SPACING INDICATED ARE FOR NORMAL CONDITIONS. ADJUSTMENTS MAY BE REQUIRED DUE TO HORIZONTAL AND/OR VERTICAL ALIGNMENTS OR OTHER SIGHT RESTRICTIONS.
4. MOUNT ALL SIGNS SUCH THAT THEY ARE STRAIGHT AND LEVEL AND THE FACE OF THE SIGNS ARE PERPENDICULAR TO THE SURFACE OF THE ROADWAY.
5. REFLECTORIZE ALL DETOUR MARKERS, DETOUR SIGNS AND DETOUR ARROW SIGNS WITH FLUORESCENT ORANGE COLORED PRISMATIC REFLECTIVE SHEETING. REFLECTORIZE ALL ROUTE MARKER SIGNS AND ALL AUXILIARY SIGNS, INCLUDING BUT NOT LIMITED TO THE CARDINAL, DIRECTIONAL, ADVANCE TURN ARROW AND DIRECTIONAL ARROW AUXILIARY SIGNS, WITH A TYPE III HIGH INTENSITY ENCAPSULATED GLASS BEAD REFLECTIVE SHEETING.
6. ALL TRAFFIC CONTROL DEVICES INCLUDING TYPE III BARRICADES, PORTABLE SIGN SUPPORTS, SIGN SUBSTRATUMS, BREAKAWAY SYSTEMS FOR GROUND MOUNTED SIGN SUPPORTS, WARNING LIGHTS ETC., SHALL COMPLY WITH ALL NCHRP REPORT 350 REQUIREMENTS AND SHALL BE APPROVED BY THE DEPARTMENT. ALL APPROVED TRAFFIC CONTROL DEVICES ARE INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES". THIS LIST MAY BE ACCESSED ON THE DEPARTMENTS WEB SITE AT: WWW.SCDOT.ORG .
7. SPECIAL SIGN MOUNTING ASSEMBLIES MAY BE NECESSARY IN AREAS OF CONCRETE MEDIAN BARRIER, BRIDGE PARAPET WALLS OR DOUBLE FACED GUARDRAIL AND SHALL BE PROVIDED BY THE CONTRACTOR.
8. REFLECTORIZED ALL BARRICADES WITH A TYPE III HIGH INTENSITY REFLECTIVE SHEETING UNLESS OTHERWISE DIRECTED BY THE DEPARTMENT.
9. ALL SUPPLEMENTAL SIGNS ATTACHED TO TYPE III BARRICADES SHALL BE CONSTRUCTED OF AN APPROVED REFLECTIVE ROLL-UP MATERIAL OR AN APPROVED ALUMINUM COMPOSITE MATERIAL. ONLY THOSE ALUMINUM COMPOSITE MATERIALS INCLUDED ON THE "APPROVED PRODUCTS LIST FOR TRAFFIC CONTROL DEVICES IN WORK ZONES" SUCH AS "ALPOLIC", "DIBOND", OR "REYNOLITE" ARE APPROVED. ALL OTHER RIGID SIGN SUBSTRATUMS, INCLUDING .08 AND .10 ALUMINUM SIGN BLANKS ARE PROHIBITED FOR ATTACHMENT TO A TYPE III BARRICADE

GRAYS HIGHWAY (US-278)
TOWN SQUARE (S-65)
4TH AVENUE (S-65)
3RD AVENUE (US-278)
3RD AVENUE (S-64)
2ND AVENUE (S-74)
JASPER STREET (S-63)
RUSSELL STREET (SC-366)
N PERRY STREET (S-67)
TOWN SQUARE (S-66)

MH-255
MH-257
MH-321-A
TYPE III BARRICADE
500'
US-278 DETOUR
ROAD CLOSED
5091 5090
62.19 61.87
IE 15"ERS 15" RCP

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN
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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

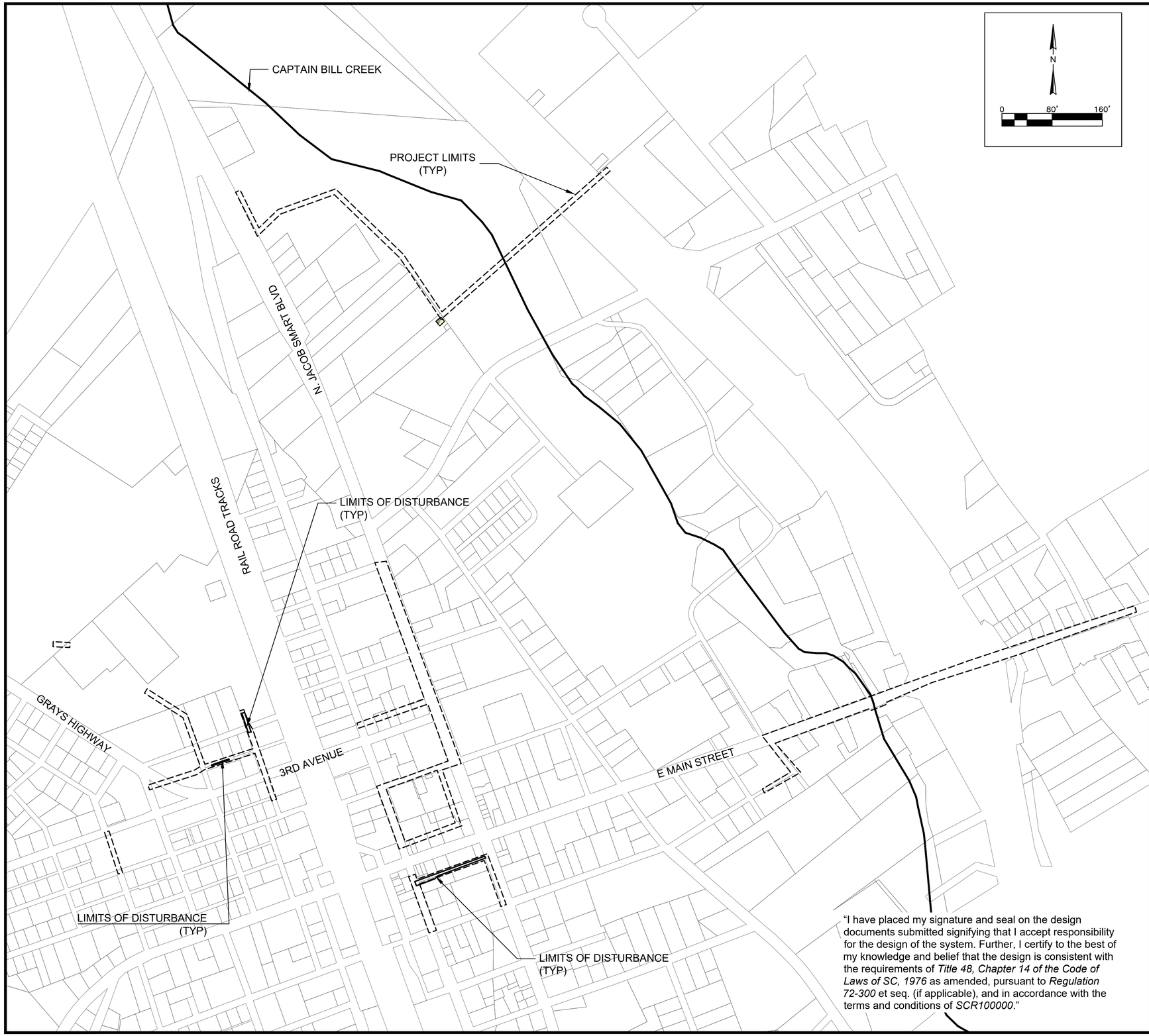
MAINTENANCE OF TRAFFIC PLAN
PRIMARY ROUTE US 278 DETOUR

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
	JOB # 17-1007	ISSUE DATE APRIL 2023	
		ISSUE BID	

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
D9.11



PROJECT LIMIT AND LAND DISTURBANCE LIMITS

SCALE 1" = 80'

SCDHEC SEDIMENT AND EROSION CONTROL STANDARD NOTES

1. IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.
2. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN
   (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.
   - WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
   - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.
3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY, OR INCORRECTLY, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.
4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.
5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.
6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.
7. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C REG. 72-300 ET SEQ. AND SCR100000.
8. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.
9. ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.
10. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.
11. A COPY OF THE SWPPP, INSPECTIONS RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.
12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.
13. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.
14. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE;
15. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPS (SEDIMENT BASIN, FILTER BAG, ETC.).
16. THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:
   - WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
   - WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
   - FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
   - SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.
17. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.
18. IF EXISTING BMPS NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPS MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.
19. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

PLANNED SEQUENCE OF OPERATIONS:

1. CLEARING AND GRUBBING OF AREAS NECESSARY FOR INSTALLATION OF SILT FENCE AND INLET PROTECTION PER CONSTRUCTION PLANS.
2. INSTALLATION OF SEWER MAIN AND SEWER LATERALS PER CONSTRUCTION PLANS
3. REPAVEMENT OF ROADWAY SURFACE AS PER CONSTRUCTION PLANS
4. INSTALLATION OF HYDROSEEDING AND/OR SOD FOR PERMANENT STABILIZATION OF DISTURBED AREAS.
5. MAINTAIN GRASS SURFACE.
6. REMOVE TEMPORARY SEDIMENT CONTROL FEATURES ONCE FINAL STABALIZATION IS OBTAINED.

PROJECT LIMITS NOTES:

PROJECT LIMITS DETERMINED BY RIGHT-OF-WAY DIMENSIONS AS SPECIFIED AND SHOWN ON DRAWINGS.

PROJECT LIMIT AREAS:

APPROX 11.645 ACRES

LAND DISTURBANCE LIMITS BASED ON PROJECT IMPROVEMENTS AND CONSTRUCTION RELATED ITEMS (DOES NOT INCLUDE MAINTENANCE OF ROADWAYS).

LAND DISTURBANCE AREAS:

APPROX 0.243 ACRES

"I have placed my signature and seal on the design documents submitted signifying that I accept responsibility for the design of the system. Further, I certify to the best of my knowledge and belief that the design is consistent with the requirements of *Title 48, Chapter 14 of the Code of Laws of SC, 1976* as amended, pursuant to *Regulation 72-300* et seq. (if applicable), and in accordance with the terms and conditions of *SCR100000*."

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

SCDHEC SEDIMENT AND EROSION CONTROL NOTES

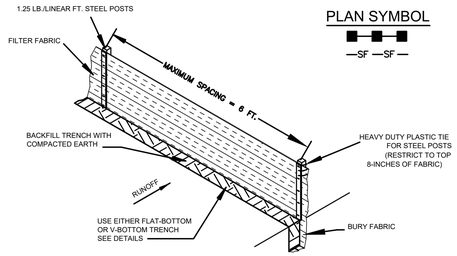
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE APRIL 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
EC9.1

SILT FENCE INSTALLATION



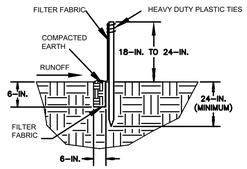
PLAN SYMBOL

—SF —SF—

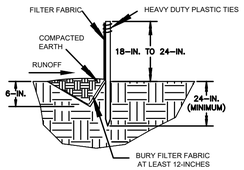
SILT FENCE – GENERAL NOTES

1. Do not place silt fence across channels or in other areas subject to concentrated flows. Silt fence should not be used as a velocity control BMP. Concentrated flows are any flows greater than 0.5 cfs.
2. Maximum sheet or overland flow path length to the silt fence shall be 100-feet.
3. Maximum slope steepness (normal [perpendicular] to the fence line) shall be 2:1.
4. Silt fence joints, when necessary, shall be completed by one of the following options:
   - Wrap each fabric together at a support post with both ends fastened to the post, with a 1-foot minimum overlap;
   - Overlap silt fence by installing 3-feet passed the support post to which the new silt fence roll is attached. Attach old roll to new roll with heavy-duty plastic ties; or,
   - Overlap entire width of each silt fence roll from one support post to the next support post.
5. Attach filter fabric to the steel posts using heavy-duty plastic ties that are evenly spaced within the top 8-inches of the fabric.
6. Install the silt fence perpendicular to the direction of the stormwater flow and place the silt fence the proper distance from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.
7. Install Silt Fence Checks (Tie-Backs) every 50-100 feet, dependent on slope, along silt fence that is installed with slope and where concentrated flows are expected or are documented along the proposed/installed silt fence.

FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL



South Carolina Department of Health and Environmental Control

SILT FENCE

STANDARD DRAWING NO. SC–03 Page 1 of 2

NOT TO SCALE FEBRUARY 2014 DATE

SILT FENCE – POST REQUIREMENTS

Silt Fence posts must be 48-inch long steel posts that meet, at a minimum, the following physical characteristics.

- Composed of a high strength steel with a minimum yield strength of 50,000 psi.
- Include a standard "T" section with a nominal face width of 1.38-inches and a nominal "T" length of 1.48-inches.
- Weigh 1.25 pounds per foot (± 8%)

2. Posts shall be equipped with projections to aid in fastening of filter fabric.
3. Steel posts may need to have a metal soil stabilization plate welded near the bottom when installed along steep slopes or installed in loose soils. The plate should have a minimum cross section of 17-square inches and be composed of 15 gauge steel, at a minimum. The metal soil stabilization plate should be completely buried.
4. Install posts to a minimum of 24-inches. A minimum height of 1- to 2- inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.
5. Post spacing shall be at a maximum of 6-feet on center.

SILT FENCE – FABRIC REQUIREMENTS

1. Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
   - Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polyolefins, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
   - Free of any treatment or coating which might adversely alter its physical properties after installation;
   - Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
   - Have a minimum width of 36-inches.
2. Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.
3. 12-inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.
4. Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
5. Filter Fabric shall be installed at a minimum of 24-inches above the ground.

South Carolina Department of Health and Environmental Control

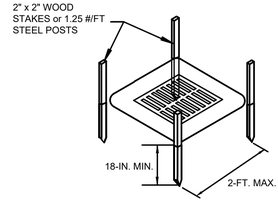
SILT FENCE

STANDARD DRAWING NO. SC–03 PAGE 2 of 2

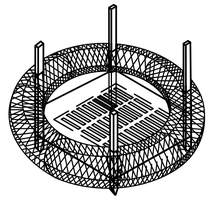
GENERAL NOTES FEBRUARY 2014 DATE

SILT FENCE – INSPECTION & MAINTENANCE

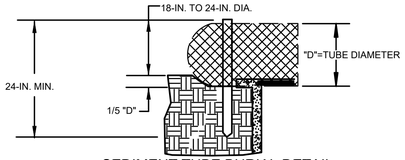
1. The key to functional silt fence is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the silt fence.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Check for areas where stormwater runoff has eroded a channel beneath the silt fence, or where the fence has sagged or collapsed due to runoff overtopping the silt fence. Install checks/tie-backs and/or reinstall silt fence, as necessary.
7. Check for tears within the silt fence, areas where silt fence has begun to decompose, and for any other circumstance that may render the silt fence ineffective. Removed damaged silt fence and reinstall new silt fence immediately.
8. Silt fence should be removed within 30 days after final stabilization is achieved and once it is removed, the resulting disturbed area shall be permanently stabilized.



POST INSTALLATION DETAIL



SEDIMENT TUBE INSTALLATION DETAIL



SEDIMENT TUBE BURIAL DETAIL

PLAN SYMBOL

(A)

South Carolina Department of Health and Environmental Control

Type A

SEDIMENT TUBE INLET PROTECTION

STANDARD DRAWING NO. SC–07A PAGE 1 of 2

NOT TO SCALE FEBRUARY 2014 DATE

TYPE A – SEDIMENT TUBE INLET PROTECTION

GENERAL NOTES

1. Sediment tubes are elongated tubes of compacted geotextiles, curled excelsior wood, natural coconut fiber, or hardwood mulch. Straw, pine needle, and leaf mulch-filled sediment tubes are not permitted.
2. The outer netting of the sediment tube should consist of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable material.
3. Sediment tube diameters shall range from 18-inches to 24-inches. Sediment tunes with smaller diameters are prohibited when used as inlet protection.
4. Curled excelsior wood, or natural coconut products that are rolled up to create a sediment tube are not allowed.
5. Sediment tubes should be staked using wooden oak stakes (2-inch X 2-inch) or steel posts (standard "U" or "T" sections with a minimum weight of 1.25 pounds per foot) at a minimum of 48-inches in length placed on 2-foot centers.
6. Install all sediment tubes to ensure that no gaps exist between the soil and the bottom of the tube. Manufactuer's recommendations should always be consulted before installation.
7. The ends of adjacent sediment tubes should be overlapped 6-inches to prevent flow and sediment from passing through the field joint.
8. Sediment tubes should not be stacked on top of one another.
9. Each sediment tube should be installed in a trench with a depth equal to 1/5 the diameter of the sediment tube.
10. Install stakes at a diagonal facing incoming runoff.

INSPECTION & MAINTENANCE

1. The key to functional inlet protection is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of sediment tube inlet protection shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations in front of the sediment tube is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the sediment tube. When a sump is installed in front of the inlet protection, sediment shall be removed when if fills approximately 1/3 the depth of the sump.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Large debris, trash, and leaves should be removed from in front of tubes when found.
7. Inlet protection structures should be removed after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

South Carolina Department of Health and Environmental Control

Type A

SEDIMENT TUBE INLET PROTECTION

STANDARD DRAWING NO. SC–07A PAGE 2 of 2

NOT TO SCALE FEBRUARY 2014 DATE

TYPE A – FILTER FABRIC REQUIREMENTS

1. Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
   - Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polyolefins, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
   - Free of any treatment or coating which might adversely alter its physical properties after installation;
   - Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
   - Have a minimum width of 36-inches.
2. Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.
3. 12-inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.
4. Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
5. Filter Fabric shall be installed at a minimum of 24-inches above the ground.

TYPE A – POST REQUIREMENTS

1. Silt Fence posts must be 48-inch long steel posts that meet, at a minimum, the following physical characteristics.
   - Composed of a high strength steel with a minimum yield strength of 50,000 psi.
   - Include a standard "T" section with a nominal face width of 1.38-inches and a nominal "T" length of 1.48-inches.
   - Weigh 1.25 pounds per foot (± 8%)
2. Posts shall be equipped with projections to aid in fastening of filter fabric.
3. Install posts to a minimum of 24-inches. A minimum height of 1- to 2- inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.
4. Post spacing shall be at a maximum of 3-feet on center.

TYPE A – INSPECTION & MAINTENANCE

1. The key to functional inlet protection is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of inlet protection shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations along the filter fabric is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the filter fabric. When a sump is installed in front of the fabric, sediment should be removed when it fills approximately 1/3 the depth of the sump.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Check for areas where stormwater runoff has eroded a channel beneath the filter fabric, or where the fabric has sagged or collapsed due to runoff overtopping the inlet protection.
7. Check for tears within the filter fabric, areas where fabric has begun to decompose, and for any other circumstance that may render the inlet protection ineffective. Removed damaged fabric and reinstall new filter fabric immediately.
8. Inlet protection structures should be removed after all the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

South Carolina Department of Health and Environmental Control

FILTER FABIC INLET PROTECTION

STANDARD DRAWING NO.

GENERAL NOTES

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN.CHK BY	DESCRIPTION
1			
2			
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5			
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 2

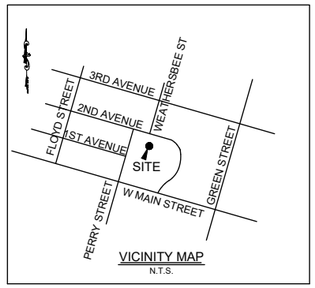
SCDHEC SEDIMENT AND EROSION CONTROL DETAILS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007	ISSUE DATE	APRIL 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
EC9.2



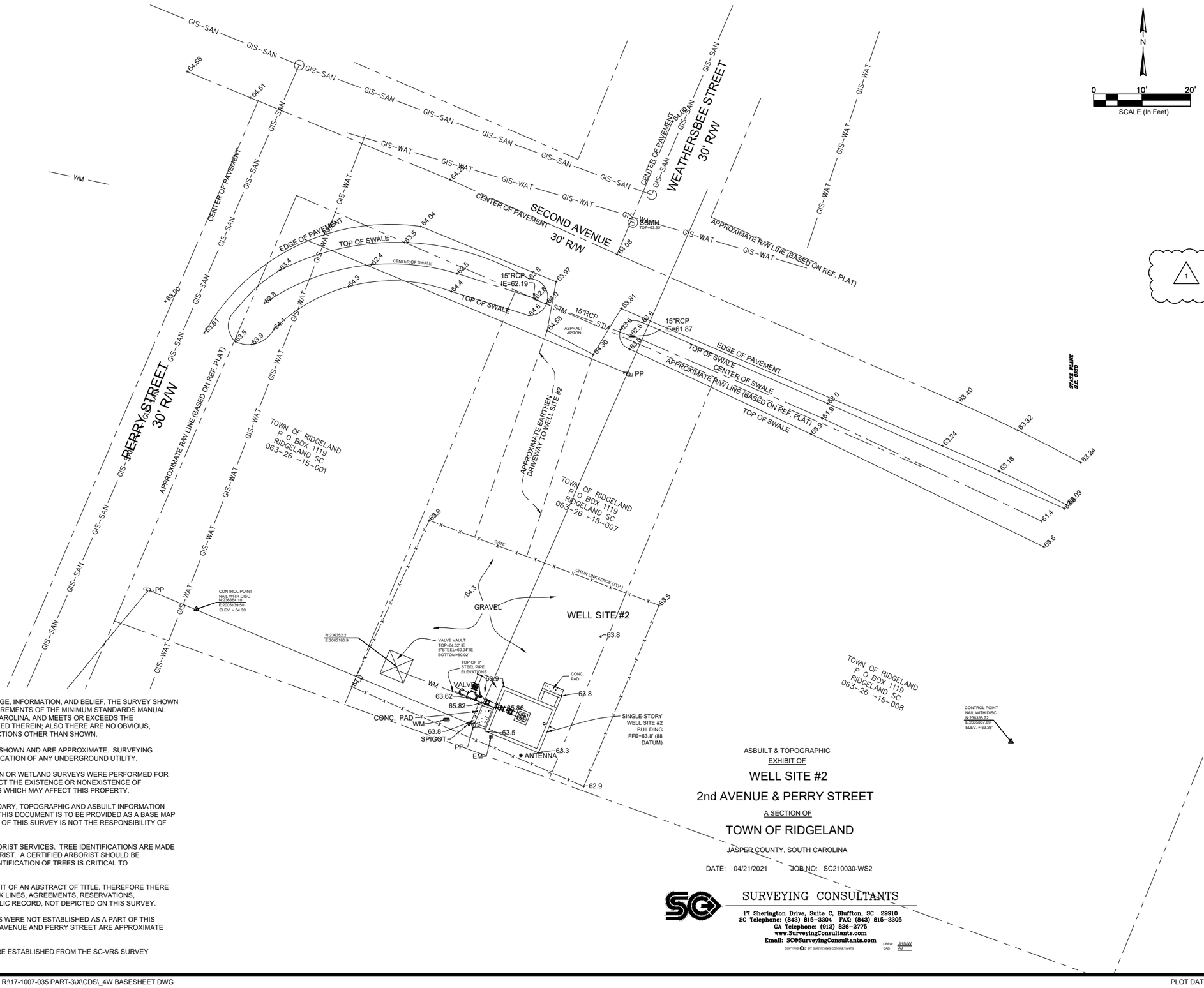
VICINITY MAP
N.T.S.

LEGEND:

+9.5	SPOT ELEVATION
RCP	REINFORCED CONCRETE PIPE
EM	ELECTRIC METER
IE	INVERT ELEVATION
PP	POWER POLE
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
SSMH	SANITARY SEWER MANHOLE
WM	WATER METER
FFE	FINISH FLOOR ELEVATION
—— SAN ——	SANITARY SEWER LINE

PREPARED FOR:
FOUR WATERS ENGINEERING & TOWN OF RIDGELAND

ADDRESS: 2nd AVENUE & PERRY STREET PARENT TAX PARCEL I.D. NOs. 063-26-15-001, 007 & 008



0 10' 20'
SCALE (In Feet)

REFERENCE PLAT:
PROPERTY OF MAE P. ROBERTSON,
TOWN OF RIDGELAND, JASPER COUNTY, SC,
REFERENCES: DEED 89, PAGE 370,
DATED: 09/17/1990,
BY: NIELS CHRISTENSEN IV, S.C.R.L.S. NO. 13162,
RECORDED: P.B. 19 PAGE 85.

SPECIAL NOTE:
*HORIZONTAL DATUM IS NAD 83 SOUTH CAROLINA STATE PLANE COORDINATES
*VERTICAL DATUM IN NAVD 88
*SEE NOTE #8 BELOW

NOTES:
1. I HEREBY STATE THAT TO THE BEST OF MY KNOWLEDGE, INFORMATION, AND BELIEF, THE SURVEY SHOWN HEREIN WAS MADE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MINIMUM STANDARDS MANUAL FOR THE PRACTICE OF LAND SURVEYING IN SOUTH CAROLINA, AND MEETS OR EXCEEDS THE REQUIREMENTS FOR A CLASS "A" SURVEY AS SPECIFIED THEREIN; ALSO THERE ARE NO OBVIOUS, APPARENT OR VISIBLE ENCROACHMENTS OR PROJECTIONS OTHER THAN SHOWN.
2. UNDERGROUND UTILITIES NOT LOCATED EXCEPT AS SHOWN AND ARE APPROXIMATE. SURVEYING CONSULTANTS DOES NOT CERTIFY TO THE EXACT LOCATION OF ANY UNDERGROUND UTILITY.
3. NO SUBSURFACE OR ENVIRONMENTAL INVESTIGATION OR WETLAND SURVEYS WERE PERFORMED FOR THIS PLAT. THEREFORE THIS PLAT DOES NOT REFLECT THE EXISTENCE OR NONEXISTENCE OF WETLANDS, CONTAMINATION, OR OTHER CONDITIONS WHICH MAY AFFECT THIS PROPERTY.
4. SURVEYING CONSULTANTS CERTIFIES TO THE BOUNDARY, TOPOGRAPHIC AND ASBUILT INFORMATION PROVIDED HEREON AS OF THE DATE OF SURVEY. IF THIS DOCUMENT IS TO BE PROVIDED AS A BASE MAP FOR OTHERS, INFORMATION ADDED AFTER THE DATE OF THIS SURVEY IS NOT THE RESPONSIBILITY OF SURVEYING CONSULTANTS.
5. SURVEYING CONSULTANTS DOES NOT PROVIDE ARBORIST SERVICES. TREE IDENTIFICATIONS ARE MADE AS BEST OBSERVANCE/KNOWLEDGE OF A NON-ARBORIST. A CERTIFIED ARBORIST SHOULD BE CONSULTED TO VERIFY TREE IDENTIFICATION, IF IDENTIFICATION OF TREES IS CRITICAL TO DEVELOPMENT.
6. THIS SURVEY WAS CONDUCTED WITHOUT THE BENEFIT OF AN ABSTRACT OF TITLE, THEREFORE THERE MAY BE OTHER EASEMENTS, RIGHT-OF-WAY, SETBACK LINES, AGREEMENTS, RESERVATIONS, RESTRICTIONS, OR OTHER SIMILAR MATTERS OF PUBLIC RECORD, NOT DEPICTED ON THIS SURVEY.
7. BOUNDARY LINES AND/OR ROAD RIGHT-OF-WAY LINES WERE NOT ESTABLISHED AS A PART OF THIS SURVEY. THE RIGHT-OF-WAY LINES SHOWN FOR 2nd AVENUE AND PERRY STREET ARE APPROXIMATE BASED ON THE CENTER OF THE ROAD.
8. THE HORIZONTAL AND VERTICAL DATUM SHOWN WERE ESTABLISHED FROM THE SC-VRS SURVEY NETWORK.

ASBUILT & TOPOGRAPHIC
EXHIBIT OF
WELL SITE #2
2nd AVENUE & PERRY STREET
A SECTION OF
TOWN OF RIDGELAND
JASPER COUNTY, SOUTH CAROLINA

DATE: 04/21/2021 JOB NO: SC210030-WS2

SURVEYING CONSULTANTS
17 Sherington Drive, Suite C, Bluffton, SC 29910
SC Telephone: (843) 815-3304 FAX: (843) 815-3305
GA Telephone: (912) 826-2775
www.SurveyingConsultants.com
Email: SC@SurveyingConsultants.com
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CREW: JH/MW
CAD: AJ

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL UPDATES
2				
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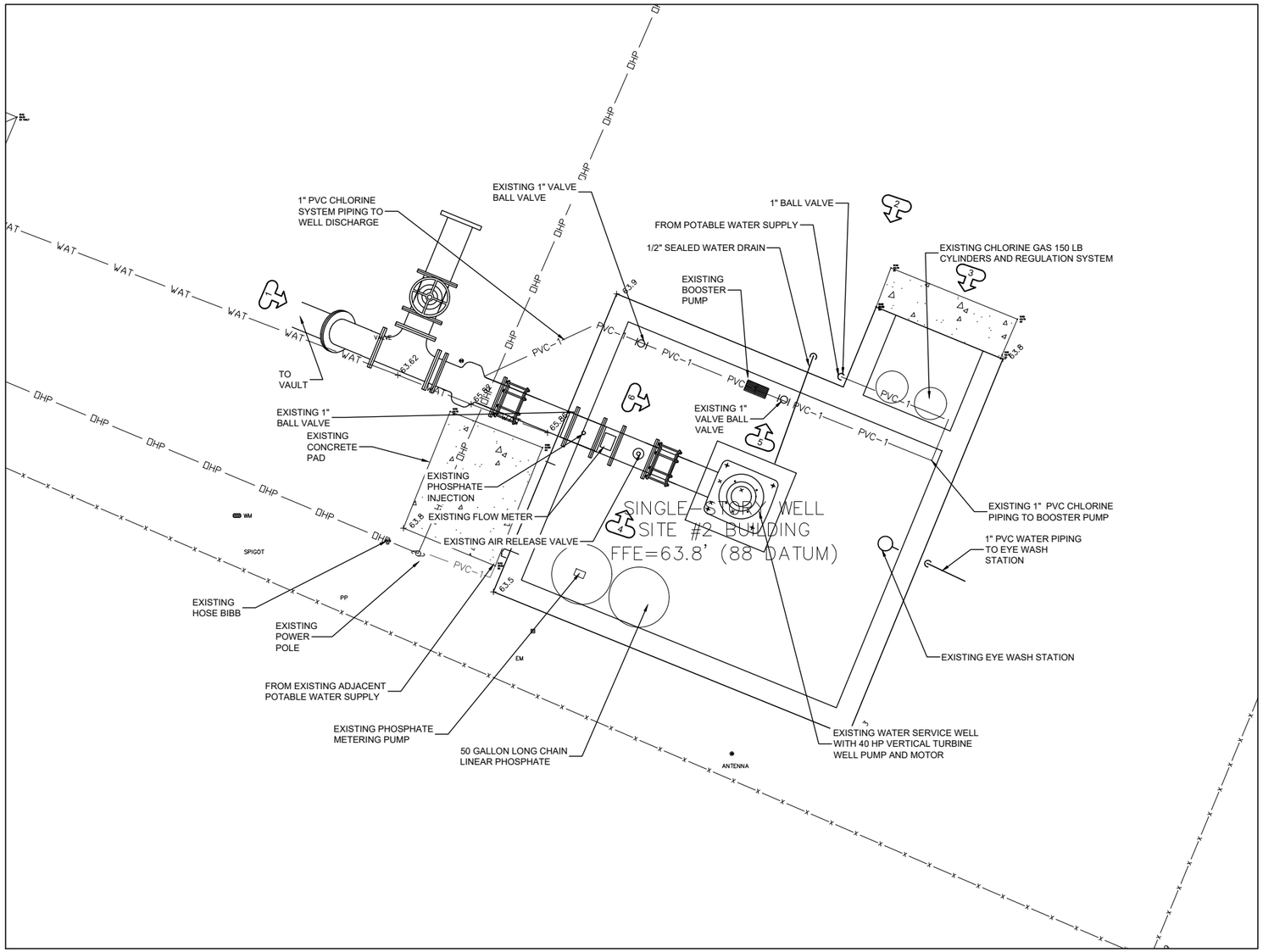
WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 3
WELL SITE NO.2 - EXISTING CONDITIONS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
G10.1



N

0 2' 4'

SCALE (In Feet)

1

XX PHOTO LEGEND:
DENOTES PHOTO LOCATION AND DIRECTION

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 3

WELL SITE NO.2 - EXISTING CONDITIONS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	ABB	DRAWN	JMC
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

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DRAWING NUMBER
G10.2

PHOTO 1: LOOKING EAST TOWARD WELL BUILDING

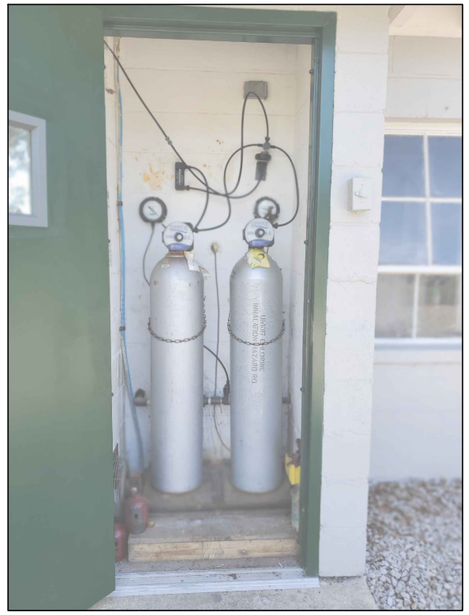

PHOTO 3 - LOOKING SOUTH TOWARD CHLORINE GAS ROOM

PHOTO 5 - LOOKING NORTH TOWARD BOOSTER PUMP

PHOTO 2 - LOOKING SOUTH TOWARD WELL BUILDING

PHOTO 4 - LOOKING NORTH TOWARD WELL DISCHARGE

PHOTO 6 - LOOKING EAST TOWARD WELL PUMP

1

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 3

WELL SITE NO.2 - SITE PHOTOS

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	BID
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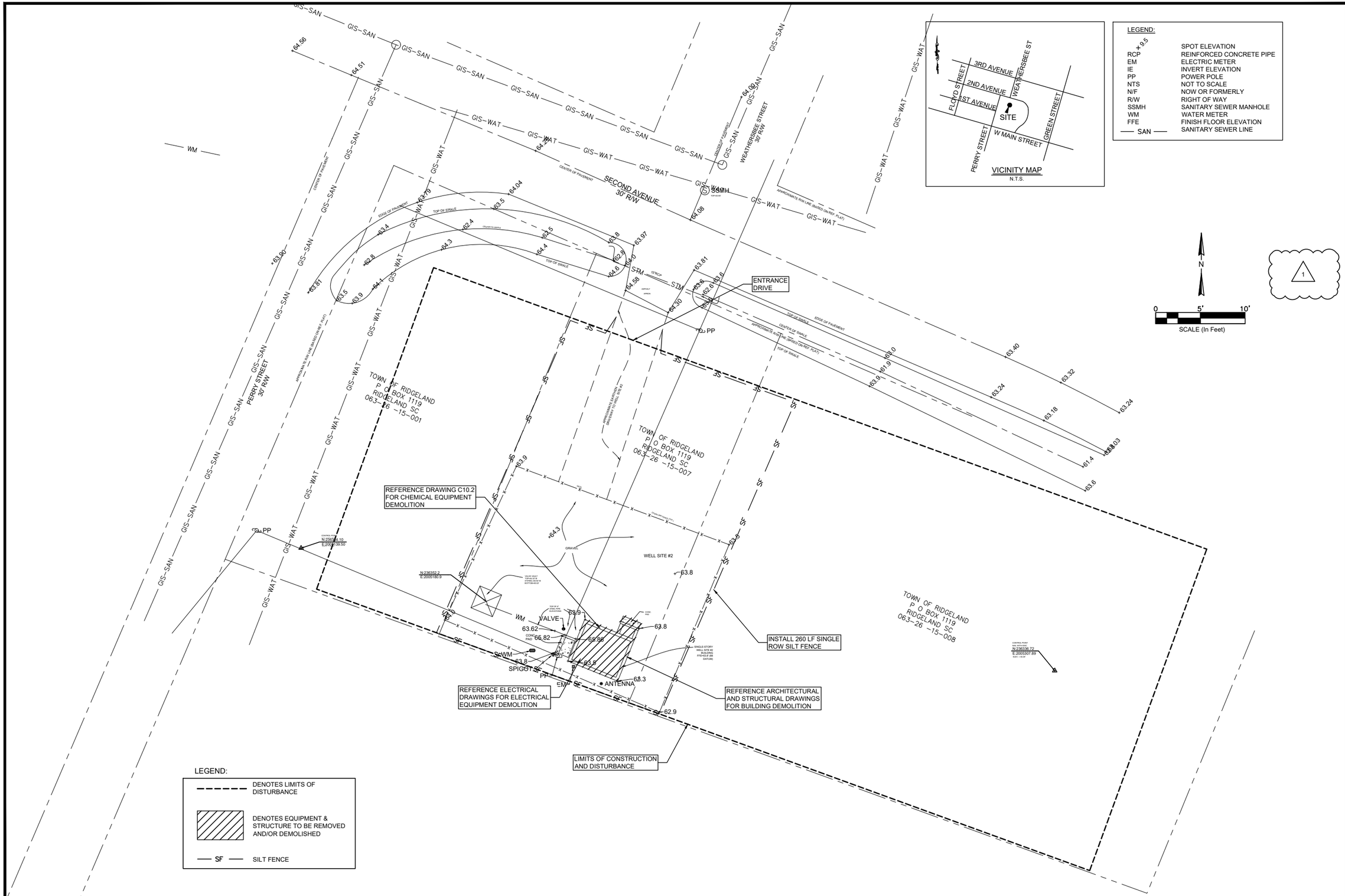
DRAWING NUMBER
G10.3



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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 3

WELL SITE NO.2 - CONSTRUCTION LIMITS AND DEMOLITION PLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID

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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C10.1

GENERAL NOTES

1. ARCHITECTURAL DETAILS AND NOTES ARE FOR REFERENCE PURPOSE ONLY. COMPLETE ARCHITECTURAL PLANS FOR CONSTRUCTION ARE INCLUDED ON ATTACHED SHEETS A001 THROUGH S201.
2. ELECTRICAL DETAILS AND NOTES ARE FOR REFERENCE PURPOSE ONLY. COMPLETE ELECTRICAL PLANS FOR CONSTRUCTION ARE INCLUDED ON ATTACHED SHEETS E10.1 THROUGH E10.2 AND IN ASSOCIATED SECTIONS OF WRITTEN SPECIFICATIONS.

DEMOLITION NOTES:

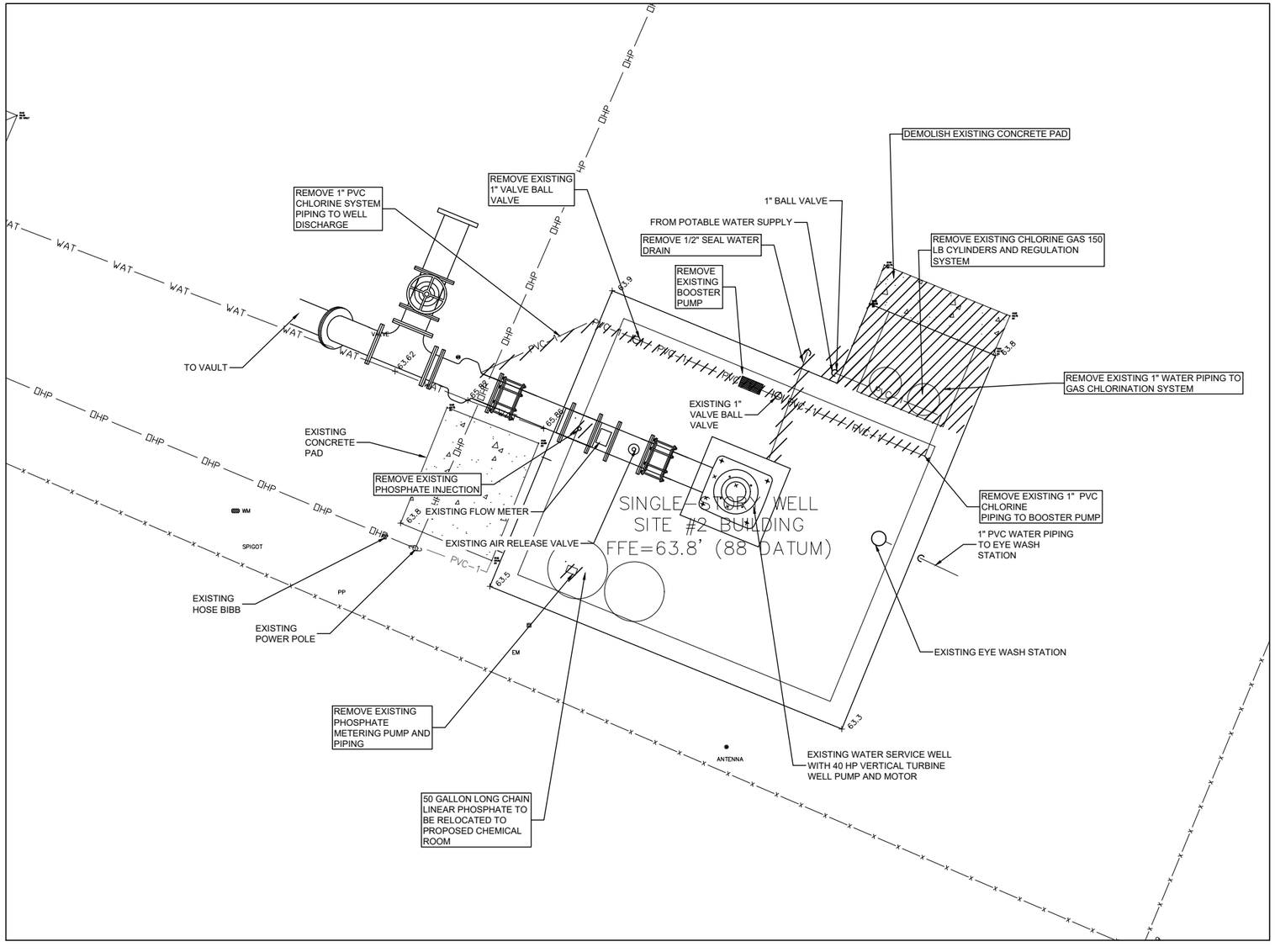
1. CONTRACTOR SHALL COORDINATE SCHEDULE WITH TOWN OF RIDGELAND WATER AND SEWER DEPARTMENT STAFF PRIOR TO INITIATING DEMOLITION AND CONSTRUCTION EFFORTS WHICH REQUIRE TAKING WELL #2 OFFLINE.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. CONTRACTOR SHALL COORDINATE WITH TOWN OF RIDGELAND PROJECT REPRESENTATIVE REGARDING EQUIPMENT TO BE RETAINED BY TOWN WHICH SHALL BE DELIVERED TO THE JIMMY MIXSON WRF AT 366 PREACHER STREET. UNLESS SO IDENTIFIED, ALL OTHER EQIUPMENT AND MATERIALS TO BE DEMOLISHED SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE REMOVED FROM THE SITE AND PROPERLY DISPOSED OF AT AN APPROVED DISPOSAL FACILITY.
4. REFERENCE ARCHITECTURAL, STRUCTURAL AND ELECTRICAL PLANS FOR ADDITIONAL REQUIREMENTS.

N

0 2' 4'

SCALE (In Feet)

DENOTES EQUIPMENT & STRUCTURE TO BE REMOVED AND/OR DEMOLISHED



1

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1	5/23	SD	AB	GENERAL UPDATES
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3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS

PART 3

WELL SITE NO.2 - DEMOLITION PLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
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844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C10.2

PERRY STREET
30' R/W

APPROXIMATE R/W LINE (BASED ON REF. PLAT)

TOWN OF RIDGELAND
P O BOX 1119
RIDGELAND SC
063-26 -15-001

TOWN OF RIDGELAND
P O BOX 1119
RIDGELAND SC
063-26 -15-007

APPROXIMATE EARTHEN DRIVEWAY TO WELL SITE #2

TOP OF SWALE
CENTER OF SWALE
APPROXIMATE R/W LINE (BASED ON REF. PLAT)
TOP OF SWALE
EDGE OF PAVEMENT

GATE
CHAIN LINK FENCE (TYP.)

SILT FENCE

GRAVEL

WELL SITE #2

CONTROL POINT
NAIL WITH DISC
N:236364.10
E:2005139.50
ELEV. = 64.30'

N:236352.2
E:2005180.9

VALVE VAULT
TOP=64.32' IE
6"STEEL=60.94' IE
BOTTOM=60.02'

REFERENCE DRAWING C10.2 FOR CHEMICAL SYSTEM IMPROVEMENTS

TOP OF 6" STEEL PIPE'S ELEVATIONS

VALVE

CONC. PAD

SPIGOT

F.M.

ANTENNA

REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL IMPROVEMENTS IN BUILDING AND ON SITE

REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING IMPROVEMENTS

SINGLE-STORY WELL SITE #2 BUILDING FFE=63.8' (88 DATUM)

APPROXIMATE LOCATION OF PROPOSED GENERATOR FUEL TANK

APPROXIMATE LOCATION OF PROPOSED EMERGENCY GENERATOR

N

0 5' 10'
SCALE (In Feet)

1

VICINITY MAP
N.T.S.
3RD AVENUE
2ND AVENUE
1ST AVENUE
FLOYD STREET
WEATHERSBEE ST
GREEN STREET
W MAIN STREET
PERRY STREET
SITE

LEGEND:

+9.5	SPOT ELEVATION
RCP	REINFORCED CONCRETE PIPE
EM	ELECTRIC METER
IE	INVERT ELEVATION
PP	POWER POLE
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
SSMH	SANITARY SEWER MANHOLE
WM	WATER METER
FFE	FINISH FLOOR ELEVATION
SAN	SANITARY SEWER LINE

SOUTH CAROLINA
LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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SOUTH CAROLINA
FOUR WATERS ENGINEERING, INC.
No. 5166
CERTIFICATE OF AUTHORIZATION

REV NO	DATE	DWN CHK BY	DESCRIPTION
1	5/23	SD AB	GENERAL UPDATES
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3			
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 3

WELL SITE NO.2 - CONSTRUCTION PLAN
SITEPLAN

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	DRAWN JMC		
JOB #	17-1007	ISSUE DATE	FEB 2023
		ISSUE	BID

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C10.3

WELL SITE #2

GRAVEL

VALVE VAULT
TOP=64.32' IE
6"STEEL=60.94' IE
BOTTOM=60.02'

TOP OF 6" STEEL PIPE ELEVATIONS

50 GALLON LONG CHAIN LINEAR PHOSPHATE

INSTALL SKID MOUNTED TABLET CHLORINATION SYSTEM. CONNECT TO EXISTING 1" WATER SUPPLY PIPING AND WELL DISCHARGE PIPING

APPROXIMATE LOCATION OF PROPOSED GENERATOR FUEL TANK

APPROXIMATE LOCATION OF PROPOSED EMERGENCY GENERATOR

INSTALL (0.375" OD) POLYETHYLENE TUBING FROM METERING PUMP THROUGH WALL TO INJECTION POINT

CONC. PAD

REFERENCE DRAWING C10.2 FOR CHEMICAL SYSTEM IMPROVEMENTS

REMOTE SEAL WATER DRAIN WITH 1/2" SCH 80 PVC PIPING AND FITTINGS. PENETRATE WALL WITH DRAIN TUBE ABOVE GRADE OUTSIDE BUILDING

HYDROBLAST AND REPAINT ALL WELL DISCHARGE PIPING

SINGLE-STORY WELL SITE #2 BUILDING FFE=63.8' (88 DATUM)

REFERENCE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR BUILDING IMPROVEMENTS

REFERENCE ELECTRICAL DRAWINGS FOR ELECTRICAL IMPROVEMENTS IN BUILDING AND ON SITE

ANTENNA

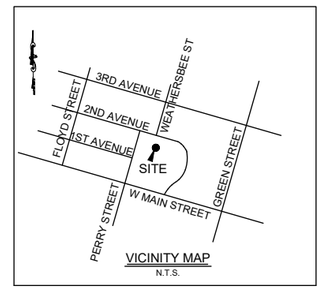
SPIGOT

63.8 63.9 63.5 63.3 62.9 65.82 65.86

6.17 5.50' 2.00' 6.00' 3.00' 2.00' 0.50' 0.50' 10.00' 12.00'

SCALE (In Feet) 0 2' 4'

N



VICINITY MAP
N.T.S.

CONSTRUCTION NOTES:

1. CONTRACTOR SHALL COORDINATE SCHEDULE WITH TOWN OF RIDGELAND WATER AND SEWER DEPARTMENT STAFF PRIOR TO INITIATING DEMOLITION AND CONSTRUCTION EFFORTS WHICH REQUIRE TAKING WELL #2 OFFLINE.
2. CONTRACTOR SHALL VERIFY ALL UTILITIES BEFORE INITIATING DEMOLITION AND CONSTRUCTION ACTIVITIES. NOTIFY TOWN OF RIDGELAND PROJECT REPRESENTATIVE AND ENGINEER OF RECORD IMMEDIATELY IF UTILITY CONFLICT MAY OCCUR.
3. EXISTING WELL #2 APPROXIMATE PUMP RATE 488 GPM; AVERAGE PRODUCED WATER 0.117 MGD (4 HRS OPERATION); MAXIMUM PRODUCED WATER 0.703 MGD (24 HRS OPERATION).
4. SKID MOUNTED TABLET CHLORINATION SYSTEM SHALL BE BY ARDEN INDUSTRIES, CAMERON PARK, CA OR APPROVED EQUAL AND SHALL UTILIZE 90% ACTIVE TRI-CHLOR TABLETS. CONTACT CHARLIE NORTHCUTT, HM NORTHCUTT CORPORATION, WWW.HMNORTHCUTT.COM, 843-884-4952 FOR PRICING AND INFORMATION. REFERENCE SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5. REFERENCE SPECIFICATIONS FOR PHOSPHATE METERING PUMP REQUIREMENTS.
6. ALL TUBING SHALL BE ROUTED ALONG THE WALLS AND ATTACHED SECURELY AND NEATLY TO THE WALL.
7. ALL WATER MAIN AND SOLUTION PIPING STUBBED THROUGH THE FLOOR SHALL BE 2" MINIMUM OFF THE WALL.
8. ALL CONDUITS OR PIPING THROUGH WALLS OR CEILING TO BE SEALED WITH SILICONE CAULK.
9. All CHEMICAL PIPING/TUBING SHALL BE COLOR CODED OR TAGGED WITH CHEMICAL USE IN ACCORDANCE WITH SCDHEC REGULATION 61-58 STATE PRIMARY DRINKING WATER REGULATIONS.
10. ALL SMALL DIAMETER EXTERIOR PIPING SHALL BE INSULATED.
11. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH SCDHEC REGULATION 61-58 STATE PRIMARY DRINKING WATER REGULATIONS.
12. REFERENCE ARCHITECTURAL, STRUCTURAL AND ELECTRICAL PLANS FOR ADDITIONAL REQUIREMENTS.

LEGEND:

+9.5	SPOT ELEVATION
RCP	REINFORCED CONCRETE PIPE
EM	ELECTRIC METER
IE	INVERT ELEVATION
PP	POWER POLE
NTS	NOT TO SCALE
N/F	NOW OR FORMERLY
R/W	RIGHT OF WAY
SSMH	SANITARY SEWER MANHOLE
WM	WATER METER
FFE	FINISH FLOOR ELEVATION
—— SAN ——	SANITARY SEWER LINE

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 3
WELL SITE NO.2 - CONSTRUCTION PLAN DETAIL
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

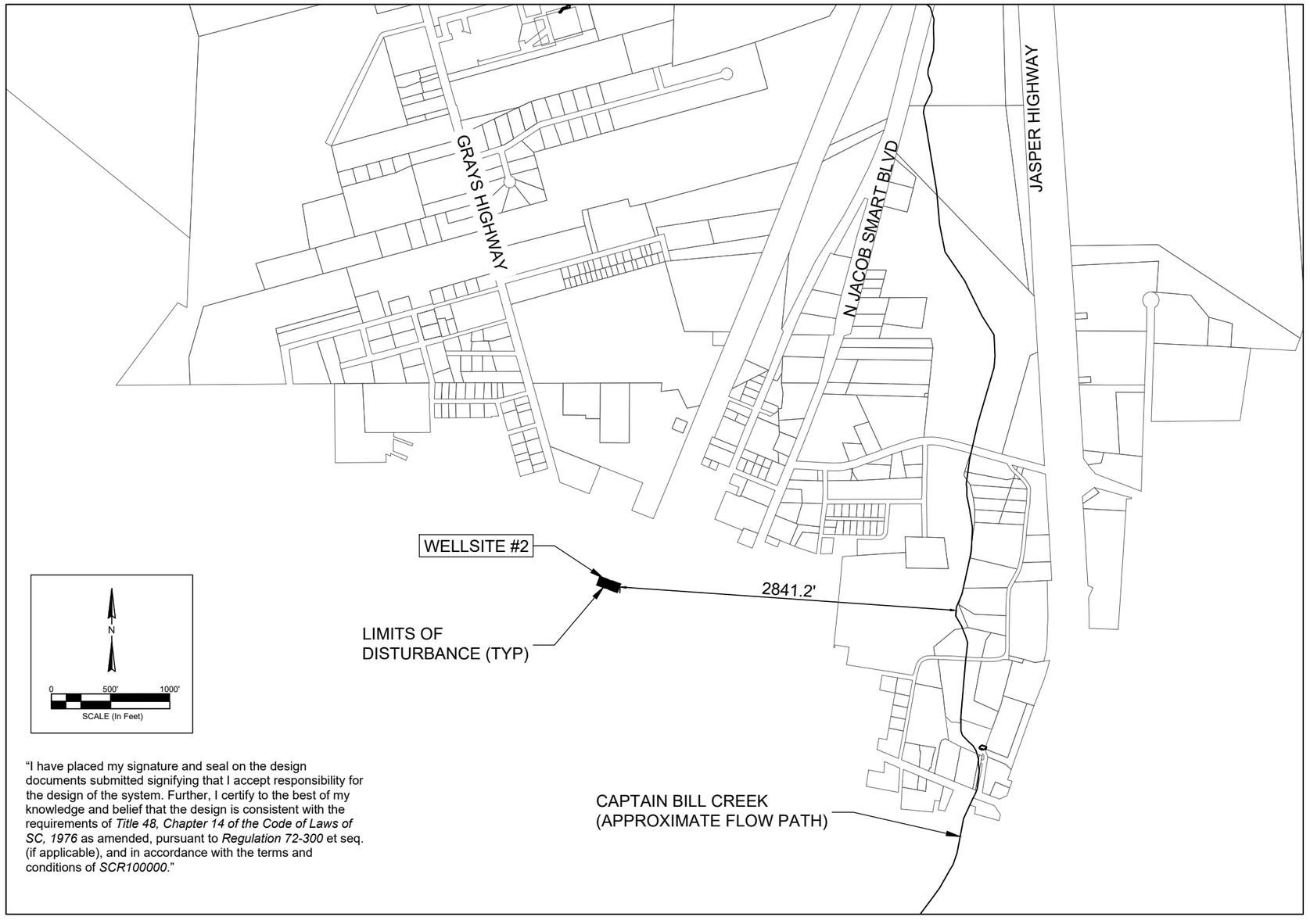
DESIGN	ABB	DRAWN	JMC
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
C10.4

PROJECT LIMIT AND LAND DISTURBANCE LIMITS

SCALE 1" = 1200'



"I have placed my signature and seal on the design documents submitted signifying that I accept responsibility for the design of the system. Further, I certify to the best of my knowledge and belief that the design is consistent with the requirements of *Title 48, Chapter 14 of the Code of Laws of SC, 1976* as amended, pursuant to *Regulation 72-300* et seq. (if applicable), and in accordance with the terms and conditions of *SCR100000*."

SCDHEC SEDIMENT AND EROSION CONTROL STANDARD NOTES

1. IF NECESSARY, SLOPES, WHICH EXCEED EIGHT (8) VERTICAL FEET SHOULD BE STABILIZED WITH SYNTHETIC OR VEGETATIVE MATS, IN ADDITION TO HYDROSEEDING. IT MAY BE NECESSARY TO INSTALL TEMPORARY SLOPE DRAINS DURING CONSTRUCTION. TEMPORARY BERMS MAY BE NEEDED UNTIL THE SLOPE IS BROUGHT TO GRADE.

2. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN FOURTEEN (14) DAYS AFTER WORK HAS CEASED, EXCEPT AS STATED BELOW.
   - WHERE STABILIZATION BY THE 14TH DAY IS PRECLUDED BY SNOW COVER OR FROZEN GROUND CONDITIONS STABILIZATION MEASURES MUST BE INITIATED AS SOON AS PRACTICABLE.
   - WHERE CONSTRUCTION ACTIVITY ON A PORTION OF THE SITE IS TEMPORARILY CEASED, AND EARTH-DISTURBING ACTIVITIES WILL BE RESUMED WITHIN 14 DAYS, TEMPORARY STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE.

3. ALL SEDIMENT AND EROSION CONTROL DEVICES SHALL BE INSPECTED ONCE EVERY CALENDAR WEEK. IF PERIODIC INSPECTION OR OTHER INFORMATION INDICATES THAT A BMP HAS BEEN INAPPROPRIATELY, OR INCORRECTLY, THE PERMITTEE MUST ADDRESS THE NECESSARY REPLACEMENT OR MODIFICATION REQUIRED TO CORRECT THE BMP WITHIN 48 HOURS OF IDENTIFICATION.

4. PROVIDE SILT FENCE AND/OR OTHER CONTROL DEVICES, AS MAY BE REQUIRED, TO CONTROL SOIL EROSION DURING UTILITY CONSTRUCTION. ALL DISTURBED AREAS SHALL BE CLEANED, GRADED, AND STABILIZED WITH GRASSING IMMEDIATELY AFTER THE UTILITY INSTALLATION. FILL, COVER, AND TEMPORARY SEEDING AT THE END OF EACH DAY ARE RECOMMENDED. IF WATER IS ENCOUNTERED WHILE TRENCHING, THE WATER SHOULD BE FILTERED TO REMOVE SEDIMENT BEFORE BEING PUMPED BACK INTO ANY WATERS OF THE STATE.

5. ALL EROSION CONTROL DEVICES SHALL BE PROPERLY MAINTAINED DURING ALL PHASES OF CONSTRUCTION UNTIL THE COMPLETION OF ALL CONSTRUCTION ACTIVITIES AND ALL DISTURBED AREAS HAVE BEEN STABILIZED. ADDITIONAL CONTROL DEVICES MAY BE REQUIRED DURING CONSTRUCTION IN ORDER TO CONTROL EROSION AND/OR OFFSITE SEDIMENTATION. ALL TEMPORARY CONTROL DEVICES SHALL BE REMOVED ONCE CONSTRUCTION IS COMPLETE AND THE SITE IS STABILIZED.

6. THE CONTRACTOR MUST TAKE NECESSARY ACTION TO MINIMIZE THE TRACKING OF MUD ONTO PAVED ROADWAY(S) FROM CONSTRUCTION AREAS AND THE GENERATION OF DUST. THE CONTRACTOR SHALL DAILY REMOVE MUD/SOIL FROM PAVEMENT, AS MAY BE REQUIRED.

7. RESIDENTIAL SUBDIVISIONS REQUIRE EROSION CONTROL FEATURES FOR INFRASTRUCTURE AS WELL AS FOR INDIVIDUAL LOT CONSTRUCTION. INDIVIDUAL PROPERTY OWNERS SHALL FOLLOW THESE PLANS DURING CONSTRUCTION OR OBTAIN APPROVAL OF AN INDIVIDUAL PLAN IN ACCORDANCE WITH S.C REG. 72-300 ET SEQ. AND SCR100000.

8. TEMPORARY DIVERSION BERMS AND/OR DITCHES WILL BE PROVIDED AS NEEDED DURING CONSTRUCTION TO PROTECT WORK AREAS FROM UPSLOPE RUNOFF AND/OR TO DIVERT SEDIMENT-LADEN WATER TO APPROPRIATE TRAPS OR STABLE OUTLETS.

9. ALL WATERS OF THE STATE (WOS), INCLUDING WETLANDS, ARE TO BE FLAGGED OR OTHERWISE CLEARLY MARKED IN THE FIELD. A DOUBLE ROW OF SILT FENCE IS TO BE INSTALLED IN ALL AREAS WHERE A 50-FOOT BUFFER CAN'T BE MAINTAINED BETWEEN THE DISTURBED AREA AND ALL WOS. A 10-FOOT BUFFER SHOULD BE MAINTAINED BETWEEN THE LAST ROW OF SILT FENCE AND ALL WOS.

10. LITTER, CONSTRUCTION DEBRIS, OILS, FUELS, AND BUILDING PRODUCTS WITH SIGNIFICANT POTENTIAL FOR IMPACT (SUCH AS STOCKPILES OF FRESHLY TREATED LUMBER) AND CONSTRUCTION CHEMICALS THAT COULD BE EXPOSED TO STORM WATER MUST BE PREVENTED FROM BECOMING A POLLUTANT SOURCE IN STORM WATER DISCHARGES.

11. A COPY OF THE SWPPP, INSPECTIONS RECORDS, AND RAINFALL DATA MUST BE RETAINED AT THE CONSTRUCTION SITE OR A NEARBY LOCATION EASILY ACCESSIBLE DURING NORMAL BUSINESS HOURS, FROM THE DATE OF COMMENCEMENT OF CONSTRUCTION ACTIVITIES TO THE DATE THAT FINAL STABILIZATION IS REACHED.

12. INITIATE STABILIZATION MEASURES ON ANY EXPOSED STEEP SLOPE (3H:1V OR GREATER) WHERE LAND-DISTURBING ACTIVITIES HAVE PERMANENTLY OR TEMPORARILY CEASED, AND WILL NOT RESUME FOR A PERIOD OF 7 CALENDAR DAYS.

13. MINIMIZE SOIL COMPACTION AND, UNLESS INFEASIBLE, PRESERVE TOPSOIL.

14. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM EQUIPMENT AND VEHICLE WASHING, WHEEL WASH WATER, AND OTHER WASH WATERS. WASH WATERS MUST BE TREATED IN A SEDIMENT BASIN OR ALTERNATIVE CONTROL THAT PROVIDES EQUIVALENT OR BETTER TREATMENT PRIOR TO DISCHARGE;

15. MINIMIZE THE DISCHARGE OF POLLUTANTS FROM DEWATERING OF TRENCHES AND EXCAVATED AREAS. THESE DISCHARGES ARE TO BE ROUTED THROUGH APPROPRIATE BMPS (SEDIMENT BASIN, FILTER BAG, ETC.).

16. THE FOLLOWING DISCHARGES FROM SITES ARE PROHIBITED:
   - WASTEWATER FROM WASHOUT OF CONCRETE, UNLESS MANAGED BY AN APPROPRIATE CONTROL;
   - WASTEWATER FROM WASHOUT AND CLEANOUT OF STUCCO, PAINT, FORM RELEASE OILS, CURING COMPOUNDS AND OTHER CONSTRUCTION MATERIALS;
   - FUELS, OILS, OR OTHER POLLUTANTS USED IN VEHICLE AND EQUIPMENT OPERATION AND MAINTENANCE; AND
   - SOAPS OR SOLVENTS USED IN VEHICLE AND EQUIPMENT WASHING.

17. AFTER CONSTRUCTION ACTIVITIES BEGIN, INSPECTIONS MUST BE CONDUCTED AT A MINIMUM OF AT LEAST ONCE EVERY CALENDAR WEEK AND MUST BE CONDUCTED UNTIL FINAL STABILIZATION IS REACHED ON ALL AREAS OF THE CONSTRUCTION SITE.

18. IF EXISTING BMPS NEED TO BE MODIFIED OR IF ADDITIONAL BMPS ARE NECESSARY TO COMPLY WITH THE REQUIREMENTS OF THIS PERMIT AND/OR SC'S WATER QUALITY STANDARDS, IMPLEMENTATION MUST BE COMPLETED BEFORE THE NEXT STORM EVENT WHENEVER PRACTICABLE. IF IMPLEMENTATION BEFORE THE NEXT STORM EVENT IS IMPRACTICABLE, THE SITUATION MUST BE DOCUMENTED IN THE SWPPP AND ALTERNATIVE BMPS MUST BE IMPLEMENTED AS SOON AS REASONABLY POSSIBLE.

19. A PRE-CONSTRUCTION CONFERENCE MUST BE HELD FOR EACH CONSTRUCTION SITE WITH AN APPROVED ON-SITE SWPPP PRIOR TO THE IMPLEMENTATION OF CONSTRUCTION ACTIVITIES. FOR NON-LINEAR PROJECTS THAT DISTURB 10 ACRES OR MORE THIS CONFERENCE MUST BE HELD ON-SITE UNLESS THE DEPARTMENT HAS APPROVED OTHERWISE.

PLANNED SEQUENCE OF OPERATIONS:

1. CLEARING AND GRUBBING OF AREAS NECESSARY FOR INSTALLATION OF SILT FENCE AND INLET PROTECTION PER CONSTRUCTION PLANS.
2. DEMOLISH EXISTING STRUCTURES PER CONSTRUCTION PLANS
3. WELLSITE IMPROVEMENTS PER CONSTRUCTION PLANS.
4. INSTALLATION OF HYDROSEEDING AND/OR SOD FOR PERMANENT STABILIZATION OF DISTURBED AREAS.
5. MAINTAIN GRASS SURFACE.
6. REMOVE TEMPORARY SEDIMENT CONTROL FEATURES ONCE FINAL STABALIZATION IS OBTAINED.

PROJECT LIMITS NOTES:

PROJECT LIMITS DETERMINED AS EXTENT OF LAND DISTURBANCE OR WELL SITE BOUNDARY, WHICHEVER IS GREATER

PROJECT LIMIT AREAS:
APPROX 0.32 ACRES

LAND DISTURBANCE LIMITS BASED ON PROJECT IMPROVEMENTS AND CONSTRUCTION RELATED ITEMS

LAND DISTURBANCE AREAS:
APPROX 0.32 ACRES

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

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FOUR WATERS ENGINEERING, INC.
No. 5166
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 3

SCDHEC SEDIMENT AND EROSION CONTROL FIGURE AND DETAILS

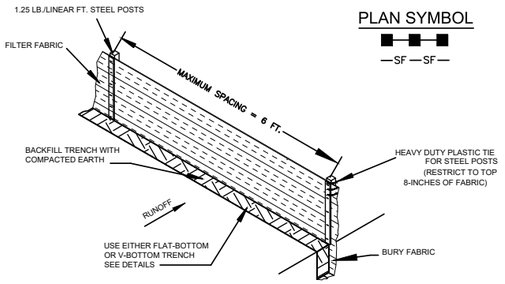
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN		
ABB	JMC		
JOB #	17-1007		
ISSUE DATE	FEB 2023		
ISSUE	BID		

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
EC10.1

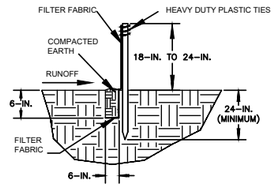
SILT FENCE INSTALLATION



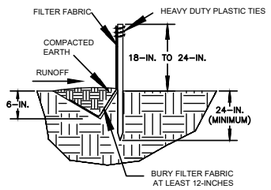
PLAN SYMBOL

—SF—SF—

FLAT-BOTTOM TRENCH DETAIL



V-SHAPED TRENCH DETAIL



SILT FENCE – GENERAL NOTES

1. Do not place silt fence across channels or in other areas subject to concentrated flows. Silt fence should not be used as a velocity control BMP. Concentrated flows are any flows greater than 0.5 cfs.
2. Maximum sheet or overland flow path length to the silt fence shall be 100-feet.
3. Maximum slope steepness (normal [perpendicular] to the fence line) shall be 2:1.
4. Silt fence joints, when necessary, shall be completed by one of the following options:
   - Wrap each fabric together at a support post with both ends fastened to the post, with a 1-foot minimum overlap;
   - Overlap silt fence by installing 3-feet passed the support post to which the new silt fence roll is attached. Attach old roll to new roll with heavy-duty plastic ties; or,
   - Overlap entire width of each silt fence roll from one support post to the next support post.
5. Attach filter fabric to the steel posts using heavy-duty plastic ties that are evenly spaced within the top 8-inches of the fabric.
6. Install the silt fence perpendicular to the direction of the stormwater flow and place the silt fence the proper distance from the toe of steep slopes to provide sediment storage and access for maintenance and cleanout.
7. Install Silt Fence Checks (Tie-Backs) every 50-100 feet, dependent on slope, along silt fence that is installed with slope and where concentrated flows are expected or are documented along the proposed/installed silt fence.

South Carolina Department of Health and Environmental Control

SILT FENCE

STANDARD DRAWING NO. SC-03 Page 1 of 2

NOT TO SCALE FEBRUARY 2014 DATE

SILT FENCE – POST REQUIREMENTS

Silt Fence posts must be 48-inch long steel posts that meet, at a minimum, the following physical characteristics.

- Composed of a high strength steel with a minimum yield strength of 50,000 psi.
- Include a standard "T" section with a nominal face width of 1.38-inches and a nominal "T" length of 1.48-inches.
- Weigh 1.25 pounds per foot (± 8%)

2. Posts shall be equipped with projections to aid in fastening of filter fabric.
3. Steel posts may need to have a metal soil stabilization plate welded near the bottom when installed along steep slopes or installed in loose soils. The plate should have a minimum cross section of 17-square inches and be composed of 15 gauge steel, at a minimum. The metal soil stabilization plate should be completely buried.
4. Install posts to a minimum of 24-inches. A minimum height of 1- to 2- inches above the fabric shall be maintained, and a maximum height of 3 feet shall be maintained above the ground.
5. Post spacing shall be at a maximum of 6-feet on center.

SILT FENCE – FABRIC REQUIREMENTS

1. Silt fence must be composed of woven geotextile filter fabric that consists of the following requirements:
   - Composed of fibers consisting of long chain synthetic polymers of at least 85% by weight of polyolefins, polyesters, or polyamides that are formed into a network such that the filaments or yarns retain dimensional stability relative to each other;
   - Free of any treatment or coating which might adversely alter its physical properties after installation;
   - Free of any defects or flaws that significantly affect its physical and/or filtering properties; and,
   - Have a minimum width of 36-inches.
2. Use only fabric appearing on SC DOT's Qualified Products Listing (QPL), Approval Sheet #34, meeting the requirements of the most current edition of the SC DOT Standard Specifications for Highway Construction.
3. 12-inches of the fabric should be placed within excavated trench and toed in when the trench is backfilled.
4. Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
5. Filter Fabric shall be installed at a minimum of 24-inches above the ground.

SILT FENCE – INSPECTION & MAINTENANCE

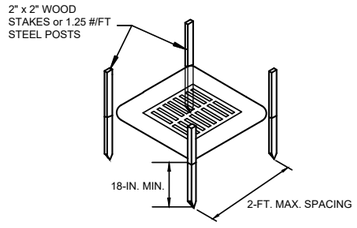
1. The key to functional silt fence is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the silt fence.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Check for areas where stormwater runoff has eroded a channel beneath the silt fence, or where the fence has sagged or collapsed due to runoff overtopping the silt fence. Install checks/tie-backs and/or reinstall silt fence, as necessary.
7. Check for tears within the silt fence, areas where silt fence has begun to decompose, and for any other circumstance that may render the silt fence ineffective. Removed damaged silt fence and reinstall new silt fence immediately.
8. Silt fence should be removed within 30 days after final stabilization is achieved and once it is removed, the resulting disturbed area shall be permanently stabilized.

South Carolina Department of Health and Environmental Control

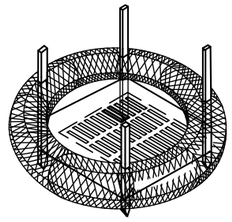
SILT FENCE

STANDARD DRAWING NO. SC-03 PAGE 2 of 2

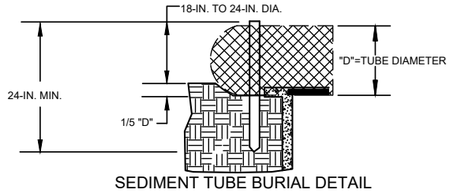
GENERAL NOTES FEBRUARY 2014 DATE



POST INSTALLATION DETAIL



SEDIMENT TUBE INSTALLATION DETAIL



SEDIMENT TUBE BURIAL DETAIL

PLAN SYMBOL

A

South Carolina Department of Health and Environmental Control

Type A

SEDIMENT TUBE INLET PROTECTION

STANDARD DRAWING NO. SC-07A PAGE 1 of 2

NOT TO SCALE FEBRUARY 2014 DATE

TYPE A – SEDIMENT TUBE INLET PROTECTION

GENERAL NOTES

1. Sediment tubes are elongated tubes of compacted geotextiles, curled excelsior wood, natural coconut fiber, or hardwood mulch. Straw, pine needle, and leaf mulch-filled sediment tubes are not permitted.
2. The outer netting of the sediment tube should consist of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable material.
3. Sediment tube diameters shall range from 18-inches to 24-inches. Sediment tunes with smaller diameters are prohibited when used as inlet protection.
4. Curled excelsior wood, or natural coconut products that are rolled up to create a sediment tube are not allowed.
5. Sediment tubes should be staked using wooden oak stakes (2-inch X 2-inch) or steel posts (standard "U" or "T" sections with a minimum weight of 1.25 pounds per foot) at a minimum of 48-inches in length placed on 2-foot centers.
6. Install all sediment tubes to ensure that no gaps exist between the soil and the bottom of the tube. Manufactuer's recommendations should always be consulted before installation.
7. The ends of adjacent sediment tubes should be overlapped 6-inches to prevent flow and sediment from passing through the field joint.
8. Sediment tubes should not be stacked on top of one another.
9. Each sediment tube should be installed in a trench with a depth equal to 1/5 the diameter of the sediment tube.
10. Install stakes at a diagonal facing incoming runoff.

INSPECTION & MAINTENANCE

1. The key to functional inlet protection is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of sediment tube inlet protection shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations in front of the sediment tube is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the sediment tube. When a sump is installed in front of the inlet protection, sediment shall be removed when if fills approximately 1/3 the depth of the sump.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Large debris, trash, and leaves should be removed from in front of tubes when found.
7. Inlet protection structures should be removed after the disturbed areas are permanently stabilized. Remove all construction material and sediment, and dispose of them properly. Grade the disturbed area to the elevation of the drop inlet structure crest. Stabilize all bare areas immediately.

South Carolina Department of Health and Environmental Control

Type A

SEDIMENT TUBE INLET PROTECTION

STANDARD DRAWING NO. SC-07A PAGE 2 of 2

NOT TO SCALE FEBRUARY 2014 DATE

1

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER No. 21839 ANGELA B. BRYAN

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SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION FOUR WATERS ENGINEERING, INC. No. 5166

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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART 3
SEDIMENT AND EROSION CONTROL FIGURE AND DETAILS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
EC10.2

SCHEDULE OF PANEL 'A'

VOLTAGE: 240 / 120 | **PHASE: 1** | **WIRE: 3**
BUS AMPS: 225 A | **DEVICE AMPS: 125 A** MCB | **NEMA: 4X**
A.I.C RATING: 10,000 A | **MOUNTING: SURFACE**

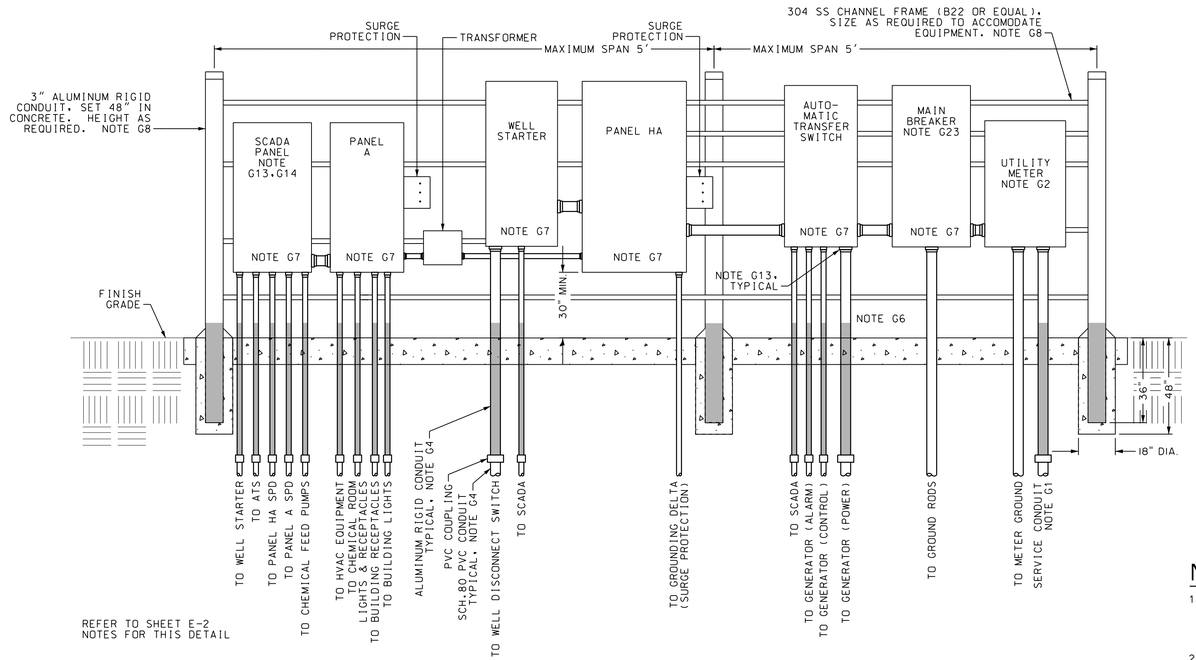
LOCATION DESCRIPTION	LOAD (KVA)	LOAD TYPE	TRIP POLE	#	PH	#	TRIP POLE	LOAD TYPE	LOAD (KVA)	LOCATION DESCRIPTION
LIGHTS	0.6	A	20A/1P	1	A	2	20A/2P	E	1.0	EH-1 2KW
RECEPTACLES	0.6	B	20A/1P	3	B	4	-	E	1.0	240V 1PH
CHLORINE PUMP	1.0	F	20A/1P	5	A	6	20A/2P	E	1.0	EH-2 2KW
PHOSPHATE PUMP	1.0	G	20A/1P	7	B	8	-	E	1.0	240V 1PH
SPARE			20A/1P	9	A	10	20A/1P	G	0.5	EF-2 1/15HP 120V 1PH
SPARE			20A/1P	11	B	12	20A/2P	H	1.3	GENERATOR COOLANT HEATER
SPARE			20A/1P	13	A	14	-	H	1.3	2500W 240V 1PH
SPARE			20A/1P	15	B	16	20A/1P	H	1.5	GENERATOR BATTERY CHARGER
SPARE			20A/1P	17	A	18	20A/1P	H	1.0	SCADA
SPARE			20A/1P	19	B	20	20A/1P			SPARE
SPARE			20A/1P	21	A	22	20A/1P			SPARE
SPARE			20A/1P	23	B	24	20A/1P			SPARE
SPARE			20A/1P	25	A	26	20A/1P			SPARE
SURGE PROTECTION			30A/2P	27	B	28	20A/1P			SPARE
-			-	29	A	30	20A/1P			SPARE

PANEL LOAD ANALYSIS

Load Type	DESCRIPTION	Conn. KVA	Demand KVA	2017 NEC Reference	Load Type	DESCRIPTION	Conn. KVA	Demand KVA	2017 NEC Reference
A	Lighting	0.6	0.8	NEC Article 215.3	E	Heating	4.0	4.0	NEC Article 220.60
B	Receptacles	0.6	0.6	NEC Table 220.44	F	Largest Motor	1.0	1.3	NEC Article 440.7
C	Kitchen Equipment	0.0	0.0	NEC Table 220.56	G	Other Motors	1.5	1.5	NEC Article 440.7
D	Air-Conditioning	0.0	0.0	NEC Article 220.60	H	Other Loads	5.0	5.0	
Phase A Connected Load		6.4 KVA	**Notes:**			TOTAL CONNECTED LOAD	12.7 KVA	52.9	AMPS
Phase B Connected Load		6.4 KVA				TOTAL DEMAND LOAD	13.1 KVA	54.6	AMPS
						MINIMUM SIZING AMPS	20.5 KVA	85.3	AMPS

LIGHT FIXTURE SCHEDULE - RIDGELAND WELL #2

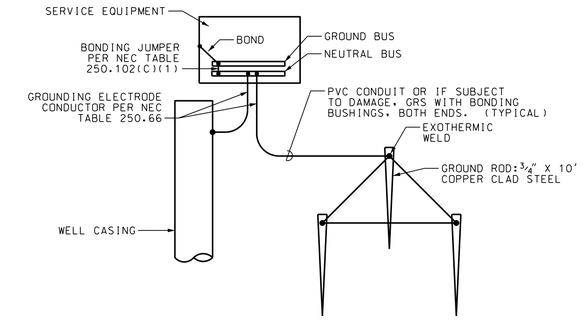
TYPE	DESCRIPTION		VOLTAGE	LAMP	MOUNTING	NOTES
A	**LED VAPOR TIGHT LED ENCLOSED & GASKETED**		120V	LED	SURFACE	PROVIDE WITH STAINLESS STEEL LATCHES
	LITHONIA	CSVT-L48-ALO3-MVOLT-SWW3-80CRI				
	LITHONIA	CSVT-STSL-LATCH				
B	**LED WALL PACK**		120V	LED	WALL @ EAVE	MOUNT UNDER EAVE AT TOP OF WALL
	LITHONIA	WPX1-LED-P1-40K-MVOLT-DDBXD				
C	**NON-METALLIC LED HAZARDOUS FIXTURE**		120V	LED	SURFACE	FURNISH WITH GUARD
	KILLARK	NVL-2-30-X-2-G				
D	**LED FLOOD LIGHT**		120V	LED	WOOD POLE	PROVIDE WITH INTEGRAL BUTTON PHOTOCELL
	LITHONIA	DXSF2 LED-3-A530/40K-WFL-MOVLT-IS-PE-DDBXD				PROVIDE WITH WOOD POLE SIDE BULLHORN
	LITHONIA	SMAWSB-BS17-DDBXD				



1 E10.1 **EQUIPMENT ELEVATION**
SCALE: NONE

LEGEND

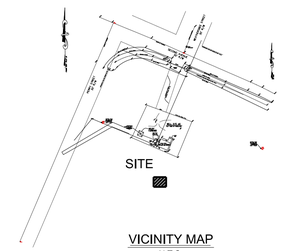
- HOME RUN. CIRCUIT AS NOTED. SLASH MARKS INDICATE MORE THAN 2 CONDUCTORS. PROVIDE GROUND CONDUCTOR (NOT SHOWN) IN ALL CONDUITS.
- EXPOSED RACEWAY
- ¾"C W/ ONE 16 AWG T.S. PAIR CABLE (BELDEN 5240F1)
- UNDERGROUND RACEWAY
- A — LED FIXTURE AND OUTLET BOX
- C — CEILING MTD LED LIGHTING FIXTURE AND OUTLET BOX
- B — WALL MOUNTED LED FIXTURE & OUTLET BOX
- FLOOD LIGHT MOUNTED TO SERVICE POLE POLE SEE NOTE 9, SHEET E10.2
- S — SWITCH, 48" AFF
- S_D — DOOR SWITCH, SQUARE D CLASS 9007 WITH ROLLER ARM, MTD TO FRAME AT TOP OF DOOR
- S_S — MOTOR SWITCH WITH OVERLOAD PROTECTION, 48" AFF
- S_M — MOTOR SWITCH WITHOUT OVERLOAD PROTECTION, 48" AFF
- RECEPTACLE, 48" AFF. NUMERICAL NUMBER ADJACENT TO DEVICE INDICATES BRANCH CIRCUIT NUMBER.
- 1 / 20A — 20 AMP RECEPTACLE, 48" AFF. NUMBER ADJACENT TO DEVICE INDICATES BRANCH CIRCUIT NUMBER.
- 1 — MOTOR
- DISCONNECT SWITCH (AMPS)/(POLES)/(NEMA ENCLOSURE)
- GROUND
- AUTOMATIC TRANSFER SWITCH
- BREAKER
- GROUND ROD LOCATION - ¾" X 10 FT COPPERCLAD
- BREAK-GLASS EMERGENCY STOP SWITCH
- FLEX CONNECTION, 18" MAX
- PANELBOARD
- EQUIPMENT AS NOTED
- J — JUNCTION BOX
- AR — AUXILIARY RELAY IN PVC BOX
- SP — SURGE PROTECTION DEVICE.
- RVSS — REDUCED VOLTAGE SOLID STATE MOTOR CONTROLLER
- CFM — CUBIC FEET PER MINUTE
- GF — GROUND FAULT INTERRUPTING TYPE 'WR' W/ "WHILE-IN-USE" COVER
- WP — WEATHER PROOF
- PC — PHOTOCELL TORK MODEL 2107 MOUNT AT TOP OF WALL UNDER EAVE



2 E10.1 **BUILDING SERVICE GROUNDING**
SCALE: NONE

NOTES:

1. THE EXISTING ELECTRICAL EQUIPMENT SHALL BE DEMOLISHED. COORDINATE WITH DOMINION ENERGY FOR DEMOLITION OF THE EXISTING SERVICE DROP. DISCONNECT AND REMOVE ALL LIGHTS. DEVICES. STARTERS. CONDUITS. WIRING. ETC. NO EXISTING EQUIPMENT SHALL BE REUSED.
2. THE EXISTING WELL MOTOR SHALL BE RECONNECTED FOR USE ON A 480V 3-PHASE 3-WIRE DELTA SYSTEM. THE CURRENT CONFIGURATION IS 230V 3-PHASE 3-WIRE.



VICINITY MAP
N.T.S.

SOUTH CAROLINA PROFESSIONAL ENGINEER — No. 40028 — 26 May 2023 — CHARLES BEVERLEY COBB
SOUTH CAROLINA — CHATHAM ENGINEERING COMPANY LLC — C04812 — CERTIFICATE OF AUTHORIZATION

REV NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
2				
3				
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5				
6				
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WATER AND SEWER RESILIENCY IMPROVEMENTS
PART I
ELECTRICAL DETAILS & GENERAL NOTES
WELL #2
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	CC	JOB #	17-1007.035
DRAWN	LC	ISSUE DATE	MARCH 2023
CHKD		ISSUE	

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
E10.1

CADD PLOT
29-MAY-2023
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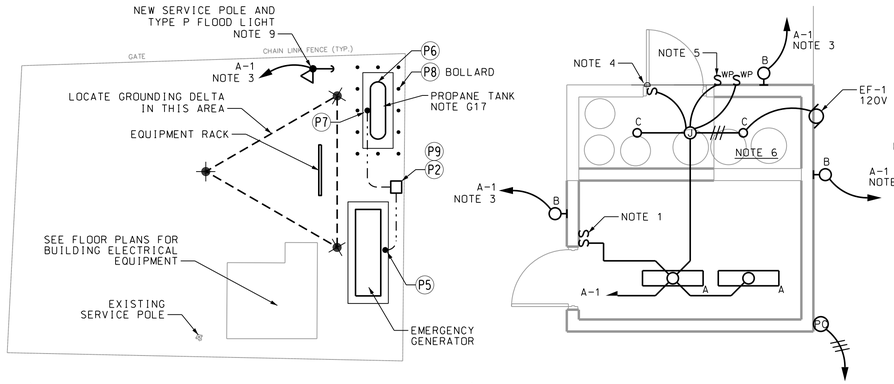
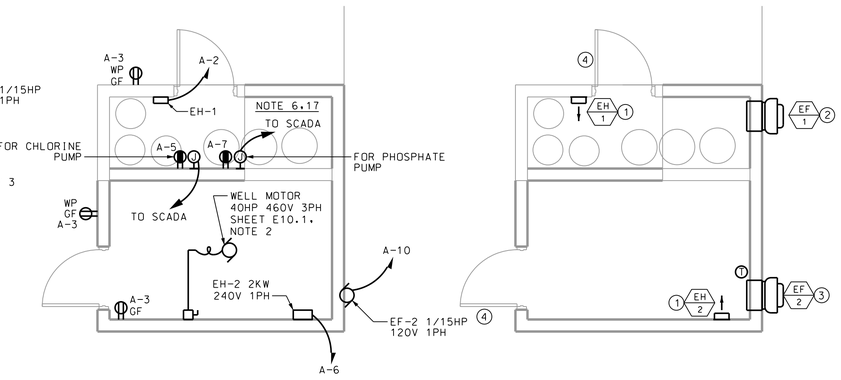


1 SITE PLAN - ELECTRICAL
E10.2 SCALE: 1" = 10' - 0"

2 FLOOR PLAN - LIGHTING
E10.2 SCALE: 1/4" = 1' - 0"



3 FLOOR PLAN - POWER
E10.2 SCALE: 1/4" = 1' - 0"

4 FLOOR PLAN - HVAC
E10.2 SCALE: 1/4" = 1' - 0"

HVAC NOTES:

1. MOUNT HEATER ON WALL. BOTTOM OF HEATER SHALL BE 12" AFF. HEATER SHALL BE QMARK MODEL CWH OR APPROVED EQUAL. HEATER SIZED FOR 2.0 KW. PROVIDE WITH MOUNTING FRAME AND INTEGRAL THERMOSTAT.
2. FAN SHALL BE GREENHECK MODEL: CUE WALL FAN. FAN SHALL BE FABRICATED WITH ALUMINUM HOUSING AND IMPELLER. FAN SHALL HAVE HI-PRO POLYESTER COATING FOR CORROSIVE ATMOSPHERE. FAN SHALL BE PROVIDED WITH WALL GRILLE AND DISCONNECT SWITCH. SEE ELECTRICAL FOR CONTROLS. FAN SHALL BE SIZED FOR 400 CFM AT 0.375" STATIC PRESSURE WITH A 1/15 HP MOTOR. MOUNT BOTTOM OF OPENING FOR FAN 1'-0" AFF.
3. FAN SHALL BE GREENHECK MODEL: CUE WALL FAN OR APPROVED EQUAL. FAN SHALL BE SIZED FOR 400 CFM AT 0.375" ESP AND 1/15 HP. FAN SHALL BE PROVIDED WITH WALL GRILLE, WALL MOUNT THERMOSTAT, AND DISCONNECT SWITCH.
4. SEE CIVIL PLANS. DOORS PROVIDED WITH LOUVER FOR INTAKE AIR.

PROPANE FUEL NOTES:

P1. ALL PROPANE GAS PIPING ABOVE GROUND SHALL BE SCHEDULE 40 BLACK STEEL PIPE WITH THREADED JOINTS. ALL WORK AND MATERIALS ON THE GAS SYSTEM SHALL COMPLY WITH THE "INTERNATIONAL GAS CODE". PAINT ALL EXPOSED GAS PIPING WITH RUST INHIBITING PRIMER AND 1 COAT OF OIL BASED YELLOW ENAMEL PAINT.

P2. PROPANE GAS PRESSURE REGULATOR SIZED FOR 725 SCFH AT 13 INCH MAX WC OUTLET PRESSURE. COORDINATE WITH GENERATOR FURNISHED.

P3. PROPANE GAS LINE U/G BY CONTRACTOR, COORDINATE WITH PROPANE COMPANY.

P4. 3" GAS DOWN TO UNDERGROUND. UNDERGROUND PIPING SHALL BE SDR 11 POLYETHLYLENE PIPE AND FITTINGS.

P5. 3" GAS UP TO GENERATOR. PROVIDE PLUG VALVE, UNION AND DRIPLEG AT CONNECTION. COORDINATE EXACT LOCATION OF CONNECTION WITH GENERATOR.

P6. PROVIDE A CONCRETE PAD FOR THE PROPANE TANK. 12" THICK, 24"WIDER AND 24" LONGER THAN THE PROPANE TANK. REFER TO GENERATOR FOUNDATION DETAIL FOR CONSTRUCTION REQUIREMENTS. PROVIDE 48HRS OF RUN TIME FUEL FOR THE GENERATOR AT FULL LOAD.

P7. PROVIDE 2" SCH.80 PVC RISER AT TANK MID-POINT. EXTEND TO WITHIN 5' OF GENERATOR. CONDUIT SHALL BE 30" BELOW FINISH GRADE. MINIMUM. PROVIDE DETECTABLE PLASTIC WARNING TAPE 12" BELOW FINISH GRADE.

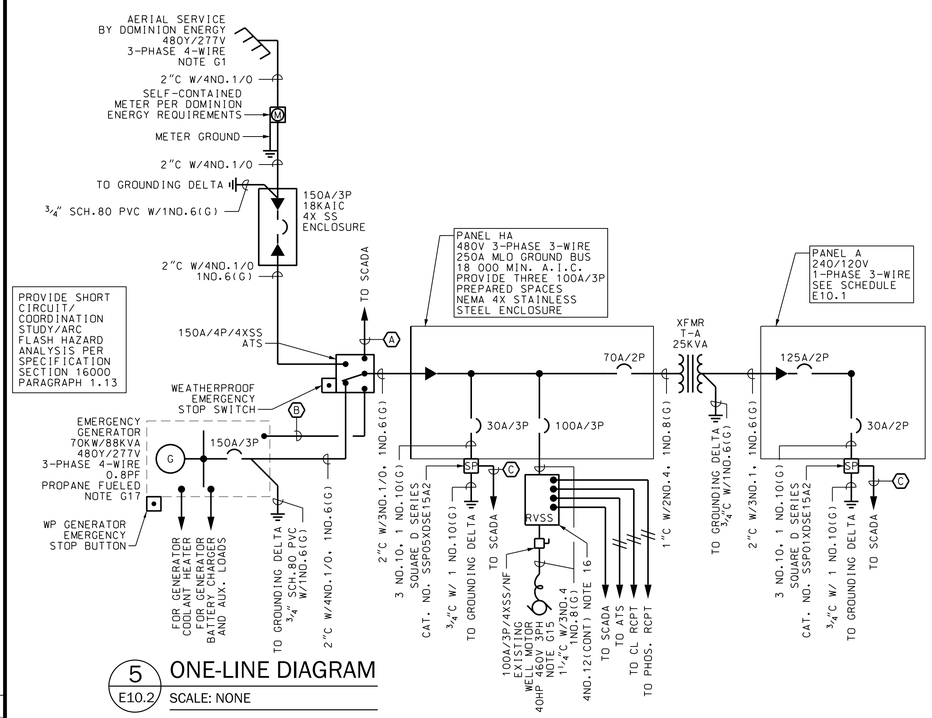
P8. PROVIDE STEEL PIPE BOLLARDS IN FRONT OF THE PROPANE TANK. 36" ON CENTER. SEE DETAIL 3/E0.1. BOLLARDS SHALL EXTEND BEYOND THE END OF THE PROPANE TANK.

P9. FIELD COORDINATE INLET LOCATION ON GENERATOR AND THE REGULATOR WITH THE PROPANE PROVIDER. THE REGULATOR SHALL NOT BE WITHIN 5' OF THE GENERATOR.

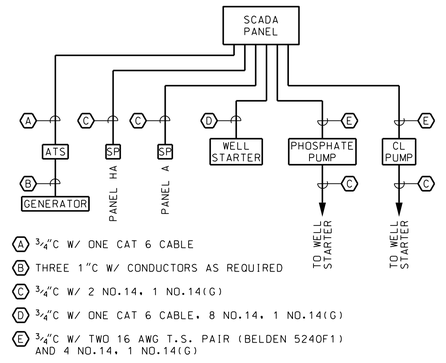
NOTES: (LIGHTING AND POWER PLANS)

1. 3-POSITION SWTICH FOR CONTROL EXTERIOR LIGHTS: UP-PHOTO. CENTER-OFF. DOWN-MANUAL ON. FURNISH HUBBELL CAT. NO. HBL1381.
2. PHOTOCELL MOUNTED UNDER EAVE. EXTEND CONTROL THROUGH 3-POSITION SWTICH (NOTE 1). PROVIDE TORK 2107.
3. EXTEND CIRCUIT THROUGH 3-POSITION SWITCH IN PUMP ROOM.
4. ROLLER SWITCH MOUNTED IN DOOR FRAME. PROVIDE DOUBLE-POLE SINGLE THROW SWITCH. EXTEND CHLORINE ROOM LIGHT AND EXHAUST FAN CONTROL THROUGH SWITCH. INSTALL SUCH THAT BOTH LIGHT AND FAN ENERGIZE WHEN DOOR IS OPENED. PROVIDE SQUARE D CLASS 9007 WITH ROLLER ARM.
5. PROVIDE SEPERATE SWITCHES FOR CHLORINE ROOM LIGHTS AND EXHAUST FAN. FURNISH WEATHERPROOF, IN-USE, EXTRA DUTY TYPE COVER. FURNISH HUBBELL WP262E.
6. ALL CONDUITS, FITTINGS, BOXES AND OUTLETS IN THE CHLORINE ROOM SHALL BE SCHEDULE 80 PVC. PROVIDE SILICONE CAULK AROUND ALL CONDUIT PENETRATIONS TO THE CHLORINE ROOM. SEAL ALL CONDUITS WITH DUCT SEAL AT EVERY OUTLET BOX, JUNCTION BOX, FIXTURE AND EQUIPMENT ENCLOSURE.
7. THE EXACT LOCATION OF SERVICE SHALL BE COORDINATED IN THE FIELD WITH OTHER WORK ON THE PROJECT SITE AND THE ELECTRICAL UTILITY. COORDINATE WITH DOMINION ENERGY.
8. THE SERVICE METER SHALL BE PROVIDED IN ACCORDANCE WITH THE ELECTRICAL UTILITY STANDARDS. PROVIDE METER GROUND AND METER BASE AS REQUIRED.
9. MOUNT THE FLOOD LIGHT ON THE PRESSURE TREATED SERVICE POLE. THE FLOOD LIGHT SHALL BE LITHONIA D-SERIES SIZE 2 LED FLOOD WITH SLIPFITTER MOUNT, WOOD POLE, AND INTEGRAL PHOTOCELL; REFER TO THE FIXTURE SCHEDULE.
   A. PROVIDE A WEATHERPROOF SWITCH ON THE POLE, 48" ABOVE FINISH GRADE.
10. THE SCADA SYSTEM SHALL BE PROVIDED BY LORD & COMPANY INDUSTRIAL AUTOMATION, 2100 CAROLINA PLACE DRIVE, FORT MILL, SOUTH CAROLINA 29708, 803-802-0060. CONTACT FOR PRICING ON SCADA SYSTEM. EXTEND CONDUCTORS AS REQUIRED FROM PANEL HA. A. THE ATS/GENERATOR, THE WELL STARTER AND EQUIPMENT FOR COMMUNICATION OF THE ALARMS TO THE OWNER'S SYSTEM.
11. SIZE THE EQUIPMENT FRAME TO FIT EQUIPMENT TO BE INSTALLED. CIRCUIT BREAKER AND SWITCH OPERATING HANDLES SHALL BE A MAXIMUM OF 66" ABOVE FINISHED GRADE. PROVIDE STAINLESS STEEL BOLTS, NUTS AND WASHERS. MAXIMUM SPAN BETWEEN VERTICAL SUPPORTS: 60".
12. THE SCADA SYSTEM SHALL MONITOR AND TRANSMIT THE FOLLOWING POINTS AND TELEMETRY:

    DIGITAL POINTS:
    - RTU FAIL
    - PHASE FAIL
    - WELL FAIL
    - SURGE PROTECTION PANEL A
    - GENERATOR PRE-ALARM
    - GENERATOR IN 'AUTO' POSITION
    - WELL RUNNING
    - CL PUMP
    - WELL CALL TO RUN
    - GENERATOR FAIL
    - POWER FAILURE
    - PHOSPHATE PUMP
    - WELL STATUS
    - SURGE PROTECTION PANEL HA
    - ATS SWITCH POSITION
13. REFER TO THE ELECTRICAL SPECIFICATIONS FOR ADDITIONAL ELECTRICAL REQUIREMENTS.
14. THE GENERATOR SHALL BE A PROPANE FUELED UNIT.
15. SEAL ALL CONDUITS ENTERING THE PANEL AND ENCLOSURE WITH ELECTRICAL DUCT SEAL.
16. FURNISH THE REDUCED VOLTAGE SOLID STATE STARTER WITH H-O-A SWITCH, RUN (BLUE) AND FAIL (RED) PILOT LIGHTS, INTEGRAL 100A/3P DISCONNECT BREAKER, ETHERNET CARD/CONNECTION TO SCADA, CONTROL POWER TRANSFORMER AND NEMA 4X STAINLESS STEEL ENCLOSURE PAINTED WHITE. PROVIDE WITH ENGRAVED NAMEPLATE.
17. ALL RECEPTACLES IN CHEMICAL TREATMENT ROOM SHALL BE CORROSION RESISTANT TYPE. PROVIDE HUBBELL HBL53CM62. INTERLOCK THROUGH WELL STARTER.



5 ONE-LINE DIAGRAM
E10.2 SCALE: NONE



6 SCADA RISER
E10.2 SCALE: NONE

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER CHARLES BEVERLEY COBB No. 40028 26 May 2023

SOUTH CAROLINA CHATHAM ENGINEERING COMPANY LLC CERTIFICATE OF AUTHORIZATION C04812

REV NO	DATE	DRWN BY	CHKD BY	DESCRIPTION
1	5/26/23	CC	PM	ADDENDUM NO.1
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WATER AND SEWER RESILIENCY IMPROVEMENTS

PART I
WELL #2 ELECTRICAL BUILDING PLANS, ONE-LINE DIAGRAM, SCHEDULES & NOTES

TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN	DRAWN	JOB #	ISSUE DATE
CC	LC	17-1007.035	MARCH 2023

ISSUE

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
E10.2

CADD PLOT
29-MAY-2023
14:05
CCOBB

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PROJECT PARTICIPANTS

OWNER

TOWN OF RIDGELAND

1 TOWN SQUARE
RIDGELAND,SC 29936

ARCHITECT

WOODS DENDY ARCHITECTS, LLC

893 GRAYS HIGHWAY
RIDGELAND, SC 29936

CONTACT: GRADY L. WOODS, AIA, NCARB
PHONE: 843 726 6730
EMAIL: thenry@woodsdendy.com

STRUCTURAL

SOUTHERN CONSULTING AND
ENGINEERING, INC
105 CENTRAL AVE 100A
GOOSE CREEK, SC

CONTACT: TONY AUSTIN, PE
PHONE: 843-718 - 2525

1. ARCHITECT IS NOT RESPONSIBLE FOR INTERPRETING THE INTENT OF THESE CONSTRUCTION DOCUMENTS, INCLUDING MAKING MODIFICATIONS AS MAY BE NECESSARY DURING THE CONSTRUCTION PHASE. THE ABOVE NAMED COMPANY AND ARCHITECT OF RECORD ARE NOT LIABLE FOR THE WORK WHERE CHANGES TO THESE DOCUMENTS HAVE BEEN MADE.

2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS IN THE FIELD AND SHALL NOTIFY THE ARCHITECT OF ANY DISCREPANCIES. ALL WORK REQUIRING MEASURING SHALL BE DONE ACCORDING TO FIGURES ON DRAWINGS AND NOT SCALED FROM DRAWINGS. THE ARCHITECT SHALL FURNISH ANY MISSING DIMENSIONS UPON REQUEST.

3. ALL WORK SHALL CONFORM TO PREVAILING CODES, ORDINANCES AND REQUIREMENTS, CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS REQUIRED FOR CONSTRUCTION AND SHALL PAY ALL APPLICABLE FEES.

4. EXISTING CONDITIONS AND ACTUAL FIELD CONDITIONS MAY VARY FROM INDICATIONS ON DRAWINGS. ALL NEW WORK RELATED TO OR AFFECTED BY EXISTING CONDITIONS SHALL BE MODIFIED TO ACHIEVE THE INTENT OF THE DRAWINGS (COORDINATE WITH ARCHITECT AND OWNER), THE CONTRACTOR SHALL REPORT ANY DISCREPANCIES TO THE OWNER AND THE ARCHITECT BEFORE PROCEEDING WITH DIRECTLY AFFECTED DEMOLITION OR CONSTRUCTION.

5. THE CONTRACTOR SHALL SURVEY PROJECT SITE BEFORE BEGINNING ANY WORK TO VERIFY EXISTING CONDITIONS, REPORT ANY DISCREPANCIES TO OWNER AND ARCHITECT BEFORE BEGINNING WORK.

6. PRIOR TO ANY NEW WORK, THE CONTRACTOR SHALL NOTIFY THE OWNER AND ARCHITECT OF ANY UNFORESEEN EXISTING CONDITIONS IN NEED OF REPAIR OR WHICH MAY CAUSE DAMAGE TO THE NEW WORK. THE CONTRACTOR SHALL NOTIFY AND ALLOW SUFFICIENT TIME FOR THE OWNER AND ARCHITECT TO INSPECT THE CONDITION OF THE EXPOSED WORK PRIOR TO INSTALLING NEW CONSTRUCTION.

7. INFORMATION CONTAINED ON THESE DRAWINGS IS PROVIDED FOR THE CONVENIENCE OF THE GENERAL CONTRACTOR IN EXECUTING THE WORK. EVERY ATTEMPT HAS BEEN MADE TO PROVIDE COMPLETE AND ACCURATE REPRESENTATIONS OF SUCH CONDITIONS.

8. ALL ITEMS ON PLANS, ELEVATIONS AND DETAILS FOR NEW CONSTRUCTION SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.

9. ALL CONSTRUCTION SHALL COMPLY WITH IBC SECTION 1612 AS IT RELATED TO FLOOD LOADS AND MATERIALS. WALL AND CEILINGS SHALL BE 5/8" TYPE X GYPSUM BOARD.

10. EXTERIOR PAINT COLORS TO MATCH EXISTING. PRIMER AND TWO COATS OF EXTERIOR LATEX PAINT.

CODE REFERENCES

CODE ENFORCEMENT JURISDICTION:	TOWN ON RIDGELAND
INTERNATIONAL BUILDING CODE (IBC):	2018
INTERNATIONAL MECHANICAL CODE:	2018
INTERNATIONAL PLUMBING CODE:	2018
INTERNATIONAL FUEL GAS CODE:	2018
INTERNATIONAL FIRE CODE:	2018
INTERNATIONAL ENERGY CODE:	2009
THE NATIONAL ELECTRICAL CODE:	2017
ICC/ANSI A117.1:	2017
ASCE 7 -10 ASCE 24	
CLIMATE ZONE	ZONE 3
ALL ELEVATIONS SHOWN ARE:	NAVD 88

Sheet List	
Sheet Number	Sheet Name
A001	COVER SHEET
A100	SITE PLAN
A101	EXISTING AND PROPOSED FLOOR PLANS
A102	ROOF FRAMING PLAN
A103	ROOF PLAN
A104	ELEVATIONS AND PERSPECTIVES
A105	BUILDING SECTION
A106	EXISTING BUILDING PHOTOS
S100	STRUCTURAL NOTES
S101	ROOF FRAMING AND FOUNDATION
S201	SECTION AND DETAILS

WDA

Woods Dendy Architects, LLC
AMERICAN INSTITUTE OF ARCHITECTS MEMBERS

893 GRAYS HIGHWAY
RIDGELAND, SC 299336
PHONE: 843-726-6730

STATE OF SOUTH CAROLINA GRADY LANIER WOODS Chairman REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA WOODS DENDY ARCHITECTS, LLC ARF101634 REGISTERED ARCHITECT

NEW CONSTRUCTION FOR:

WATER & SEWER RESILENCY IMPROVEMENTS

SECOND AVE AND WEATHERSBEE ST
RIDGELAND, SC

PROJECT NO.
21025

DRAWN BY: Author CHECKED BY: Checker

REVISION SCHEDULE

REV. NO.	REV. DATE

Project Status
DATE: 12 AUG 22

COVER SHEET

A001

PLOT INFO: 5/8/2023 7:06:58 AM C:\Users\Thomas\WDA Dropbox\Projects\2021\21025 Jasper Co. WELL #2\DRAWINGS\water pump rev 1.rvt

1 SITE PLAN
1" = 10'-0"

2 VICINITY MAP
1" = 160'-0"

PLOT INFO: 5/8/2023 7:07:22 AM C:\Users\Thomas\WDA Dropbox\Projects\2021\21025 Jasper Co. WELL #2\DRAWINGS\water pump rev 1.rvt

WDA
Woods Dendy Architects, LLC
AMERICAN INSTITUTE OF ARCHITECTS MEMBERS
893 GRAYS HIGHWAY
RIDGELAND, SC 299336
PHONE: 843-726-6730

STATE OF SOUTH CAROLINA
GRADY LANIER WOODS
Chairman
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
WOODS DENDY ARCHITECTS, LLC
ARF101634
REGISTERED ARCHITECT

NEW CONSTRUCTION FOR:

WATER & SEWER RESILENCY IMPROVEMENTS

SECOND AVE AND WEATHERSBEE ST
RIDGELAND, SC

PROJECT NO.
21025

DRAWN BY: Author CHECKED BY: Checker

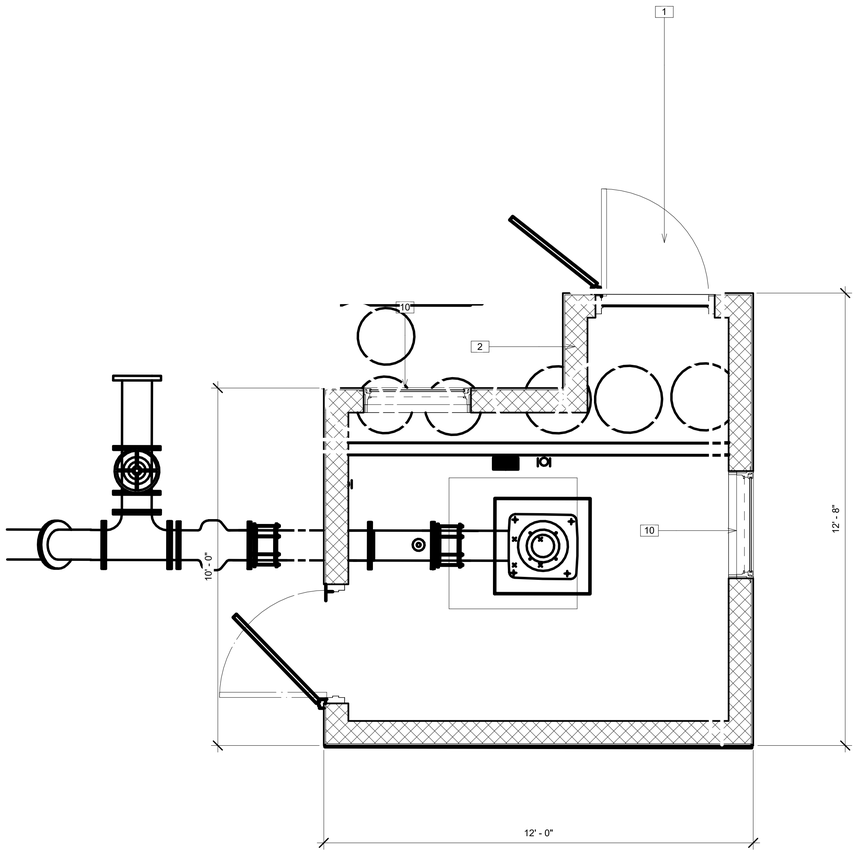
REVISION SCHEDULE

REV. NO.	REV. DATE

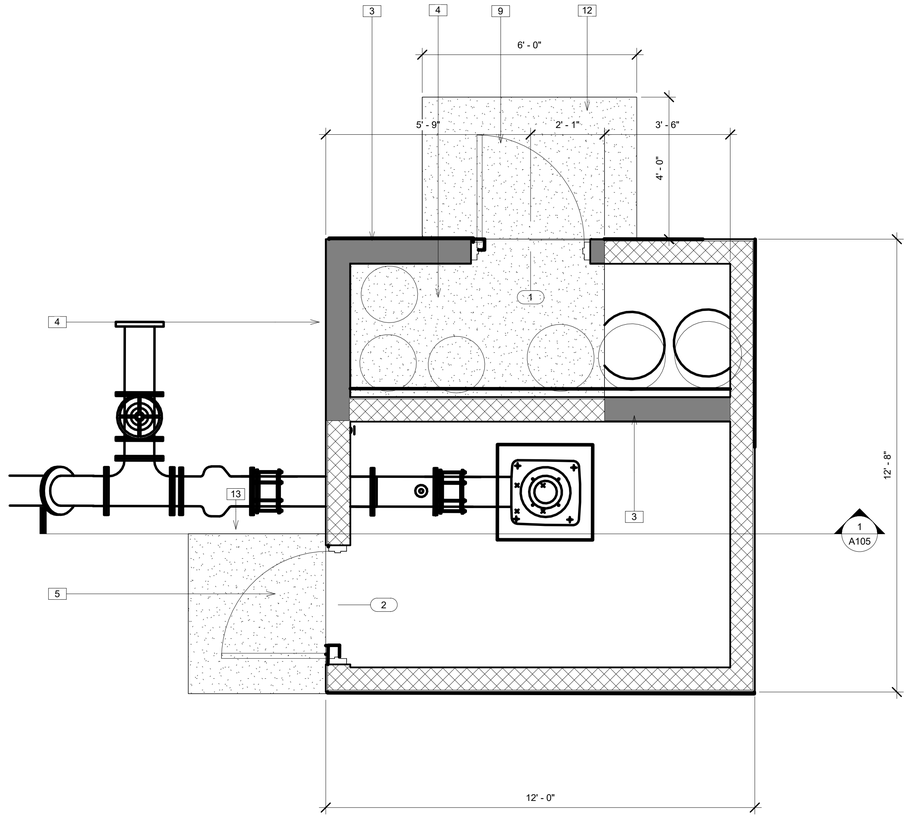
Project Status
DATE: 12 AUG 22

SITE PLAN

A100



EXISTING LEVEL 1 PLAN



PROPOSED LEVEL 1 PLAN

Keynote Legend	
Key Value	Keynote Text
1	REMOVE EXISTING DOOR, CLOSE OPENING AND MATCH EXISTING FINISHES
2	REMOVE CMU WALL, TIE BEAM AND PATCH FLOOR TO MATCH EXISTING
3	NEW CMU WALL. SEE STRUCTURAL
4	NEW 4" CONCRETE SLAB.. SEE STRUCTURAL
5	REPLACE DOORS. SEE DOOR SCHEDULE
6	ACCESS HOLE AND CAP TO REMAIN AS IS
7	NEW ROOF FRAMING. SEE STRUCTURAL
8	REMOVE AND REPLACE STANDING SEAM ROOFING TO MATCH EXISTING
9	NEW DOOR. 3-0 / 7-0 HOLLOW METAL FRAME WITH GLASS LIGHT
10	REMOVE WINDOW AND FILL IN WITH CMU TO MATCH EXISTING
11	EXISTING ROOF ACCESS HOLE. COVER NOT SHOWN BUT TO REMAIN AS IS
12	NEW 4" CONCRETE STOOP
13	EXISTING STOOP
14	5/8" STUCCO EXTERIOR SAND FLOAT FINISH

WDA

Woods Dendy Architects, LLC

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STATE OF SOUTH CAROLINA GRADY LANIER WOODS Charleston, SC REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA WOODS DENDY ARCHITECTS, LLC ARF101634 REGISTERED ARCHITECT

NEW CONSTRUCTION FOR:

WATER & SEWER RESILIENCY IMPROVEMENTS

SECOND AVE AND WEATHERSBEE ST
RIDGELAND, SC

PROJECT NO.
21025

DRAWN BY: Author CHECKED BY: Checker

REVISION SCHEDULE

REV. NO.	REV. DATE

Project Status
DATE: 12 AUG 22

EXISTING AND PROPOSED FLOOR PLANS

A101

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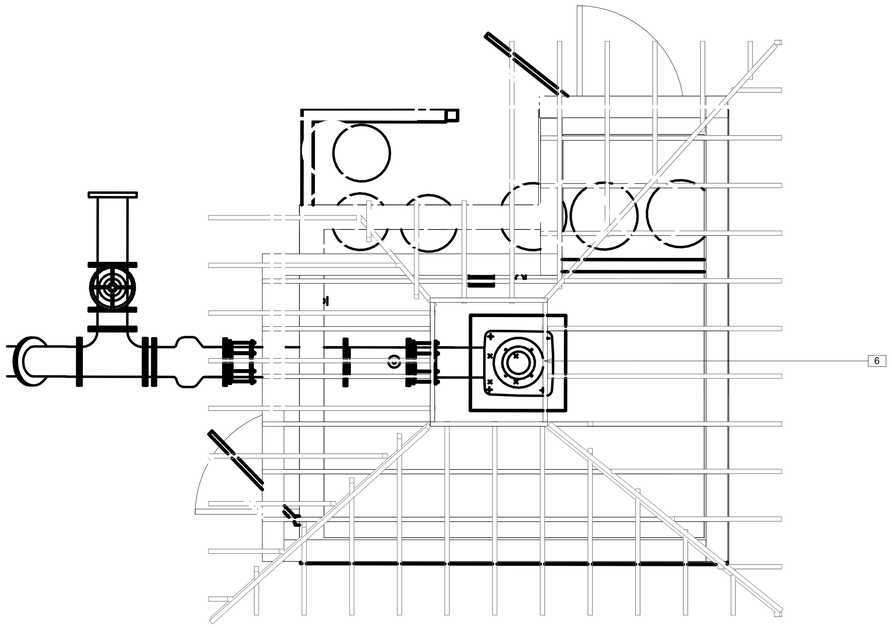
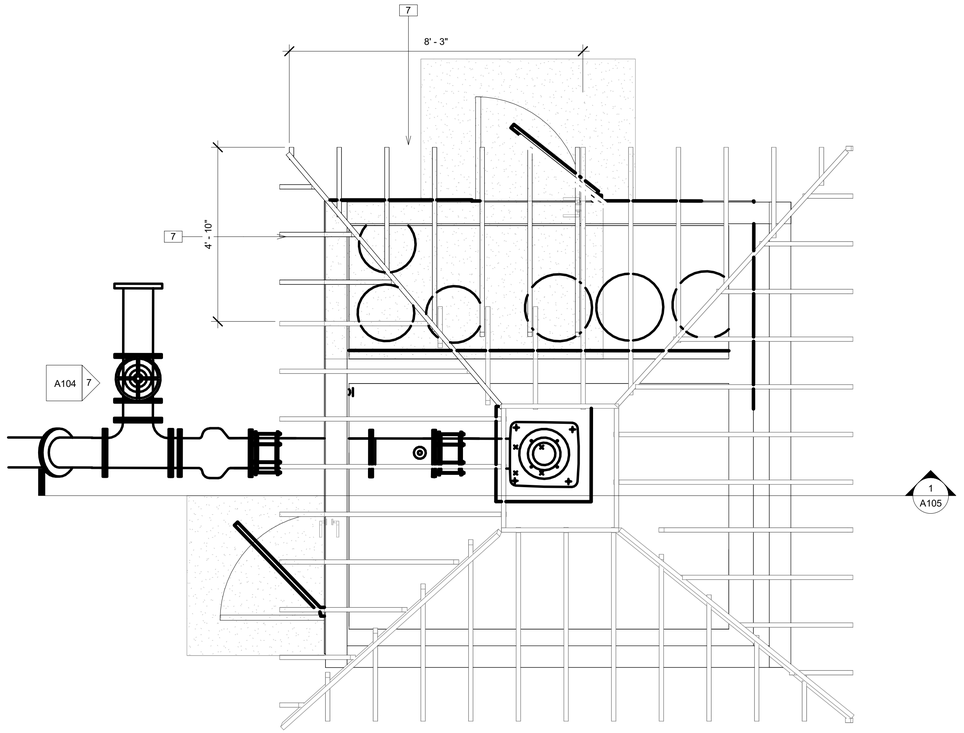


EXISTING FRAMING LAYOUT



PROPOSED ROOF FRAMING

NOTE:

SEE STRUCTURAL DRAWINGS FOR FOUNDATION AND FRAMING DETAILS

Keynote Legend	
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1	REMOVE EXISTING DOOR, CLOSE OPENING AND MATCH EXISTING FINISHES
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RIDGELAND, SC

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ROOF FRAMING PLAN

A102

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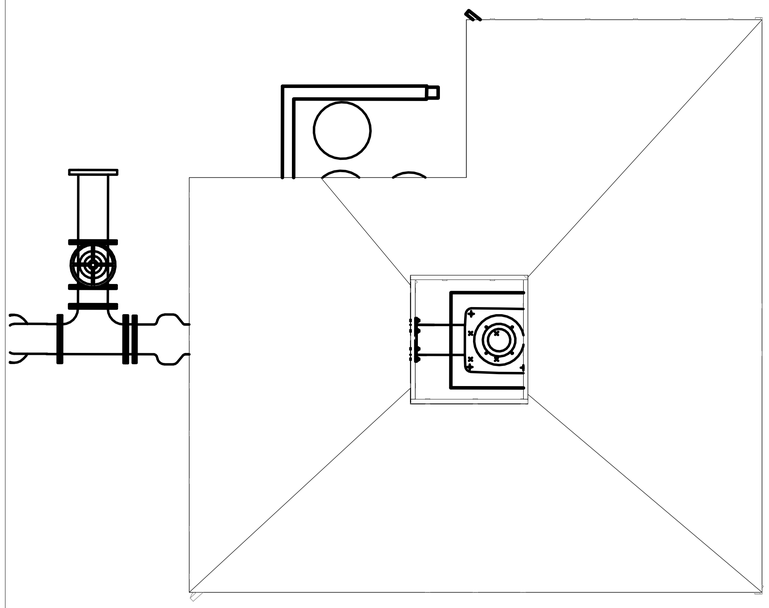
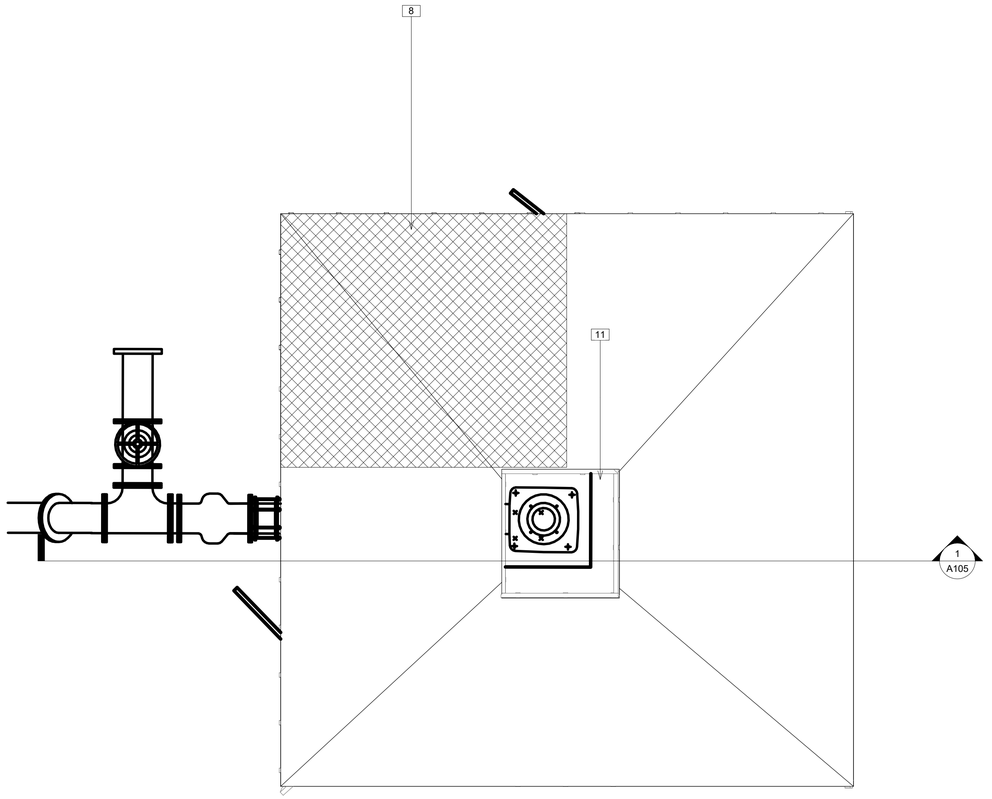


EXISTING ROOF



PROPOSED ROOF

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ROOF PLAN

A103

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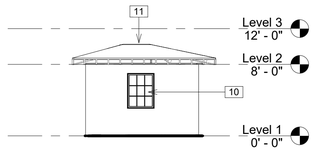
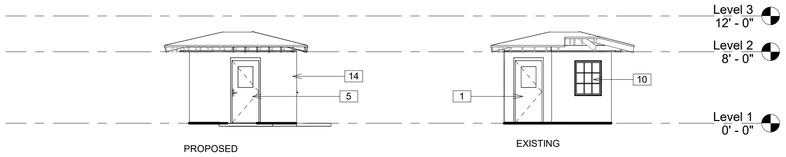
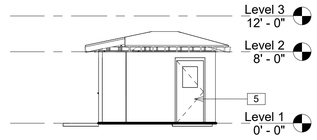


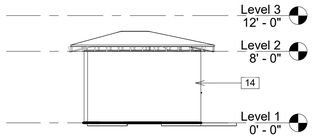
6 EAST ELEVATION EXISTING
1/8" = 1'-0"



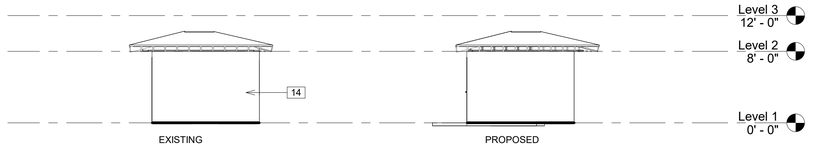
3 NORTH EXISTING AND PROPOSED
1/8" = 1'-0"



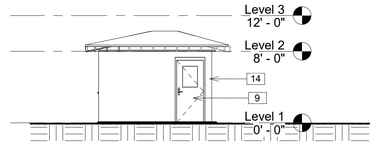
5 WEST ELEVATION EXISTING
1/8" = 1'-0"



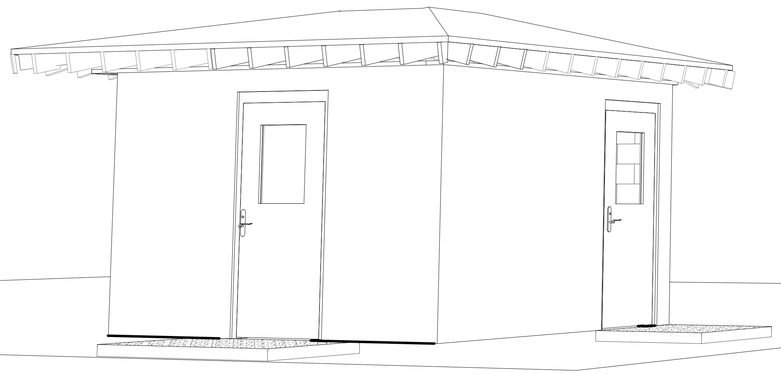
2 EAST PROPOSED
1/8" = 1'-0"



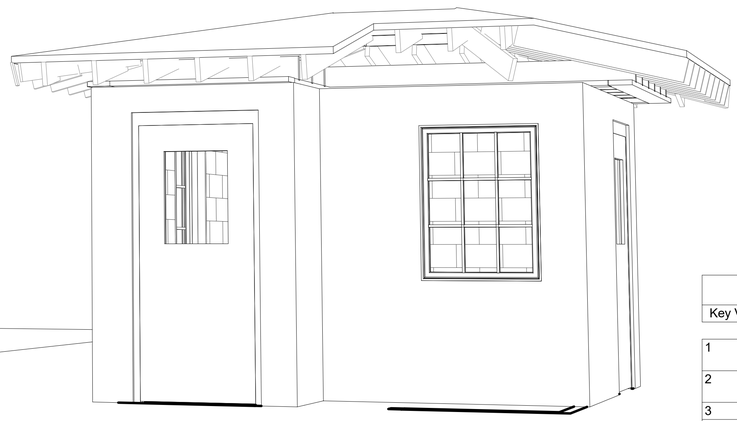
4 SOUTH EXISTING AND PROPOSED
1/8" = 1'-0"



7 WEST ELEVATION PROPOSED
1/8" = 1'-0"



PROPOSED



EXISTING

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WDA

Woods Dendy Architects, LLC
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STATE OF SOUTH CAROLINA
GRADY LANIER WOODS
Class of 2011
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
WOODS DENDY ARCHITECTS, LLC
ARF101634
REGISTERED ARCHITECT

NEW CONSTRUCTION FOR:

WATER & SEWER RESILENCY IMPROVEMENTS

SECOND AVE AND WEATHERSBEE ST
RIDGELAND, SC

PROJECT NO.
21025

DRAWN BY: Author CHECKED BY: Checker

REVISION SCHEDULE

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ELEVATIONS AND PERSPECTIVES

A104

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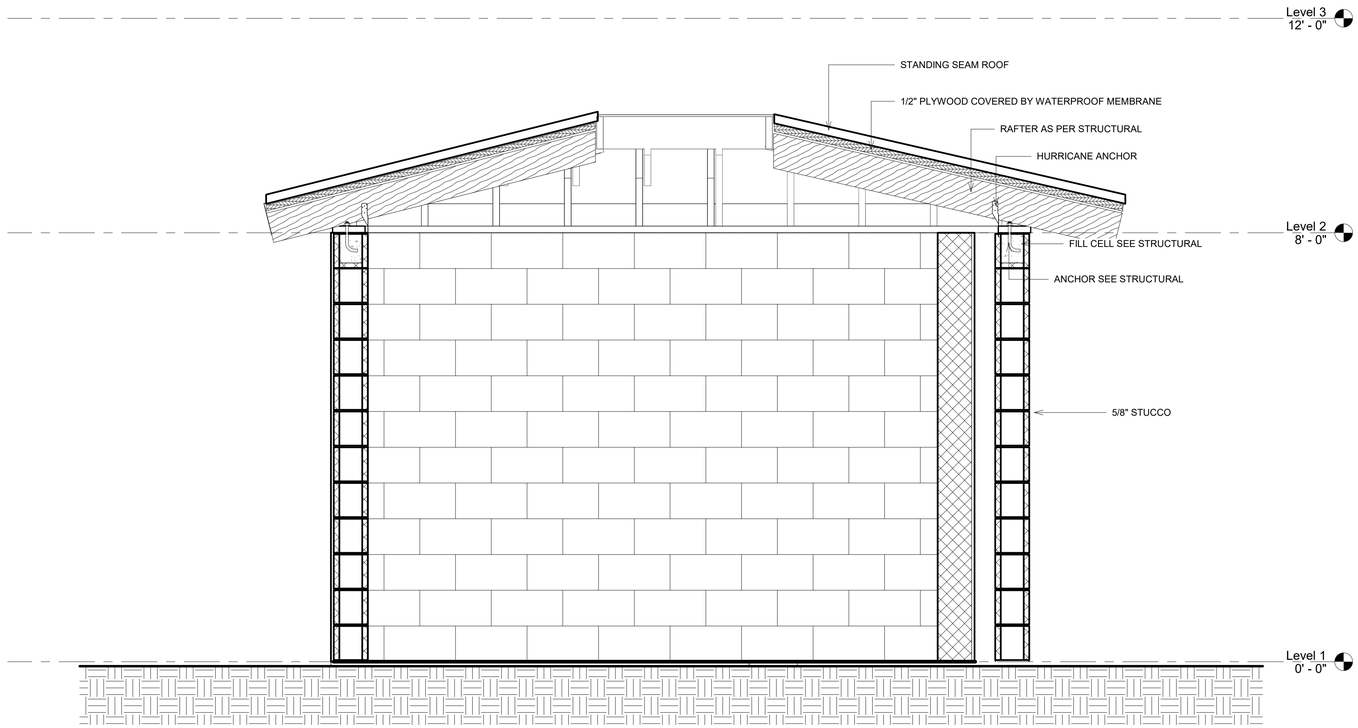
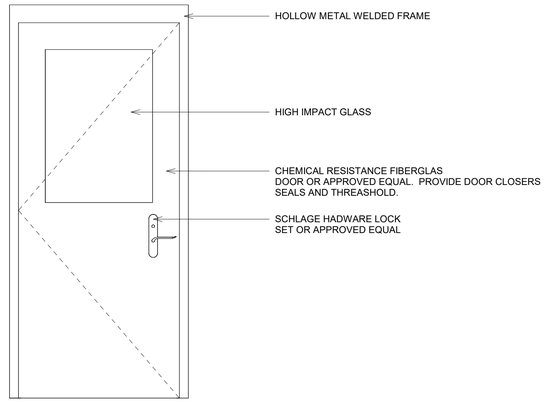


1 Section 1
3/4" = 1'-0"



DOOR
3/4" = 1'-0"

Door Schedule			
Mark	Width	Height	Comments
1	3' - 0"	7' - 0"	
2	3' - 0"	7' - 0"	

WDA

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STATE OF SOUTH CAROLINA GRADY LANIER WOODS Civil REGISTERED ENGINEER

STATE OF SOUTH CAROLINA WOODS DENDY ARCHITECTS, LLC ARF101634 REGISTERED ARCHITECT

NEW CONSTRUCTION FOR:

WATER & SEWER RESILIENCY IMPROVEMENTS

SECOND AVE AND WEATHERSBEE ST
RIDGELAND, SC

PROJECT NO. 21025

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Project Status
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BUILDING SECTION

A105

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EXISTING
ROOF ACCESS

EXISTING LOOKING EAST

EXISTING LOOKING EAST

EXISTING LOOKING NORTH

EXISTING LOOKING SOUTH

EXISTING LOOKING WEST

EXISTING INTERIOR
LOOKING NORTH

INTERIOR LOOKING SOUTH

INTERIOR LOOKING EAST

SCALES LOOKING SOUTH

SCALES LOOKING SOUTH

ROOF FRAMING TYPICAL

EXISTING ROOF ACCESS FRAMING

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STATE OF SOUTH CAROLINA
GRADY LANIER WOODS
Chairman
REGISTERED ARCHITECT

STATE OF SOUTH CAROLINA
WOODS DENDY ARCHITECTS, LLC
ARF101634
REGISTERED ARCHITECT

NEW CONSTRUCTION FOR:

WATER & SEWER RESILIENCY IMPROVEMENTS

SECOND AVE AND WEATHERSBEE ST
RIDGELAND, SC

PROJECT NO.
21025

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EXISTING BUILDING
PHOTOS

A106

ABBREVIATION LEGEND

T/	–	TOP OR TOP OF
FTG	–	FOOTING
SF	–	STEP FOOTING (LOCATION)
CONC	–	CONCRETE
WWM	–	WELDED WIRE MESH
CMU	–	CONCRETE MASONRY UNIT (CONCRETE BLOCK)
WCJ	–	MASONRY / CONCRETE WALL CONTROL JOINT
STL	–	STRUCTURAL STEEL OR STEEL
O.C.	–	ON CENTER (SPACING)
PSI	–	POUNDS PER SQUARE INCH (STRENGTH)
TYP	–	TYPICAL
X	–	READ AS 'BY'
CLR	–	CLEAR
SQ	–	SQUARE
DEG	–	DEGREE OR DEGREES
E.W.	–	EACH WAY
UNO	–	UNLESS NOTED OTHERWISE
TD	–	TREATED, PRESSURE TREATED PER AWPA SPECS, GROUND CONTACT WITHIN 1000 YRS FOR WATER, MARINE EXPOSURE.
CONT	–	CONTINUOUS
W/	–	WITH
W/OUT	–	WITH OUT
A. BOLTS	–	ANCHOR BOLTS OR BOLT
@	–	READ AS 'AT'
PL	–	PLATE
REINF	–	REINFORCING
SHTHG	–	SHEATHING, GENERALLY PLYWOOD
DIA	–	DIAMETER

GEOTECHNICAL REPORTS: IF A SPECIFIC REPORT IS NOT ADDRESSED HEREIN THE PLANS HAVE BEEN DESIGNED BASED ON ASSUMPTIONS. IT IS THE SOLE RESPONSIBILITY OF THE OWNER TO RETAIN A QUALIFIED GEOTECHNICAL ENGINEER WHO SHALL PERFORM INVESTIGATIONS TO INSURE THAT THE SOIL CONDITIONS ARE AT LEAST THAT WHICH ARE REQUIRED HEREIN.

ANY AND ALL FILL SHALL BE ENGINEERED FILL AND PLACED IN STRICT ADHERENCE WITH THE PROJECT GEOTECHNICAL ENGINEERS REQUIREMENTS. FILL CAN AND WILL INDUCE SETTLEMENTS. PLACING FILL WITHOUT THE DIRECTION OF A GEOTECHNICAL ENGINEER IS PROHIBITED. FILL SHALL BE PLACED IN LIFTS NOT TO EXCEED 8 INCHES, LOOSE MEASURE. EACH LIFT SHALL BE COMPACTED TO WITHIN 95% OF THE MODIFIED PROCTOR MAXIMUM DRY DENSITY PRIOR TO PROCEEDING WITH THE NEXT LIFT.

ALL SLABS ON GRADE, UNLESS NOTED OR REQUIRED OTHERWISE BY THE PROJECT GEOTECHNICAL ENGINEER, SHALL BE PLACED ON COMPACTED FILL OR SUBGRADE. ALL SLABS SHALL BE PLACED OVER MIN 15 MIL VAPOR BARRIER (VB). VB SHALL BE INSTALLED IN A SMOOTH CONDITION, LAP ENDS NOT LESS THAN 12 INCHES. REPAIR ANY AND ALL PUNCTURES PRIOR TO CONC. PLACEMENT.

THE GENERAL CONTRACTOR SHALL RETAIN THE SERVICES OF A QUALIFIED SURVEYOR WHO SHALL VERIFY ALL SITE AND BUILDING ELEVATIONS. THE GENERAL CONTRACTOR SHALL INSURE THAT THE LOWEST HORIZONTAL STRUCTURAL MEMBER IS ABOVE ANY AND ALL FEDERAL, STATE AND LOCAL REQUIREMENTS FOR CLEARANCE AND FLOOD ZONE RELATED ISSUES.

SEE ARCH'L DRAWINGS FOR ISSUES RELATED TO HYDROSTATIC VENTING, OPEN SIZES AND LOCATIONS. WHERE NOT SHOWN IN ARCH'L DRWGS ALLOW FOR THE MOST STRINGENT AND COSTLY APPROACH IN BASE BID AND AWAIT FURTHER DIRECTION FROM ARCHITECT.

SEE THE ARCHITECTURAL DRAWINGS FOR ANY AND ALL DIMENSIONS AND CONDITIONS NOT NOTED HEREIN. WHERE DIMENSIONAL DIFFERENCES ARE FOUND, THE ARCHITECTURAL DRAWINGS SHALL GOVERN. THE CONTRACTOR SHALL COORDINATE ALL TOP OF BEAM, TOP OF CMU AND TOP OF STEEL ELEVATIONS WITH THE ARCHITECTURAL DRAWINGS.

THE GENERAL CONTRACTOR SHALL MAKE NO SUBSTITUTIONS FROM THOSE ITEMS SPECIFIED HEREIN WITHOUT THE EXPRESS WRITTEN PERMISSION OF THE ARCHITECT OR ENGINEER.

GENERAL NOTES

1. Structural drawings shall be used in conjunction with architectural and mechanical drawings and drawings relating to other trades. Contractor shall be responsible for checking and coordinating dimensions, clearances, etc. with the work of other trades. In case of conflict between drawings, the more stringent requirement shall govern.
2. In case of conflict between the drawings, notes and specifications, the specifications shall govern.
3. Work not indicated on a part of the drawings but reasonably implied to be similar to that shown at corresponding places shall be repeated.
4. Review all project documents prior to fabrication and start of construction. Report any discrepancies to the project Architect prior to proceeding with work.
5. It is the contractor's responsibility to protect existing facilities, structures and utility lines from all damage during construction.
6. Coordinate structural and other drawings that are part of the contract documents for anchored, embedded or supported items which may affect the structural drawings.
7. All details and sections on the drawings are intended to be typical and shall be construed to apply to any similar situation elsewhere on the project except where a separate detail is shown.
8. Use of contract drawings reproduced in whole or any part in shop drawing shall not relieve the contractor nor subcontractors from their responsibility to accurately layout, coordinate, detail, fabricate and install a complete structure.
9. Review all shop drawings for conformance with the contract documents and for completeness and answer all contractor related questions. Stamp and initial all sheets as Approved prior to submitting shop drawings to Architect for review.

FOUNDATION NOTES

1. Backfill and fill material shall be placed in thin successive layers, 8" loose measurement, and each layer shall be compacted to at least 95% of maximum laboratory density.
2. Backfill material shall consist of sand clay soil as directed and approved by the project geotechnical engineer.
3. Soil to be stripped, compacted and tested in accordance with the recommendations of the soils engineer.
4. Center all footings under their respective columns or walls unless otherwise shown on plans. Maximum misplacement or eccentricity – 2".
5. Horizontal joints in footings will not be permitted.
6. Where vertical construction joints occur in continuous footings, provide a minimum continuous 2" x 4" keyway across joint for each 12" of depth.
7. Notify Architect if soil conditions are uncovered that prevent the required soil bearing pressure from being obtained.
8. Coordinate plumbing and foundation elevations to minimize interference. Where plumbing interferes with footing, step footing down as directed by engineer.
9. Excavating under or near in–place footings/foundations which disturbs the compacted soil beneath the footings/foundations will not be permitted.
10. Reinforcing shall be supported on precast concrete pads or metal chairs.

CONCRETE NOTES

1. Typical 28 day concrete compressive strength (f'c).

LOCATION:	f'c (psi)
Slab On Grade	3000
Footings	3000

NOTE: All concrete shall be normal weight unless noted otherwise.
2. Reinforcing steel: ASTM A 615, grade 60. Minimum lap shall be 40 bar diameters or 24 inches, U.N.O.
3. Welded wire fabric: ASTM A 185 or ASTM A 497. Lap all edges 1'–0" mesh minimum.
4. Concrete cover: Footings 3", slabs 1 1/2" (U.N.O.).
5. All footings shall rest either on undisturbed soil or a manually operated vibratory sled or tamper should be used to densify any soils in the bottom of the footing trenches loosened during the excavation operation.
6. Contractor is responsible for adequately protecting all excavation slopes.
7. No backfilling against foundation walls shall be done until concrete has attained 75% of its 28 day strength. Provide temporary bracing for walls sustaining more than 3'–6" of earth pressure. This bracing to remain until slabs on grade or floor framing supporting the wall have been poured and set.
8. All continuous horizontal reinforcing and vertical wall reinforcing shall be lapped according to lap splice and embedment requirements per ACI 318, latest edition.
9. Reinforcement shall be securely held in place while placing concrete. If required, additional bars and stirrups shall be provided by the contractor to furnish support for bars.
15. For waterproofing details and locations, see architectural drawings.
16. Dowels shall match wall reinforcing.
13. Contractor shall make no deviations from design drawings without written approval of the Project Architect.
19. Structural concrete shall conform to ACI 301 and have the following slumps and aggregate requirements

Location	Slump	Max. Aggregate
Footings	3"	1" ASTM #57
Slabs	4"	1" ASTM #57

All course granite shall be crushed granite.
20. All reinforcing steel shall be detailed, fabricated and installed in accordance with ACI 318 and ACI detailing manual, ACI–315 latest edition.
21. Not used.
22. Shop drawings for placement shall be submitted for review prior to rebar fabrication unless approved otherwise by project Architect.
23. No reinforcing bars shall be cut to accommodate the installation of anchors, embeds or other items.
24. Use the structural drawings including revisions and addenda in conjunction with reviewed shop drawings for placement of reinforcing.
25. At changes in direction of concrete walls, beams and strip footings, provide corner bars of same size and quantity (U.N.O.) as horizontal steel. Refer to typical detail.
26. Place concrete per ACI 304. Use internal mechanical vibration for all concrete. Limit maximum free fall drop of concrete to 6'–0" for #57 aggregate and 8'–0" for #8 aggregate. All precautions should be taken to avoid segregation of concrete during placement.
27. Saw cut all slabs not less than 1/4 slab depth. Cut shall be made as soon as possible without dislodging the course aggregate, same day as placement. ACI 302

MASONRY NOTES

1. Masonry construction shall conform to ACI "Building Code Requirements for Masonry Structures" (ACI/ASCE 530) and "Specifications for Masonry Structures" (ACI/ASCE 530.1) except as amended below.
2. Obtain copy of masonry code and specifications for reference at the job site.
4. Use type "S" mortar with minimum compressive strength of 1800 psi.
5. Masonry units shall conform to ASTM C90 with a minimum compressive strength of 1900 psi on net section, to provide net area compressive strength of masonry (F'm) of 1500 psi.
6. Provide filled cells as shown on plans. In addition, provide filled cells adjacent to all openings, at anchorage of connections.
7. Provide full mortar bedding around all filled cells with vertical reinforcing.
8. Reinforcing for filled cells shall conform to ASTM A615, Grade 60. Provide the following lap splices for reinforcing: #4 Bars 24" #5 Bars 30"
9. Reinforce wall with ladder type reinforcement in bed joints at 16" o.c. measured vertically. Lap splice all horizontal wall reinforcing 6". Provide prefabricated "tee" or corner sections at all intersecting walls.
10. Refer to typical wall sections for maximum construction height of masonry walls. Provide clean–out holes at base of filled cell when the concrete pour exceeds 5 feet in height.
11. Concrete for filled cells shall be vibrated during placement using a "pencil" type vibrator.
12. The masonry walls are not designed to withstand temporary construction loads. It is the contractor's responsibility at all times to maintain wall stability during the construction phase of this project.
14. The use of solid load bearing masonry units is prohibited on this project.
15. Masonry wall construction requires expansion/contraction joints. Locate these joints as directed by the project Architect not more than 40 feet on center. Avoid locations near windows and doors or other geometry that would lend to the formation of epxansion cracks.
16. All lintels over masonry openings shall be Cast–Crete Lintels. Cast–Crete lintels are available from General Materials, Inc.
17. Provide seismically rated brick ties for all brick veneer in accordance with manf'r install instructions.

STRUCTURAL STEEL NOTES

1. Structural Steel materials shall conform to the following ASTM specification (U.N.O.):

Angles, plates, misc. steel	ASTM A36, Fy=36 ksi
Tubes	ASTM A500, Grade B
Anchor Bolts	ASTM A449

2. Provide temporary bracing or guys to provide lateral support until permanent lateral bracing is installed.
3. The contractor shall coordinate the bottom of base plate elevation with the top of concrete and masonry elevation. In case of conflict, the contractor shall make allowance in his bid for the more stringent requirement.
4. All steel details and connections shall be in accordance with the requirement of the AISC SPECIFICATIONS (Latest Edition), including all supplements and revisions.
5. Shop connections not specifically detailed on the drawings may be welded or bolted. Field connections not specifically detailed on the drawing shall be bolted.
6. Fabrication and erection of structural steel shall conform to the AISC "Manual of Steel Construction," and the AISC "Specification for Structural Steel Buildings," latest Editions.
7. All bolts cast in concrete shall conform to ASTM A–36 or A–307.
8. Beams shall be supported on columns by tab plates welded through the center line of the column unless specifically shown otherwise herein.
9. All beams shall be punched for two rows of bolts for the attachment of wood blocking. Blocking shall be placed along the top flange, along the web and along the bottom flange unless spedified otherwise. Bolts shall be two rows at 16" o.c. staggred.

TIMBER FRAMING NOTES

1. All timber construction shall be in accordance with AITC specifications and requirements.
2. All timber framing, unless noted otherwise, shall be not less than #2 SYP or SPF kiln dried with minimum properties of: (fb=1300 psi, Ft=675 psi, Fc=1200 psi).
3. All engineered timber shall have minimum properties of: (Fb=2800 psi, Ft=2600 psi, Fc=2400 psi).
4. Any and all timbers exposed to the earth, weather or in contact with concrete or masonry components or withing eight (8) inches of exposed grade shall be treated in accordance with AWPA standards.
5. All connectors shall be by the simpson company unless approved otherwise by the project Architect, G90 finishes.
6. All floor/roof bracing, blocking and connections shall be by the truss or Engineered component manufacturer.
7. All multiple ply girders shall be glued and nailed together with three rows of 16d nails at 8" o.c. per row and per layer or ply.
8. Provide a double joist below all parallel walls not shown otherwise. Provide a double joist adjacent to all changes in span to minimize differential settlement.
9. Layout all plumbing line and fixture locations and space joists to avoid cutting of joists. Where a joist must be cut provide an additional joist on each side of the cut joist, as close as possible. If cut joists supports more than starndard floor loadings notify engineer for review.
10. Support all joists and beams on joist and beam hangers. Nailers shall not be permitted without prior authorization from engineer.
11. Provide simpson CS16 X 24" straps across all ridges and valleys at 32" o.c. Install to prevent against uplift forces (i.e. across tops of ridges), or collar ties at the same spacing.
12. Solid blocking that matches the depth of the floor joists, shall be installed between joists along all interior and exterior walls. Additional blocking shall be installed between joists at 1/3 points for 2x joist framing.
14. All walls supporting two floors and a roof shall be 2x6's at 16" o.c., 2x4's at 8" o.c. or 3x4's at 12" o.c.
15. The GC shall anticipate and provide furing strips or blocking as may be required to provide a smooth surface for the application of sheetrock. This requirement primarily occurs at, but is not limited to, vaulted ceilings and other such special conditions.
16. The framing and foundations shown herein are based on normal carpet and vinyl floor finishes, normal weight cabinets and counter tops. If heavier materials are used notify engineer and await framing modifications prior to proceeding.
17. Where roof trusses are used, provide uplift connectors with uplift ratings in excess of the uplift reactions listed within the roof truss shop drawings. Contact engineer for specific directions if required.
18. Top plates, drag struts, shall be nailed together with two rows of 16d nails at 12" o.c. staggered.
19. Bottom plate splices shall have attachments on either side. Where the plate is attached to concrete you can provide 1/2" dia exp'n bolt with 12" ea. side of ea. splice, or you may provide two powder driven fasteners within 8" ea. side of ea. splice. Plates attached to timber framing shall have two 16d nails driven into the supporting framing within 6" ea. side of ea. splice.
20. Provide min 3" x 3" x 1/4" square plate washers between TD bottom wall plates and the nut for anchor bolts.
21. Steel beams and columns shall not bear on timber framing. Provide embeded weld plates and steel columns bearing directly on concrete or masonry as necessary for proper support.
22. All timber framing, unless addressed otherwise herein, shall be installed in accordance with the current edition of the Wood Framed Construction Manual.

DESIGN CRITERIA

DESIGN BASED ON THE 2018 IBC

DEAD LOADINGS
ACTUAL SELF WEIGHT

DESIGN LOADS & INFORMATION	
BASIC WIND SPEED	134 MPH
WIND EXPOSURE CAT.	EXPOSURE C
SEISMIC DESIGN INFORMATION	IBC 2018
SEISMIC USE GROUP	GROUP 1
Sds	.43
Sdl	.23
SITE CLASS	D
SEISMIC DESIGN CATEGORY	D
SEISMIC FORCE RESIST. SYSTEM	LT. FRAMEWALL/SHEAR PANELS
DESIGN BASE SHEAR	10,000 LBS
ANALYSIS PROCEDURE	SIMPLE STATIC
FLOOR LL	100 PSF
FLOOR DL	25 PSF
ROOF LL	20 PSF
ROOF DL	20 PSF
GROUND SNOW LOAD	5 PSF

SPECIAL INSPECTIONS

1. Submit concrete mix design to engineer for review prior to the start of work.
2. Independent third party inspector to be present during CMU block grouting process and confirm proper and complete grouting of reinforced cells.
3. Third party inspector to visually verify rafter uplift connector size, location & attachment.

REV.	BY	DATE

Southern Consulting & Engineering, Inc.
Structural Engineering
105 Central Ave 100-A
Goose Creek, South Carolina

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Fax (843) 718-2776
www.SCEstructure.com

SOUTHERN CONSULTING AND ENGINEERING, INC.

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER
No. 23542
12-23-2021
ANTHONY M. AUSTIN

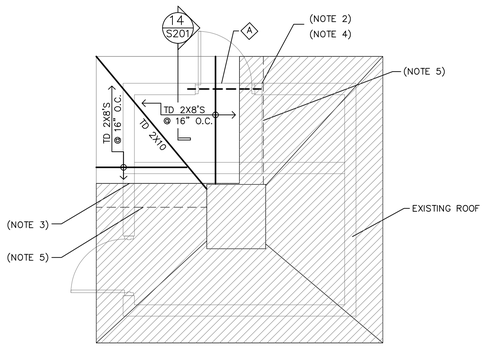
SOUTH CAROLINA SOUTHERN CONSULTING & ENGINEERING, INC. No. C03355 CERTIFICATE OF AUTHORIZATION

Ridgeland Pump Station
Second Ave. and Weathersbee Street
Ridgeland, SC

DATE	Jan. 12, 2022
SCALE	SEE PLAN
JOB NO.	211396–0
SHEET	S100

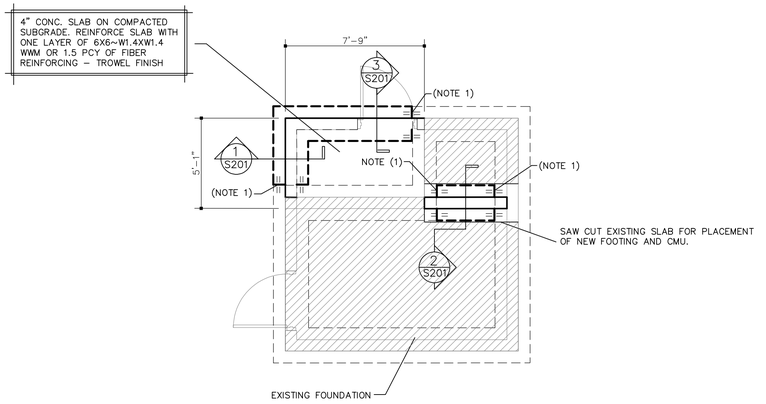
CMU LINTEL SCHEDULE

A 8"X8" CMU LINTEL WITH (2)#5'S IN BOTTOM. GROUT SOLID WITH 3000 PSI PEA GRAVEL CONCRETE



ROOF FRAMING

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



DRAWING NOTES (NOTE X)

(1) – DRILL AND EPOXY (2)#4'S X 2'-6" NOT LESS THAN 6" INTO FOOTING WHERE NEW ABUTS EXISTING

(2) – EXTEND CMU LINTEL NOT LESS THAN 8" ONTO ADJACENT CMU. TOOTH INTO EXISTING AS REQUIRED.

(3) – PROVIDE A VERTICAL CMU CONTROL JOINT BETWEEN NEW AND EXISTING CMU.

(4) – TOOTH NEW CMU INTO EXISTING AT ALTERNATE COURCES. REINFORCE 2 CELLS EACH SIDE OF NEW DOOR OPENING.

(5) – EXTEND NEW ROOF SHEATHING 16" BEYOND EDGE OF NEW CONSTRUCTION. NEW SHEATHING TO FLUSH WITH TOP OF EXISTING. ADD BLOCKING AS REQUIRED TO SUPPORT EDGE OF NEW AND EXISTING SHEATHING

FOUNDATION PLAN

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

SEE ARCH'L DRAWINGS FOR DIMENSIONS AND CONDITIONS NOT SHOWN HEREIN.

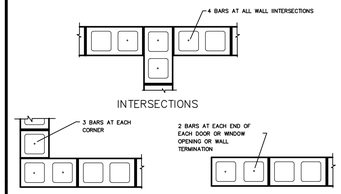
TOP OF FOOTINGS SHALL BE NOT LESS THAN 8" BELOW FINISHED GRADE

FOOTINGS AND SLABS SHALL NOT BE PLACED ON UNCONTROLLED FILL. PLACEMENT AND USE OF COMPACTED FILL, IN EXCESS OF 12" SHALL REQUIRE THE INVOLVEMENT AND BE PLACED UNDER THE SUPERVISION OF A QUALIFIED GEOTECHNICAL ENGINEER.

MASONRY HEIGHT ABOVE GRADE SHALL NOT EXCEED 8'-0" WITHOUT PRIOR WRITTEN APPROVAL FROM ENGINEER.

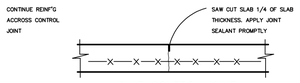
NO SOILS REPORT OR SOILS INVESTIGATION HAS BEEN PERFORMED ON THIS SITE. THIS FOUNDATION DESIGN IS BASED ON ASSUMED SOIL CONDITIONS AND AN ASSUMED SOIL CAPACITY OF 2000 PSF. IT IS THE SOLE RESPONSIBILITY OF THE OWNER AND/OR CONTRACTOR TO RETAIN THE SERVICES OF A QUALIFIED GEOTECHNICAL ENGINEER TO VERIFY THE SOIL CONDITIONS ARE ADEQUATE AND THE SITE HAS BEEN PROPERLY PREPARED PRIOR TO THE START OF WORK.

THE GC SHALL REVIEW AND APPROVE ALL DIMENSIONS SHOWN HEREIN PRIOR TO THE START OF WORK. NOTIFY ENGINEER OF ANY DIMENSION OR CONDITION FOUND CONTRARY TO THAT SHOWN WITHIN THE ARCH'L DRAWINGS.



PROVIDE CONTROL JOINTS IN CMU WALLS NOT MORE THAN 30'-0" O.C. AVOIDING ANY AND ALL OPENINGS IN THE WALL BY AT LEAST 24"

TYP. CMU DETAILS



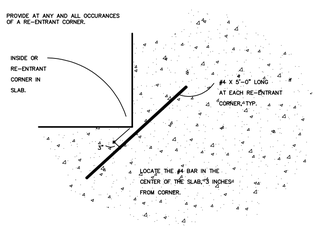
SPACE CONTROL JOINTS NOT MORE THAN 15'-0" O.C. AND PLACE SO AS NO SLAB SEGMENT HAS A LONG SIDE MORE THAN 1.5 TIMES THE SHORT SIDE.

SLAB JOINTS ARE TO BE PLACED AS SOON AS THE SLAB CAN BE CUT WITHOUT DISLODGING THE COURSE AGGREGATE. SAME DAY AS SLAB PLACEMENT.

SEAL OPEN JOINTS PROMPTLY TO PREVENT INTRUSION OF DEBRIS.

SLAB CONTROL JOINTS CAN CREATE CRACKS AND OTHER ISSUES WITH BRITTLE FLOOR FINISHES. WHERE ALTERNATE JOINT LOCATIONS MAY BE REQUIRED NOTIFY ENGINEER FOR ASSISTANCE OR SUBMIT ALTERNATE LAYOUT FOR APPROVAL.

TYP. SLAB JOINT'G DETAILS



TYP. RE-ENTRANT CORNER DETAIL

REV.	BY	DATE

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105 Central Ave 100-A
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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 23542 ANTHONY M. AUSTIN 1-12-22

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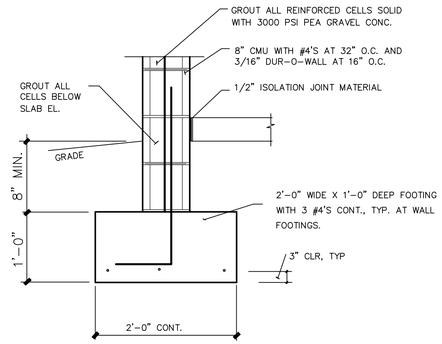
SHEET	S101



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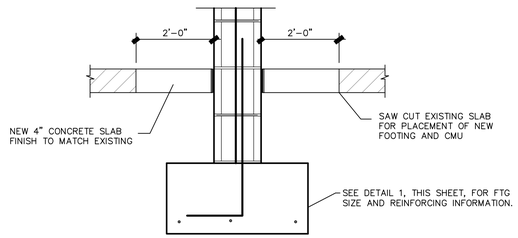
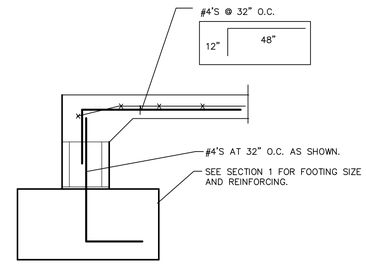


TYP. INT. FOOTING DETAIL 2



SECTION AT DOOR OPENING 3

4

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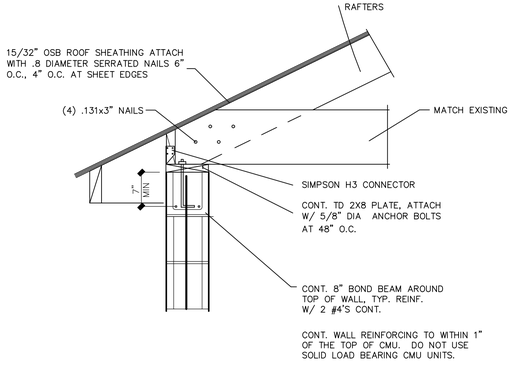
13



EAVE DETAIL 14

15

16

REV.	BY	DATE

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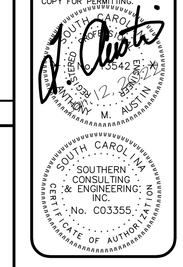

Ridgeland Pump Station
Second Ave. and Weathersbee Street
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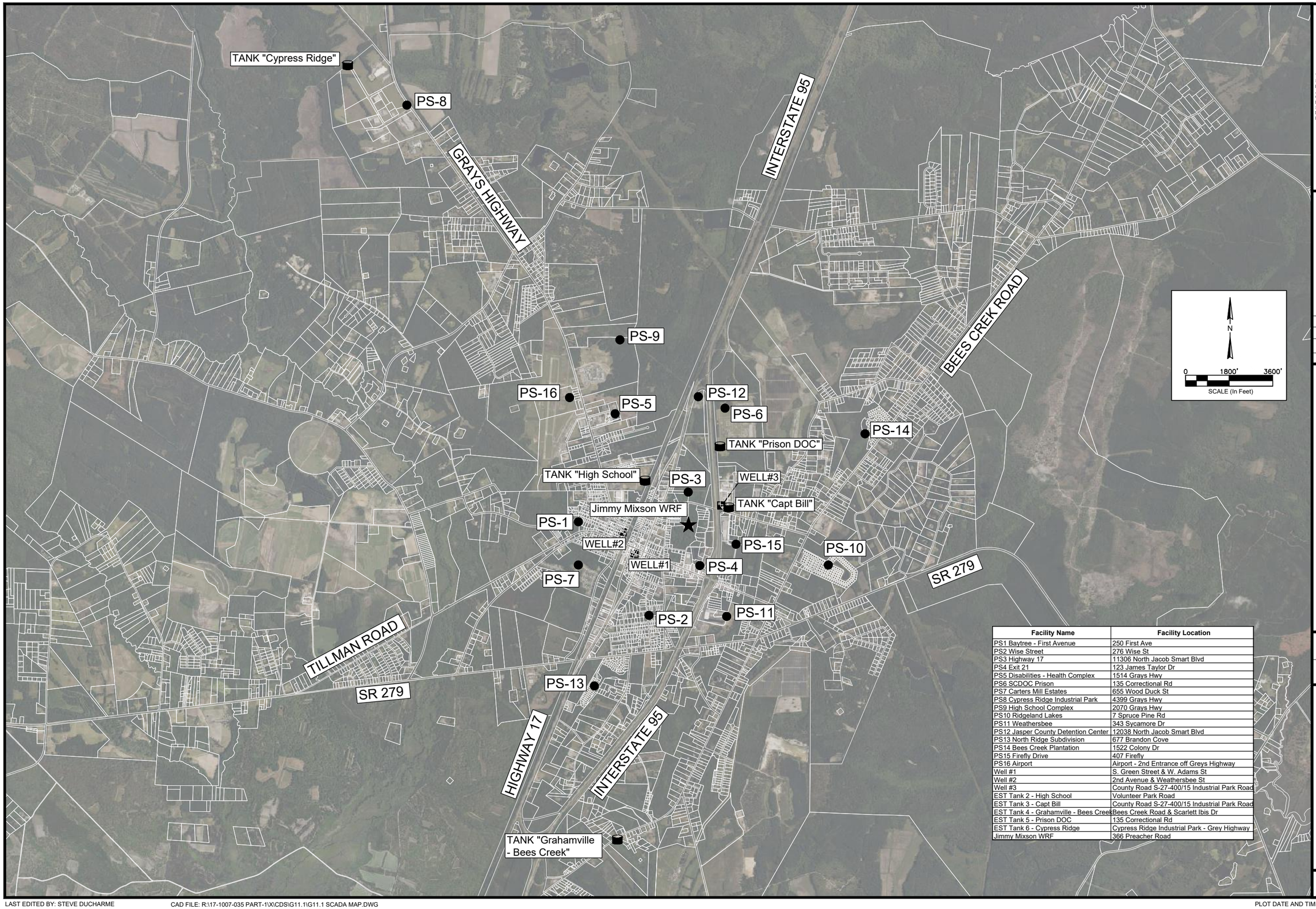
DATE	Jan. 12, 2022
SCALE	SEE PLAN
JOB NO.	211396-0
SHEET	S201



Facility Name	Facility Location
PS1 Baytree - First Avenue	250 First Ave
PS2 Wise Street	276 Wise St
PS3 Highway 17	11306 North Jacob Smart Blvd
PS4 Exit 21	123 James Taylor Dr
PS5 Disabilities - Health Complex	1514 Grays Hwy
PS6 SCDOC Prison	135 Correctional Rd
PS7 Carters Mill Estates	655 Wood Duck St
PS8 Cypress Ridge Industrial Park	4399 Grays Hwy
PS9 High School Complex	2070 Grays Hwy
PS10 Ridgeland Lakes	7 Spruce Pine Rd
PS11 Weathersbee	343 Sycamore Dr
PS12 Jasper County Detention Center	12038 North Jacob Smart Blvd
PS13 North Ridge Subdivision	677 Brandon Cove
PS14 Bees Creek Plantation	1522 Colony Dr
PS15 Firefly Drive	407 Firefly
PS16 Airport	Airport - 2nd Entrance off Greys Highway
Well #1	S. Green Street & W. Adams St
Well #2	2nd Avenue & Weathersbee St
Well #3	County Road S-27-400/15 Industrial Park Road
EST Tank 2 - High School	Volunteer Park Road
EST Tank 3 - Capt Bill	County Road S-27-400/15 Industrial Park Road
EST Tank 4 - Grahamville - Bees Creek	Bees Creek Road & Scarlett Ibis Dr
EST Tank 5 - Prison DOC	135 Correctional Rd
EST Tank 6 - Cypress Ridge	Cypress Ridge Industrial Park - Grey Highway
Jimmy Mixson WRF	366 Preacher Road

SOUTH CAROLINA LICENSED PROFESSIONAL ENGINEER
No. 21839
ANGELA B. BRYAN

THIS ITEM HAS BEEN DIGITALLY SIGNED AND SEALED BY ANGELA BRYAN, P.E. ON THE DATE ADJACENT TO THE SEAL. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION
FOUR WATERS ENGINEERING, INC.
No. 5166

REV NO	DATE	DWN BY	CHK BY	DESCRIPTION
1				
2				
3				
4				
5				
6				
7				

WATER AND SEWER RESILIENCY IMPROVEMENTS
PART IV
WATER AND SEWER SCADA SYSTEM UPGRADES LOCATIONS
TOWN OF RIDGELAND
RIDGELAND, SOUTH CAROLINA

DESIGN ABB	JOB # 17-1007	ISSUE DATE FEB 2023	ISSUE BID
DRAWN JMC			

FOUR WATERS ENGINEERING
324 6th AVE N. JACKSONVILLE BEACH, FLORIDA 32250
844-414-2400 S.C. COA # 5166 WWW.4WENG.COM

DRAWING NUMBER
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