

# YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT

**ROCK HILL, SC  
MARCH 2021**

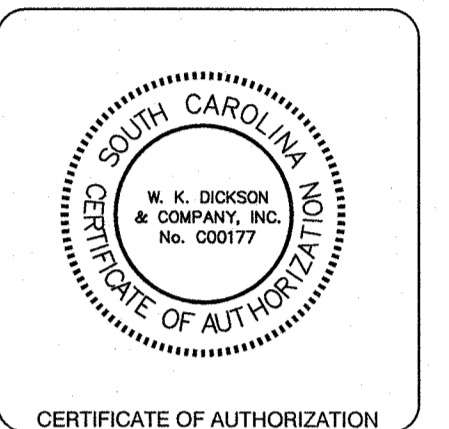
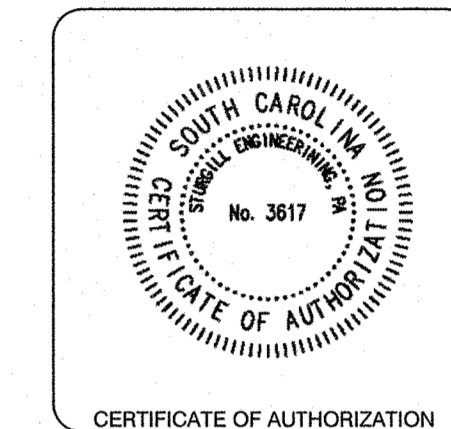
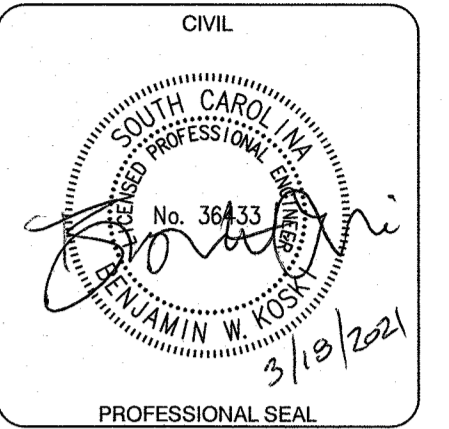
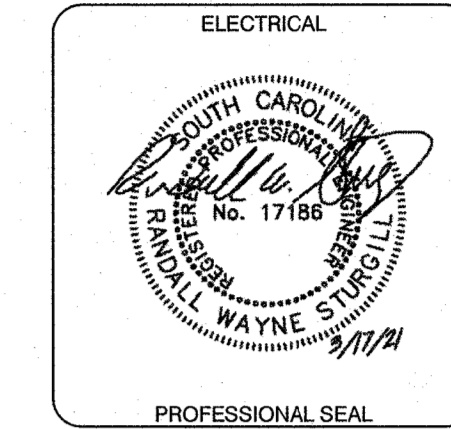
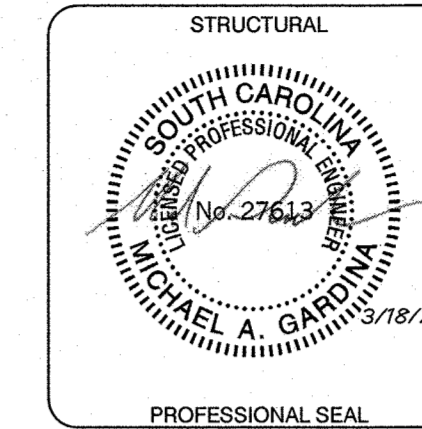
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**WK DICKSON NO.: 20200433.00.CL**

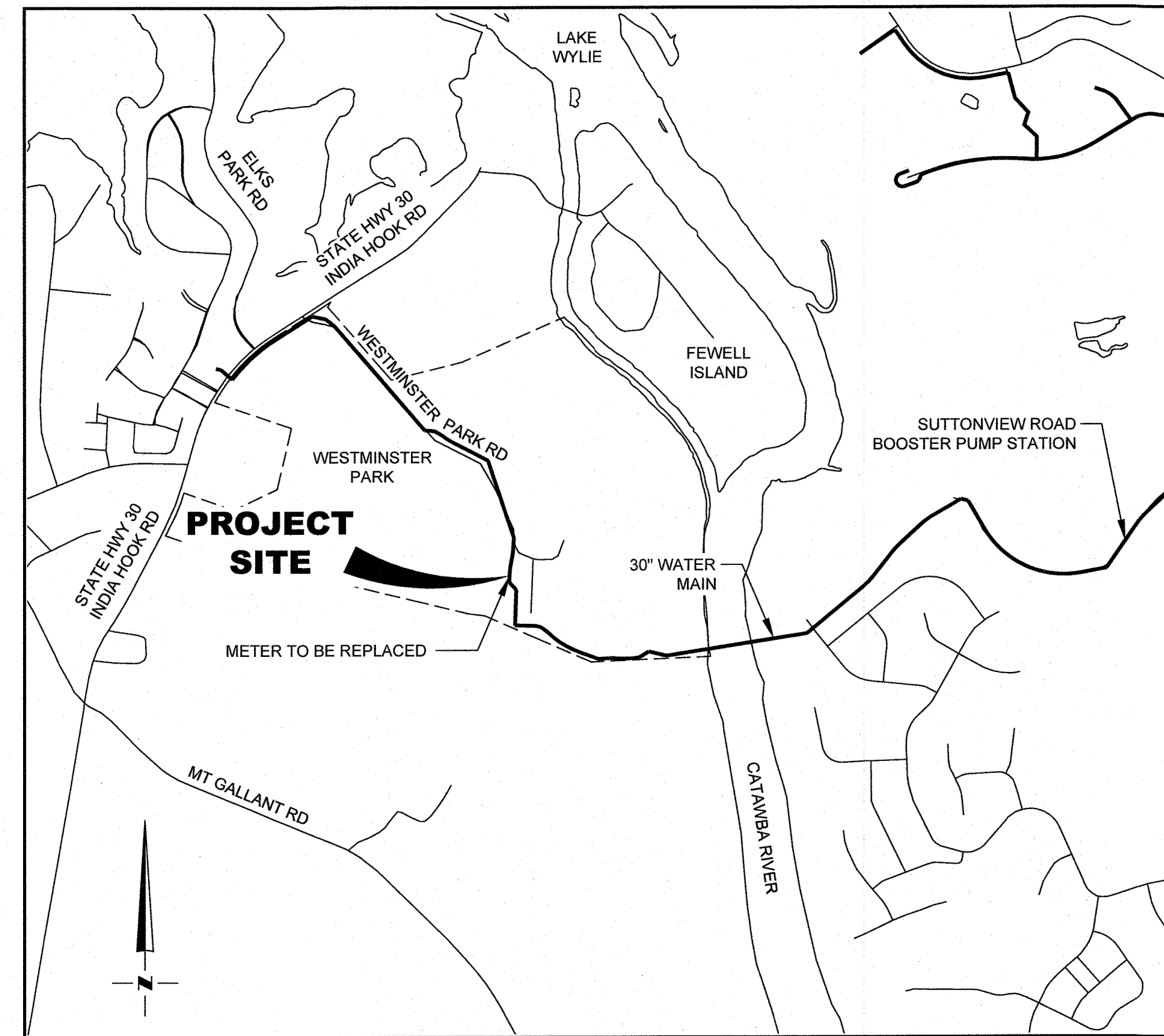
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EXISTING	LEGEND	PROPOSED
⊕	SURVEY BENCHMARK	☆
○ IRF	IRON ROD FOUND	
⊕ W	WATER VALVE	
⊕	WATER MANHOLE	
⊕ EM	UTILITY POLE	
⊕	ELECTRIC METER	
☆	LIGHT POLE	
•	GATE	
---	MINOR CONTOUR	
---	MAJOR CONTOUR	
-X-	CHAIN LINK FENCE	
---	TREELINE	
---UE---	UNDERGROUND ELECTRIC LINE	
---W---	WATER LINE	
---OHW---	OVERHEAD WIRES	
---FO---	FIBER OPTIC LINE	
---	UNKNOWN DESTINATION	
⊕	GRAVEL SURFACE	⊕
---	LIMITS OF DISTURBANCE	LOD
---	SILT FENCE	SF
---	TEMPORARY SEEDING	TS
---	PERMANENT SEEDING	PS
---	MULCHING	MU
---	DEMOLITION	⊕

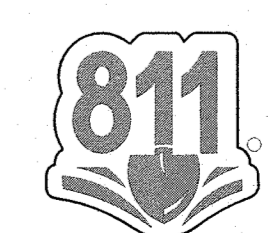


**VICINITY MAP**  
NOT TO SCALE

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C.2	CIVIL SITE PLAN
D.1	EROSION CONTROL DETAILS
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S.0	GENERAL NOTES
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E.2	ELECTRICAL SITE PLAN

NO.	DATE	DESCRIPTION	BY

## CITY OF ROCK HILL WHOLESALE MASTER METER REPLACEMENT FOR YORK COUNTY'S EASTERN SYSTEM SERVING FORT MILL TOWNSHIP



Know what's below.  
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BID SET - NOT ISSUED FOR CONSTRUCTION

PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT

DRAWING TITLE: COVER SHEET

PROJ. MGR.:	BWK
DESIGN BY:	BWK
DRAWN BY:	JDH
PROJ. DATE:	MARCH 2021
DRAWING NUMBER:	G.1
WKD PROJ. NO.:	20200433.00.CL

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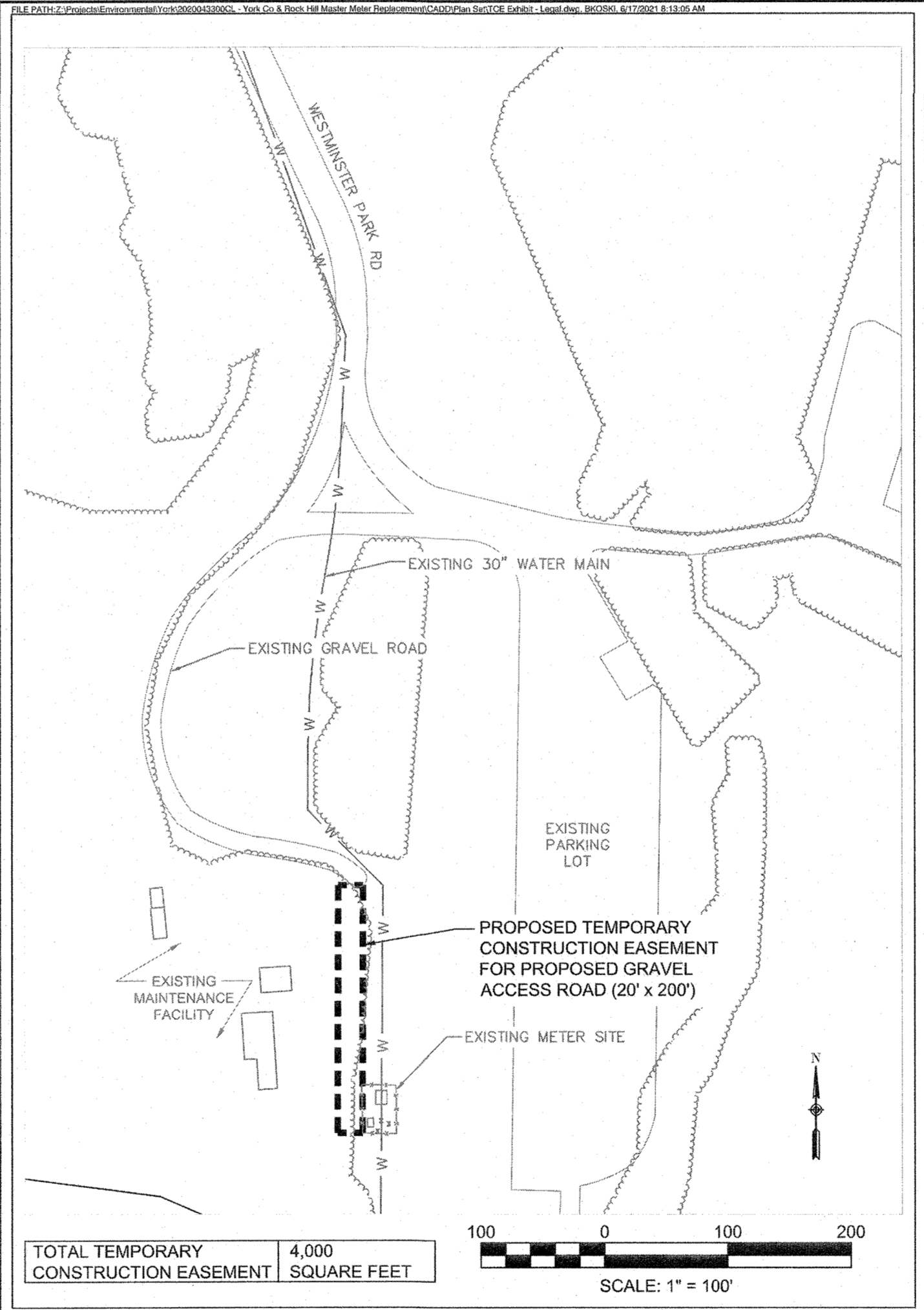
PLOT DATE: 3/18/21 11:58 AM. PLOT BY: J. GARDNER. PLOT SCALE: 1:1. PLOT SIZE: 11x17. PLOT ORIGIN: (0,0). PLOT UNIT: INCHES. PLOT FONT: 10. PLOT LINE WEIGHT: 0.005. PLOT LINE COLOR: BLACK. PLOT LINE DASH: NONE. PLOT LINE STYLE: SOLID. PLOT LINE THICKNESS: 0.005. PLOT LINE WEIGHT: 0.005. PLOT LINE COLOR: BLACK. PLOT LINE DASH: NONE. PLOT LINE STYLE: SOLID. PLOT LINE THICKNESS: 0.005.

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**GENERAL NOTES:**

1. THE ENGINEER HAS MADE ALL POSSIBLE ATTEMPTS TO LOCATE EXISTING UTILITIES. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD-VERIFY THE LOCATIONS OF ALL UTILITIES PRIOR TO CONSTRUCTION AND TO NOTE ANY CONFLICTS. ANY DAMAGE TO UTILITIES INCURRED DURING CONSTRUCTION IS THE RESPONSIBILITY OF THE CONTRACTOR AND IS TO BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
2. ALL DISTURBED DITCH LINES SHALL BE STABILIZED WITH EROSION CONTROL MATTING. GROUND COVER IN DITCHES TO BE PROVIDED WITHIN 7 DAYS.
3. CONTRACTOR SHALL REPLACE ANY VEGETATION, SHRUB, BUSH, OR TREE THAT IS DISTURBED OR DESTROYED DURING CONSTRUCTION TO A CONDITION EQUIVALENT OR BETTER THAN IT PREVIOUSLY EXISTED.
4. ALL EROSION CONTROL DEVICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MOST CURRENT STANDARDS OF THE SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL.
5. ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATIVE MATTER, WASTE, CONSTRUCTION MATERIAL OR OTHER OBJECTIONABLE MATERIAL. SAID MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS. MATERIALS UNSUITABLE FOR BACKFILL PURPOSES OR AS REQUIRED BY THE OWNER REPRESENTATIVE SHALL BE REMOVED AND REPLACED WITH SELECT BACKFILL MATERIAL.
6. ALL MATERIALS, EQUIPMENT, LABOR, AND WORKMANSHIP ASSOCIATED WITH PUBLIC WATER AND/OR SEWER EXTENSION AND/OR MODIFICATION SHALL BE IN ACCORDANCE WITH AND SUBJECT TO CITY OF ROCK HILL'S POLICIES, PROCEDURES, STANDARDS AND SPECIFICATIONS, AND THE CITY-COUNTY WHOLESAL WATER AGREEMENT.
7. CONTRACTOR'S STAGING, PARKING AND MATERIAL STORAGE SHALL BE LIMITED TO WITHIN THE CONSTRUCTION LIMITS. PROVIDING ADDITIONAL STORAGE OR PARKING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. BEFORE CONSTRUCTION IS STARTED, CONTRACTOR SHALL COORDINATE WITH THE OWNER OF EACH UTILITY AND DEFINE THE REQUIREMENTS AND METHODS TO ACCOMMODATE THE PROTECTION, TEMPORARY SUPPORT, ADJUSTMENT, OR RELOCATION OF ANY UTILITIES AFFECTED BY THE PROPOSED NEW WORK.
8. THE CONTRACTOR'S CONSTRUCTION OPERATIONS SHALL CONFORM TO FEDERAL, STATE, AND LOCAL AGENCY SAFETY AND HEALTH RULES AND REGULATIONS FOR EXCAVATION AND TRENCHING, CONFINED SPACE ENTRY, WORK IN HAZARDOUS LOCATIONS, AIR QUALITY CONTROL, NOISE CONTROL, TRAFFIC CONTROL, AND ANY OTHER POTENTIALLY HAZARDOUS CONDITIONS.
9. THE CONTRACTOR SHALL AT ALL TIMES PROVIDE AND MAINTAIN AMPLE MEANS AND EQUIPMENT WITH WHICH TO REMOVE AND PROPERLY DISPOSE OF ANY AND ALL WATER ENTERING THE EXCAVATION OR OTHER PARTS OF THE WORK AND KEEP ALL EXCAVATIONS DRY UNTIL SUCH TIME AS METER IS INSTALLED AND GRADING IS COMPLETED AND STRUCTURES TO BE BUILT THEREIN ARE COMPLETED. NO WATER SHALL BE ALLOWED TO RISE AROUND THE PIPE IN UNBACKFILLED TRENCHES NOR SHALL IT BE ALLOWED TO RISE OVER MASONRY UNTIL THE CONCRETE OR MORTAR HAS SET (MINIMUM 24 HOURS). ALL WATER PUMPED OR DRAINED FROM THE WORK SHALL BE DISPOSED OF IN SUCH A MANNER AS TO PREVENT SILTATION AND EROSION TO ADJACENT PROPERTY OR OTHER CONSTRUCTION.
10. ALL FILL MATERIAL BORROWED FROM OFF-SITE AND/OR CUT MATERIAL DISPOSED OF OFF-SITE SHALL BE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

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<p style="font-size: x-small;">           PROJECT NAME:  <b>YORK COUNTY &amp; ROCK HILL MASTER METER REPLACEMENT</b> </p> <p style="font-size: x-small;">           DRAWING TITLE:  <b>TEMPORARY CONSTRUCTION EASEMENT EXHIBIT</b> </p>	<p style="font-size: x-small;">           PROJ. MGR.: BWK            DESIGN BY: BWK            DRAWN BY: JDH            PROJ. DATE: JUNE 2021            DRAWING NUMBER:            WKD PROJ. NO.: 20200433.00.CL         </p>	<p style="font-size: x-small;">           TOTAL TEMPORARY CONSTRUCTION EASEMENT: <b>4,000 SQUARE FEET</b> </p> <p style="font-size: x-small;">           SCALE: 1" = 100'         </p>
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- NOTES:**
1. PROPOSED SITE ACCESS SHALL BE VIA EXISTING MAINTENANCE FACILITY ACCESS ROAD AND PROPOSED TEMPORARY CONSTRUCTION EASEMENT. CONTRACTOR SHALL PROVIDE 12' WIDE SITE GRAVEL SECTION ALONG ENTIRE LENGTH OF PROPOSED SITE ACCESS. CONTRACTOR SHALL COORDINATE WITH YORK COUNTY PRIOR TO INSTALLING SITE GRAVEL.

**PROPOSED SITE ACCESS**  
 NOT TO SCALE

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 PROFESSIONAL SEAL  
 No. 35433  
  
 PROFESSIONAL SEAL

SOUTH CAROLINA  
 W. K. DICKSON & COMPANY, INC.  
 No. 00077  
 CERTIFICATE OF AUTHORIZATION

NO.	DATE	DESCRIPTION	BY

PROJECT NAME: **YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT**  
 DRAWING TITLE: **GENERAL NOTES**

PROJ. MGR.: BWK  
 DESIGN BY: BWK  
 DRAWN BY: JDH  
 PROJ. DATE: MARCH 2021  
 DRAWING NUMBER:  
**G.2**  
 WKD PROJ. NO.:  
 20200433.00.CL

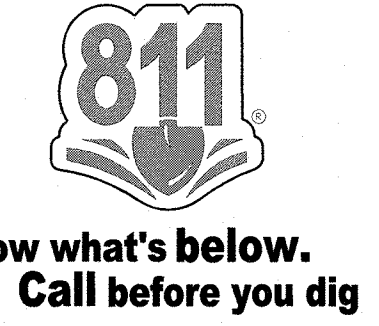
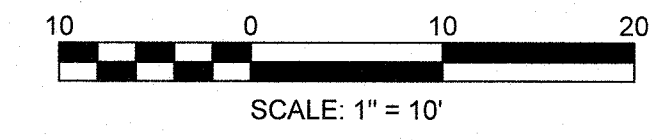
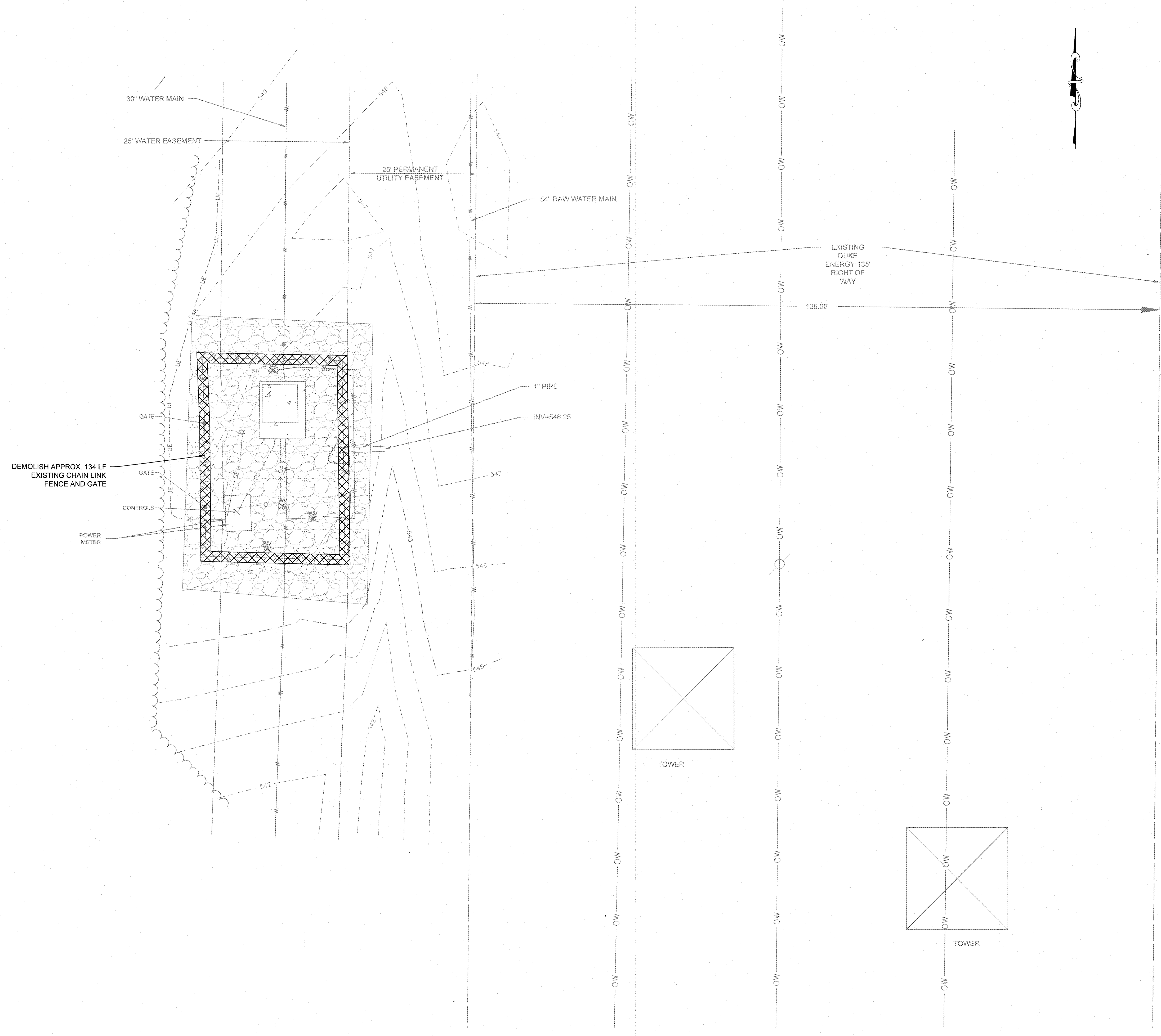


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 CHURCH  
 DB 12073 PG 1  
 PB D39 PG 2  
 PIN:640000017



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 3/17/2021  
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 W. K. YOUNG

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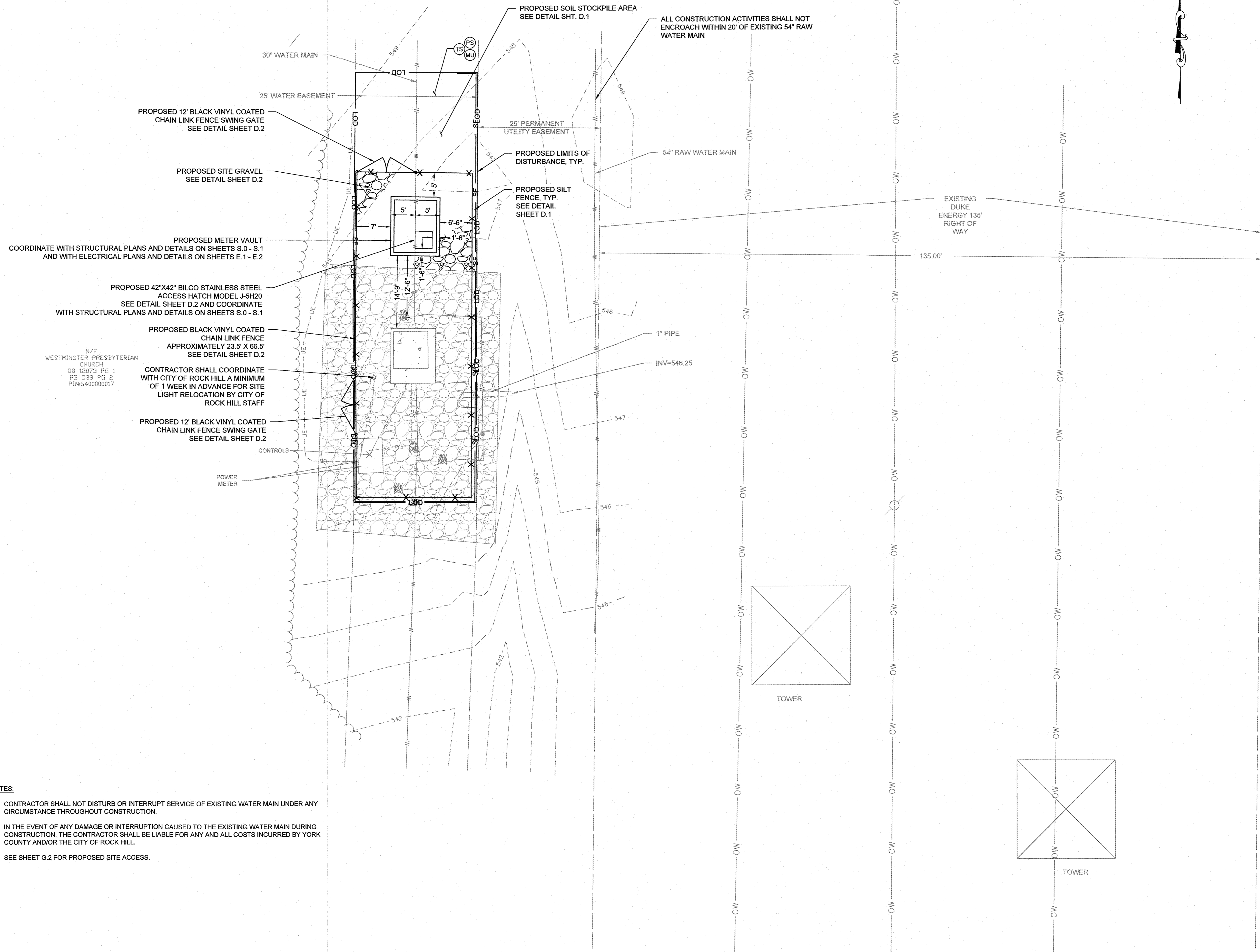
NO.	DATE	DESCRIPTION	BY

PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT  
 DRAWING TITLE: EXISTING CONDITIONS AND DEMO PLAN

PROJ. MGR.: BWK  
 DESIGN BY: BWK  
 DRAWN BY: JDH  
 PROJ. DATE: MARCH 2021  
 DRAWING NUMBER:  
**C.1**  
 WKD PROJ. NO.:  
 20200433.00.CL

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CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM ALL APPLICABLE AGENCIES AND AUTHORITIES.



- NOTES:**
- CONTRACTOR SHALL NOT DISTURB OR INTERRUPT SERVICE OF EXISTING WATER MAIN UNDER ANY CIRCUMSTANCE THROUGHOUT CONSTRUCTION.
  - IN THE EVENT OF ANY DAMAGE OR INTERRUPTION CAUSED TO THE EXISTING WATER MAIN DURING CONSTRUCTION, THE CONTRACTOR SHALL BE LIABLE FOR ANY AND ALL COSTS INCURRED BY YORK COUNTY AND/OR THE CITY OF ROCK HILL.
  - SEE SHEET G.2 FOR PROPOSED SITE ACCESS.

N/F  
 WESTMINSTER PRESBYTERIAN  
 CHURCH  
 DB 12073 PG 1  
 PB D39 PG 2  
 PIN6400000017

CONTRACTOR SHALL COORDINATE  
 WITH CITY OF ROCK HILL A MINIMUM  
 OF 1 WEEK IN ADVANCE FOR SITE  
 LIGHT RELOCATION BY CITY OF  
 ROCK HILL STAFF

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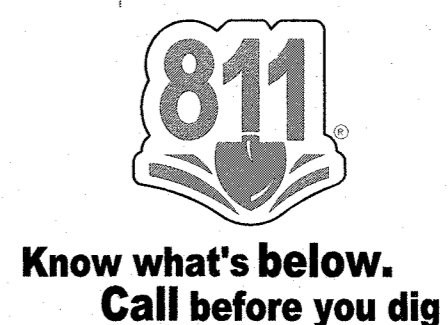
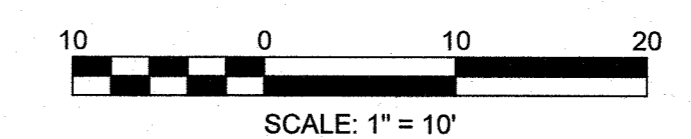
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NO.	DATE	DESCRIPTION	BY

**BID SET - NOT ISSUED FOR CONSTRUCTION**  
 PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT  
 DRAWING TITLE: CIVIL SITE PLAN

PROJ. MGR.: BWK  
 DESIGN BY: BWK  
 DRAWN BY: JDH  
 PROJ. DATE: MARCH 2021  
 DRAWING NUMBER:  
**C.2**  
 WKD PROJ. NO.:  
 20200433.00.CL



### INSTALLATION

#### TILLAGE

- IF THE AREA HAS BEEN RECENTLY PLOWED, NO TILLAGE IS REQUIRED OTHER THAN RAKING OR SURFACE ROUGHENING TO BREAK ANY CRUST THAT HAS FORMED LEAVING A TEXTURED SURFACE. DISK THE SOIL FOR OPTIMAL GERMINATION WHEN THE SOIL IS COMPACTED LESS THAN 6".

#### SOIL TESTING

- SOIL TESTING IS AVAILABLE THROUGH CLEMSON UNIVERSITY COOPERATIVE EXTENSION SERVICE.

#### LIME

- LIME IS NOT REQUIRED FOR TEMPORARY SEEDING UNLESS A SOIL TEST SHOWS THAT THE SOIL PH IS BELOW 5.0. IT MAY BE DESIRABLE TO APPLY LIME DURING THE TEMPORARY SEEDING OPERATION TO BENEFIT THE LONG-TERM PERMANENT SEEDING. APPLY A MINIMUM OF 1.5 TONS OF LIME/ACRE (70 LBS./1000 FT<sup>2</sup>) WHEN USED.

#### FERTILIZER

- APPLY A MINIMUM OF 500 POUNDS PER ACRE OF 10-10-10 FERTILIZER (11.5 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING TEMPORARY SEEDING UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT. INCORPORATE FERTILIZER AND LIME (IF USED) INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR OTHER MEANS WHERE CONDITIONS ALLOW.

#### SEEDING

- LOOSEN THE SOIL SURFACE BEFORE BROADCASTING THE SEED.
- APPLY SEED EVENLY BY THE MOST CONVENIENT METHOD AVAILABLE FOR THE TYPE OF SEED USED AND THE LOCATION OF THE TEMPORARY SEEDING. TYPICAL APPLICATION METHODS INCLUDE BUT ARE NOT LIMITED TO CYCLONE SEEDERS, ROTARY SPREADERS, DROP SPREADERS, BROADCAST SPREADERS, HAND SPREADERS, CULTPACKER SEEDER, AND HYDRO-SEEDERS.
- COVER APPLIED SEED BY RAKING OR DRAGGING A CHAIN, AND THEN LIGHTLY FIRM THE AREA WITH A ROLLER OR CULTPACKER.

#### MULCHING

- USE MULCH WITH TEMPORARY SEED APPLICATIONS TO RETAIN SOIL MOISTURE AND REDUCE EROSION DURING THE ESTABLISHMENT OF VEGETATION. TYPICAL MULCH APPLICATIONS INCLUDE STRAW, WOOD FIBER, HYDROMULCHES, BFM AND FGM. USE HYDROMULCHES WITH A MINIMUM BLEND OF 70% WOOD FIBERS.
- THE MOST COMMONLY ACCEPTED MULCH USED IN CONJUNCTION WITH TEMPORARY SEEDING IS SMALL GRAIN STRAW. THIS STRAW SHOULD BE DRY AND FREE FROM MOLD DAMAGE AND NOXIOUS WEEDS. THE STRAW MAY NEED TO BE ANCHORED WITH NETTING OR EMULSIONS TO PREVENT IT FROM BEING BLOWN OR WASHED AWAY. APPLY THE STRAW MULCH BY HAND OR MACHINE AT THE RATE 1.5-2 TONS PER ACRE (90 POUNDS PER 1000 SQUARE FEET). FREQUENT INSPECTIONS ARE NECESSARY TO CHECK THAT CONDITIONS FOR GROWTH ARE GOOD.

#### IRRIGATION

- SEEDING AREAS SHOULD BE KEPT ADEQUATELY MOIST. IRRIGATE THE SEEDING AREA IF NORMAL RAINFALL IS NOT ADEQUATE FOR THE GERMINATION AND GROWTH OF SEEDLINGS. WATER SEEDING AREAS AT CONTROLLED RATES THAT ARE LESS THAN THE RATE AT WHICH THE SOIL CAN ABSORB WATER TO PREVENT RUNOFF. RUNOFF OF IRRIGATION WATER WASTES WATER AND CAN CAUSE EROSION.

#### RE-SEEDING

- RE-SEED AREAS WHERE SEEDING DOES NOT GROW QUICKLY, THICK ENOUGH, OR ADEQUATELY TO PREVENT EROSION. BASE SEED SELECTION SHOULD ON THE REQUIREMENTS OF LOCAL SPECIFICATIONS.



### TEMPORARY SEEDING

(SOUTH CAROLINA DHEC - STORM WATER MANAGEMENT BMP HANDBOOK)

### INSTALLATION

#### TOPSOIL

- APPLY TOPSOIL IF THE SURFACE SOIL OF THE SEEDBED IS NOT ADEQUATE FOR PLANT GROWTH.

#### TILLAGE

- IF THE AREA HAS BEEN RECENTLY PLOWED, NO TILLAGE IS REQUIRED OTHER THAN RAKING OR SURFACE ROUGHENING TO BREAK ANY CRUST THAT HAS FORMED LEAVING A TEXTURED SURFACE. DISK THE SOIL FOR OPTIMAL GERMINATION WHEN THE SOIL IS COMPACTED LESS THAN 6-INCHES. IF THE SOIL IS COMPACTED MORE THAN 6", SUB-SOILED AND DISK THE AREA.

#### SOIL TESTING

- SOIL TESTING IS AVAILABLE THROUGH CLEMSON UNIVERSITY COOPERATIVE EXTENSION SERVICE.

#### LIME

- UNLESS A SPECIFIC SOIL TEST INDICATES OTHERWISE, APPLY 1 1/2 TONS OF GROUND COURSE TEXTURED AGRICULTURAL LIMESTONE PER ACRE (70 LBS. PER 1000 SQUARE FEET).

#### FERTILIZER

- APPLY A MINIMUM OF 1000 POUNDS PER ACRE OF A COMPLETE 10-10-10 FERTILIZER (23 POUNDS PER 1000 SQUARE FEET) OR EQUIVALENT DURING PERMANENT SEEDING UNLESS A SOIL TEST INDICATES A DIFFERENT REQUIREMENT. INCORPORATE FERTILIZER AND LIME (IF USED) INTO THE TOP 4-6 INCHES OF THE SOIL BY DISKING OR OTHER MEANS WHERE CONDITIONS ALLOW. DO NOT MIX THE LIME AND THE FERTILIZER PRIOR TO THE FIELD APPLICATION.

#### SEEDING

- LOOSEN THE SURFACE OF THE SOIL JUST BEFORE BROADCASTING THE SEED.
- EVENLY APPLY SEED BY THE MOST CONVENIENT METHOD AVAILABLE FOR THE TYPE OF SEED APPLIED AND THE LOCATION OF THE SEEDING. TYPICAL APPLICATION METHODS INCLUDE BUT ARE NOT LIMITED TO CYCLONE SEEDERS, ROTARY SPREADERS, DROP SPREADERS, BROADCAST SPREADERS, HAND SPREADERS, CULTPACKER SEEDER, AND HYDRO-SEEDERS.
- COVER APPLIED SEED BY RAKING OR DRAGGING A CHAIN OR BRUSH MAT, AND THEN LIGHTLY FIRM THE AREA WITH A ROLLER OR CULTPACKER.
- DO NOT ROLL SEED THAT IS APPLIED WITH A HYDRO-SEEDER AND HYDRO-MULCH.

#### MULCHING

- COVER ALL PERMANENT SEEDING AREAS WITH MULCH IMMEDIATELY UPON COMPLETION OF THE SEEDING APPLICATION TO RETAIN SOIL MOISTURE AND REDUCE EROSION DURING ESTABLISHMENT OF VEGETATION.
- APPLY THE MULCH EVENLY IN SUCH A MANNER THAT IT PROVIDES A MINIMUM OF 75% COVERAGE.
- TYPICAL MULCH APPLICATIONS INCLUDE STRAW, WOOD FIBER, HYDROMULCHES, BFM AND FGM.
- USE HYDROMULCHES WITH A MINIMUM BLEND OF 70% WOOD FIBERS.
- THE MOST COMMONLY ACCEPTED MULCH USED IN CONJUNCTION WITH PERMANENT SEEDING IS SMALL GRAIN STRAW. SELECT STRAW THAT IS DRY AND FREE FROM MOLD DAMAGE AND NOXIOUS WEEDS. THE STRAW MAY NEED TO BE ANCHORED WITH NETTING OR ASPHALT EMULSIONS TO PREVENT IT FROM BEING BLOWN OR WASHED AWAY. APPLY STRAW MULCH BY HAND OR MACHINE AT THE RATE 2 TONS PER ACRE (90 POUNDS PER 1000 SQUARE FEET). FREQUENT INSPECTIONS ARE NECESSARY TO CHECK THAT CONDITIONS FOR GROWTH ARE GOOD.

#### IRRIGATION

- KEEP PERMANENT SEEDING AREAS ADEQUATELY MOIST, ESPECIALLY LATE IN THE SPECIFIC GROWING SEASON. IRRIGATE THE SEEDING AREA IF NORMAL RAINFALL IS NOT ADEQUATE FOR THE GERMINATION AND GROWTH OF SEEDLINGS. WATER SEEDING AREAS AT CONTROLLED RATES THAT ARE LESS THAN THE RATE AT WHICH THE SOIL CAN ABSORB WATER TO PREVENT RUNOFF. RUNOFF OF IRRIGATION WATER WASTES WATER AND CAN CAUSE EROSION.

#### RE-SEEDING

- INSPECT PERMANENTLY SEEDING AREAS FOR FAILURE, MAKE NECESSARY REPAIRS AND RE-SEED OR OVERSEED WITHIN THE SAME GROWING SEASON IF POSSIBLE. IF THE GRASS COVER IS SPARSE OR PATCHY, RE-EVALUATE THE CHOICE OF GRASS AND QUANTITIES OF LIME AND FERTILIZER APPLIED. FINAL STABILIZATION BY PERMANENT SEEDING OF THE SITE REQUIRES THAT IT BE COVERED BY A 70% COVERAGE RATE.



### PERMANENT SEEDING

(SOUTH CAROLINA DHEC - STORM WATER MANAGEMENT BMP HANDBOOK)

### INSTALLATION

- GRADING IS NOT NECESSARY BEFORE MULCHING BUT MAY BE REQUIRED IF VEGETATION IS EXPECTED TO GROW.
- ANCHOR LOOSE HAY OR STRAW BY APPLYING TACKIFIER, STAPLING NETTING OVER THE TOP, OR CRIMPING WITH A MULCH-CRIMPING TOOL.
- EFFECTIVE USE OF NETTING AND MATTING MATERIAL REQUIRES FIRM, CONTINUOUS CONTACT BETWEEN THE MATERIALS AND THE SOIL. IF THERE IS NO CONTACT, THE MATERIAL WILL NOT HOLD THE SOIL, AND EROSION WILL OCCUR UNDERNEATH THE MATERIAL.
- MATERIALS THAT ARE HEAVY ENOUGH TO STAY IN PLACE (FOR EXAMPLE, BARK OR WOOD CHIPS ON FLAT SLOPES) DO NOT NEED ANCHORING.
- APPLY HYDRO-MULCH IN SPRING, SUMMER, OR FALL TO PREVENT DETERIORATION OF MULCH BEFORE VEGETATION BECOMES ESTABLISHED.
- THERE MUST BE ADEQUATE COVERAGE TO PREVENT EROSION, WASHOUT, AND POOR PLANT ESTABLISHMENT. IF AN APPROPRIATE TACKING AGENT IS NOT APPLIED, OR IS APPLIED IN INSUFFICIENT AMOUNTS, MULCH IS LOST TO WIND AND RUNOFF.



### MULCHING

(SOUTH CAROLINA DHEC - STORM WATER MANAGEMENT BMP HANDBOOK)

### TEMPORARY SEEDING:

ALL TEMPORARY SEEDING TO BE INSTALLED ACCORDING TO SCDHEC BMP MANUAL.

### Temporary Seeding - Upstate

Species	Lbs./ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Browntop Millet (Alone)	40												
Browntop Millet (Mix)	10												
Rye Grain (Alone)	56												
Rye Grain (Mix)	10												
Rye Grass (Alone)	50												
Rye Grass (Mix)	8												

### For Steep Slopes/Cut Slopes

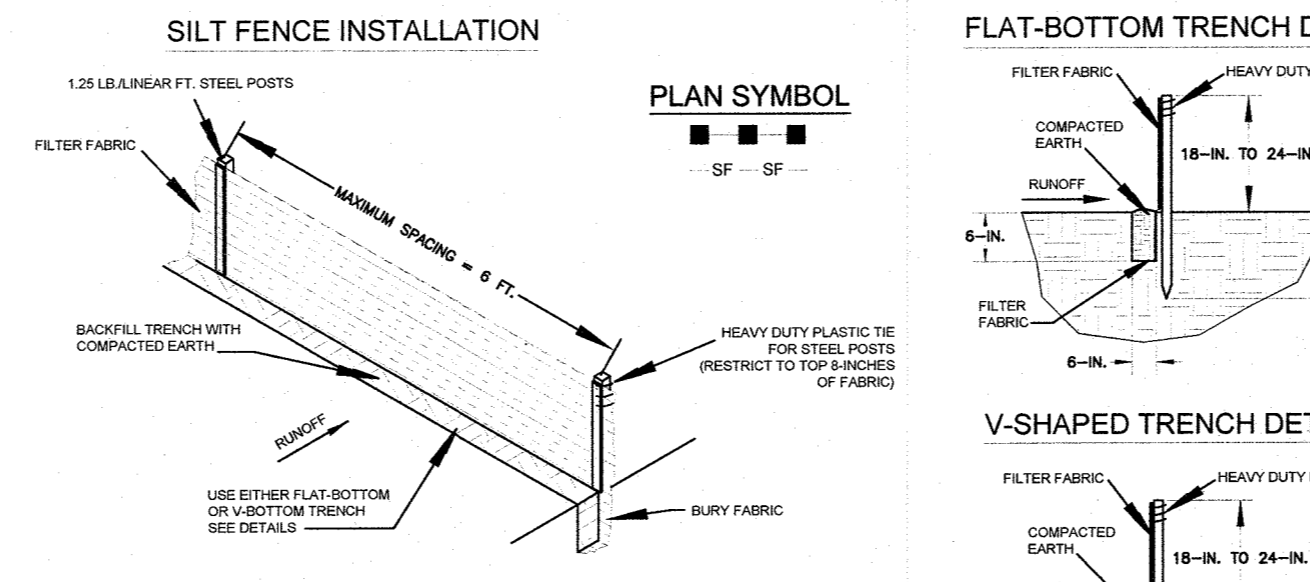
Weeping Lovegrass (Alone)	4												
Weeping Lovegrass (Mix)	2												

#### SOIL AMENDMENTS

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY MINIMUM 1.5 TON OF LIME/ACRE AND MINIMUM 500 LB/ACRE 10-10-10 FERTILIZER.

#### INSPECTION AND MAINTENANCE

- INSPECT EVERY 7 CALENDAR DAYS AND WITHIN 24-HOURS AFTER EACH RAINFALL EVENT THAT PRODUCES 1/2" OR MORE OF PRECIPITATION.
- MAINTAIN RAINGAUGE AT SITE AND RECORD DAILY RAINFALL THROUGHOUT PROJECT.
- PREPARE AND MAINTAIN DAILY STORMWATER COMPLIANCE INSPECTION REPORT AND SUBMIT TO OWNER WEEKLY.
- COVER SEEDING AREA WITH MULCH TO PROVIDE PROTECTION. FREQUENT INSPECTIONS ARE NECESSARY TO CHECK THAT CONDITIONS FOR GROWTH ARE GOOD.
- SUPPLY TEMPORARY SEEDING WITH ADEQUATE MOISTURE. SUPPLY WATER NEEDED, ESPECIALLY IN ABNORMALLY HOT OR DRY WEATHER OR ON ADVERSE SITES. CONTROL WATER APPLICATION RATES TO PREVENT RUNOFF.
- BASE SEED SELECTION ON LOCAL SPECIFICATIONS.
- RE-SEED AREAS WHERE THE PLANTS DO NOT GROW QUICK ENOUGH, THICK ENOUGH, OR ADEQUATELY ENOUGH TO PREVENT EROSION SHOULD BE RESEDED.



- #### SILT FENCE - GENERAL NOTES
- Do not place silt fence across ditches or in other areas subject to concentrated flow. Silt fence should not be used as a velocity control BMP. Concentrated flows are any flows greater than 0.5 cfs.
  - Maximum sheet or overland flow path length to the silt fence shall be 100 feet.
  - Maximum slope steepness (vertical/propensity) to the fence shall not be 2:1.
  - All fence joints, when necessary, shall be constructed by one of the following options:
    - Wrap each fabric together at a support post with both ends lashed to the post, with a 1-foot overlap.
    - Overlap silt fence by installing 3 feet passed the support post to which the new silt fence roll is attached. Attach roll to new roll with heavy-duty plastic ties.
    - Overlap entire width of each silt fence roll from one support post to the next support post.
  - Attach filter fabric to the steel posts using heavy-duty plastic ties that are evenly spaced within the top 8-inches of the fabric.

- #### SILT FENCE - POST REQUIREMENTS
- Silt Fence posts must be 40-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.
    - Weight 1.25 pounds per foot (± 8%).
  - Posts shall be equipped with projections to aid in fastening of filter fabric.
  - 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 1/2" gage steel, at a minimum. The metal soil stabilization plate should be completely buried.
  - 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.
  - Post spacing shall be at a maximum of 6-feet on center.

- #### SILT FENCE - FABRIC REQUIREMENTS
- Silt fence must be composed of woven polypropylene filter fabric that consists of the following requirements:
    - Composed of fibers consisting of long chain synthetic polymers of at least 65% by weight of polypropylene, polyesters, or polyaramides 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 affect 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.
  - 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.
  - 12-inches of the fabric should be placed within excavated trench and tied in when the trench is backfilled.
  - Filter Fabric shall be purchased in continuous rolls and cut to the length of the barrier to avoid joints.
  - Filter Fabric shall be installed at a minimum of 24-inches above the ground.

#### SILT FENCE - INSPECTION & MAINTENANCE

- The key to functional silt fence is weekly inspections, routine maintenance, and regular sediment removal.
- Regular inspections of silt fence shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall event that produces 1/2-inch or more of precipitation.
- Attention to sediment accumulations along the silt fence is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
- Remove accumulated sediment when it reaches 1/3 the height of the silt fence.
- Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
- 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 check-dike-backs and/or reinstall silt fence, as necessary.
- Check for tears within the silt fence. Assess 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.
- 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**

REVISED DRAWING: SC-03 PAGE 2 of 2

NOT TO SCALE

DATE

**GENERAL NOTES**

### PERMANENT SEEDING:

ALL PERMANENT SEEDING TO BE INSTALLED ACCORDING TO SCDHEC BMP MANUAL.

### Permanent Seeding - Upstate

Species	Lbs./Ac	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bahia Grass (Alone)	40												
Bahia Grass (Mix)	30												
Bermuda Grass (hulled) (Alone)	8-12												
Bermuda Grass (hulled) (Mix)	4-6												
Fescue, Tall (KY31) Alone	40												
Fescue, Tall (KY31) mix	20												
Sericea Lespedeza (Scarified) Alone or Mix (inoculate with EL Inoculant)	40												
Ladino Clover (mix only)	2												
Inoculate with AB Inoculant	2												

### For Steep Slopes/Cut Slopes

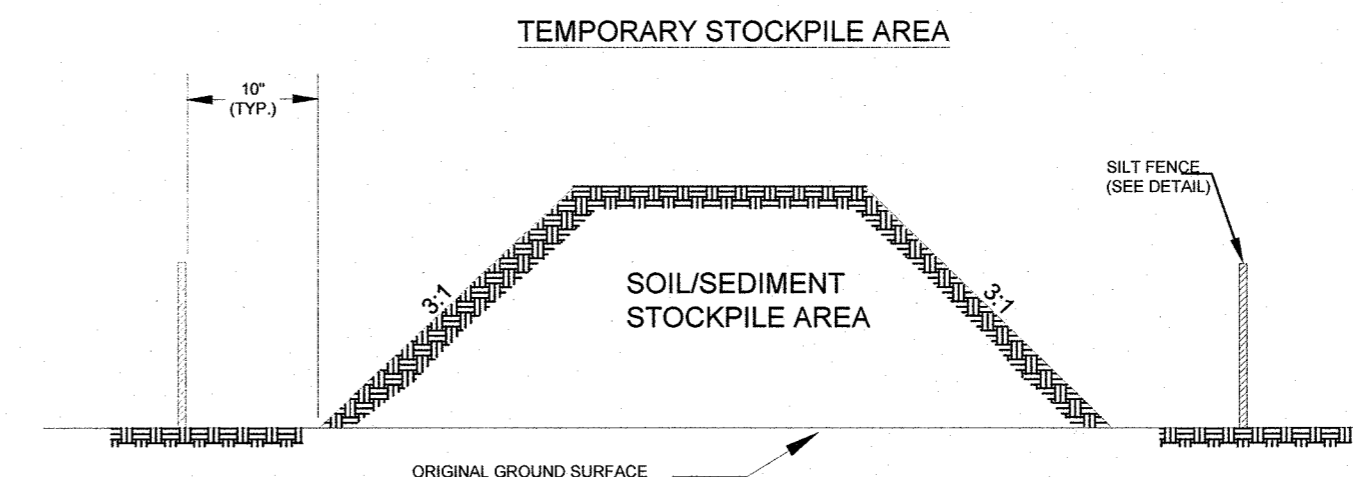
Weeping Lovegrass (Alone)	4												
Weeping Lovegrass (Mix)	2												
Crownvetch (Mix) (Inoculate with Type M Inoculant)	8-10												

#### SOIL AMENDMENTS

APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS, OR APPLY MINIMUM 1.5 TON OF LIME/ACRE AND MINIMUM 1,000 LB/ACRE 10-10-10 FERTILIZER.

#### INSPECTION AND MAINTENANCE

- INSPECT SEEDING AREAS FOR FAILURE AND MAKE NECESSARY REPAIRS AND RE-SEED IMMEDIATELY. CONDUCT A FOLLOW-UP SURVEY AFTER ONE YEAR AND REPLACE FAILED PLANTS WHERE NECESSARY.
- IF VEGETATIVE COVER IS INADEQUATE TO PREVENT EROSION, OVERSEED AND FERTILIZE IN ACCORDANCE WITH SOIL TEST RESULTS.
- IF A STAND OF PERMANENT VEGETATION HAS LESS THAN 40 PERCENT COVER, RE-EVALUATE CHOICE OF PLANT MATERIALS AND QUANTITIES OF LIME AND FERTILIZER.
- RE-ESTABLISH THE STAND FOLLOWING SEED BED PREPARATION AND SEEDING RECOMMENDATIONS, OMITTING LIME AND FERTILIZER IN THE ABSENCE OF SOIL TEST RESULTS.
- IF THE SEASON PREVENTS RE-SOWING, MULCH IS AN EFFECTIVE TEMPORARY COVER.
- FINAL STABILIZATION OF THE SITE REQUIRES A 70 PERCENT OVERALL COVERAGE RATE. THIS DOES NOT MEAN THAT 30 PERCENT OF THE SITE CAN REMAIN BARE. THE COVERAGE IS DEFINED AS LOOKING AT A SQUARE YARD OF COVERAGE, IN WHICH 70 PERCENT OF THAT SQUARE YARD IS COVERED WITH VEGETATION.



- #### NOTES:
- SILT FENCE TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE, OR IF STOCKPILE AREA IS LOCATED ON A SLOPE THE SILT FENCE IS TO EXTEND ALONGS CONTOURS OF THE DOWN-GRADIENT AREA.
  - IF STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, TEMPORARY STABILIZATION MEASURES MUST BE IMPLEMENTED.
  - SILT FENCE SHALL BE MAINTAINED UNTIL STOCKPILE AREA HAS EITHER BEEN REMOVED OR PERMANENTLY STABILIZED.
  - THE KEY TO FUNCTIONAL TEMPORARY STOCKPILE AREAS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

South Carolina Department of Health and Environmental Control

**TEMPORARY STOCKPILE**

REVISED DRAWING: SC-15 PAGE 1 of 1

NOT TO SCALE

DATE

**WK DICKSON**  
community infrastructure consultants

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(704) 334-5348  
(704) 334-0078  
WWW.WKDICKSON.COM

South Carolina Professional Seal for W.K. Dickson, No. 36433, dated 3/17/2021.

South Carolina Certificate of Authorization for W.K. Dickson & Company, Inc. No. 000177.

NO.	DATE	DESCRIPTION	BY

PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT

DRAWING TITLE: EROSION CONTROL DETAILS

PROJ. MGR.: BWK

DESIGN BY: BWK

DRAWN BY: JDH

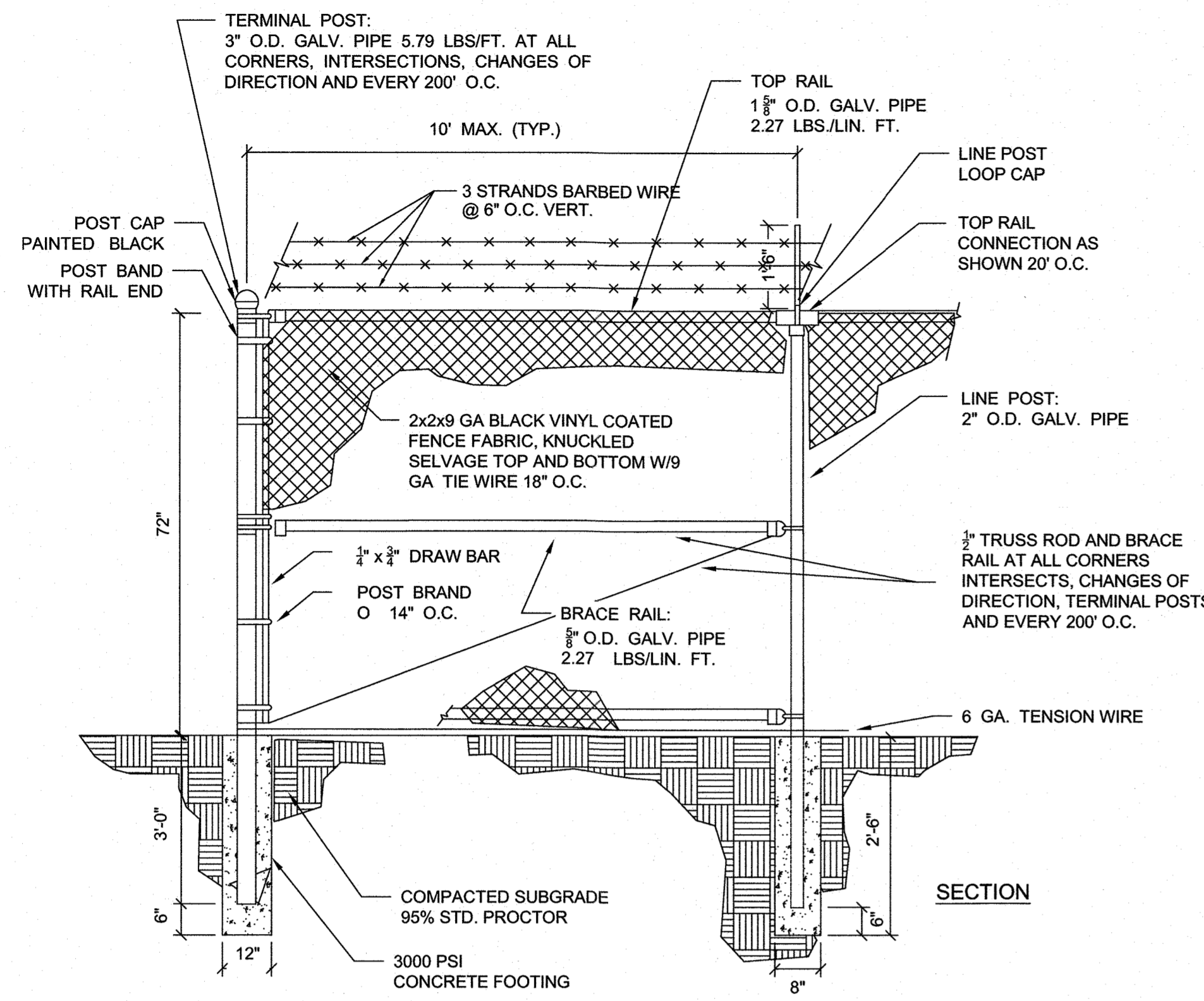
PROJ. DATE: MARCH 2021

DRAWING NUMBER: D.1

WKD PROJ. NO.: 20200433.00.CL

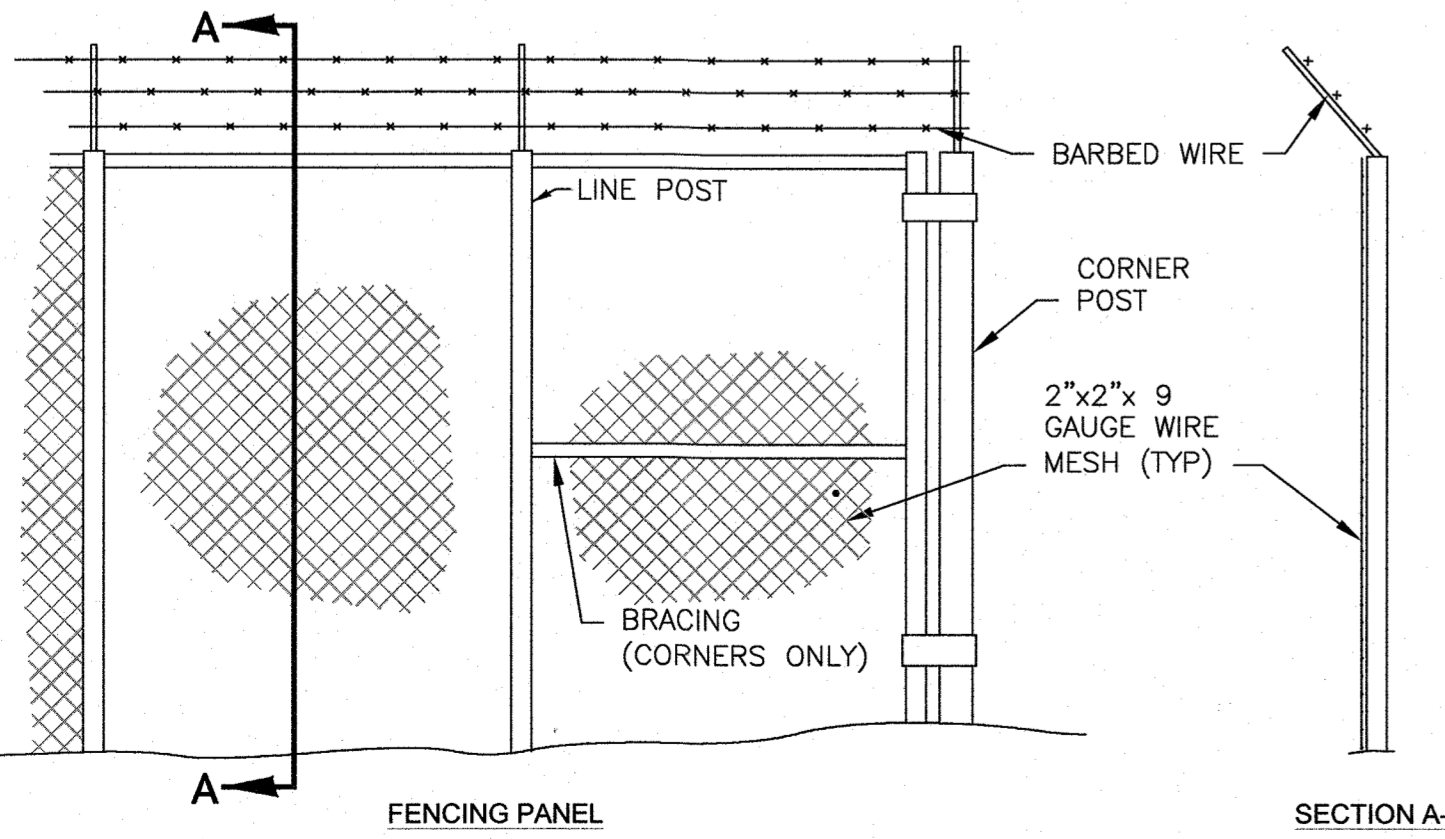
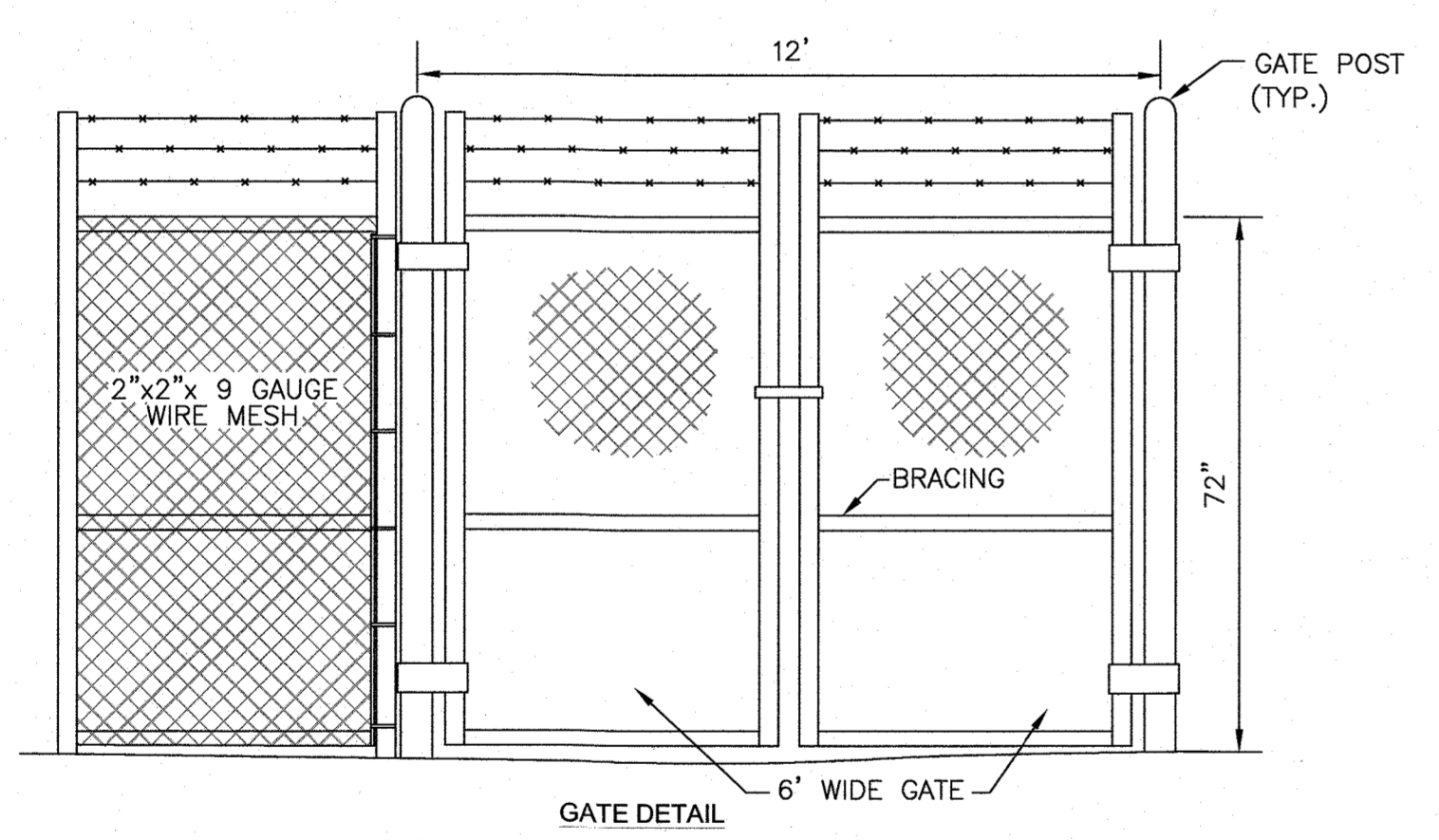
BID SET - NOT ISSUED FOR CONSTRUCTION

W.K. DICKSON & COMPANY, INC. IS AN EQUAL OPPORTUNITY AND AFFIRMATIVE ACTION EMPLOYER. MINORITY AND FEMALE OWNERSHIP AND CONTROLLED BUSINESSES ARE ENCOURAGED TO PARTICIPATE IN THIS PROJECT. IF YOU ARE INTERESTED IN PARTICIPATING, PLEASE CONTACT US AT THE FOLLOWING ADDRESS: W.K. DICKSON & COMPANY, INC., 1219 W. MOREHEAD STREET, SUITE 300, CHARLOTTE, NC 28208. PHONE: (704) 334-5348. FAX: (704) 334-0078. WWW.WKDICKSON.COM



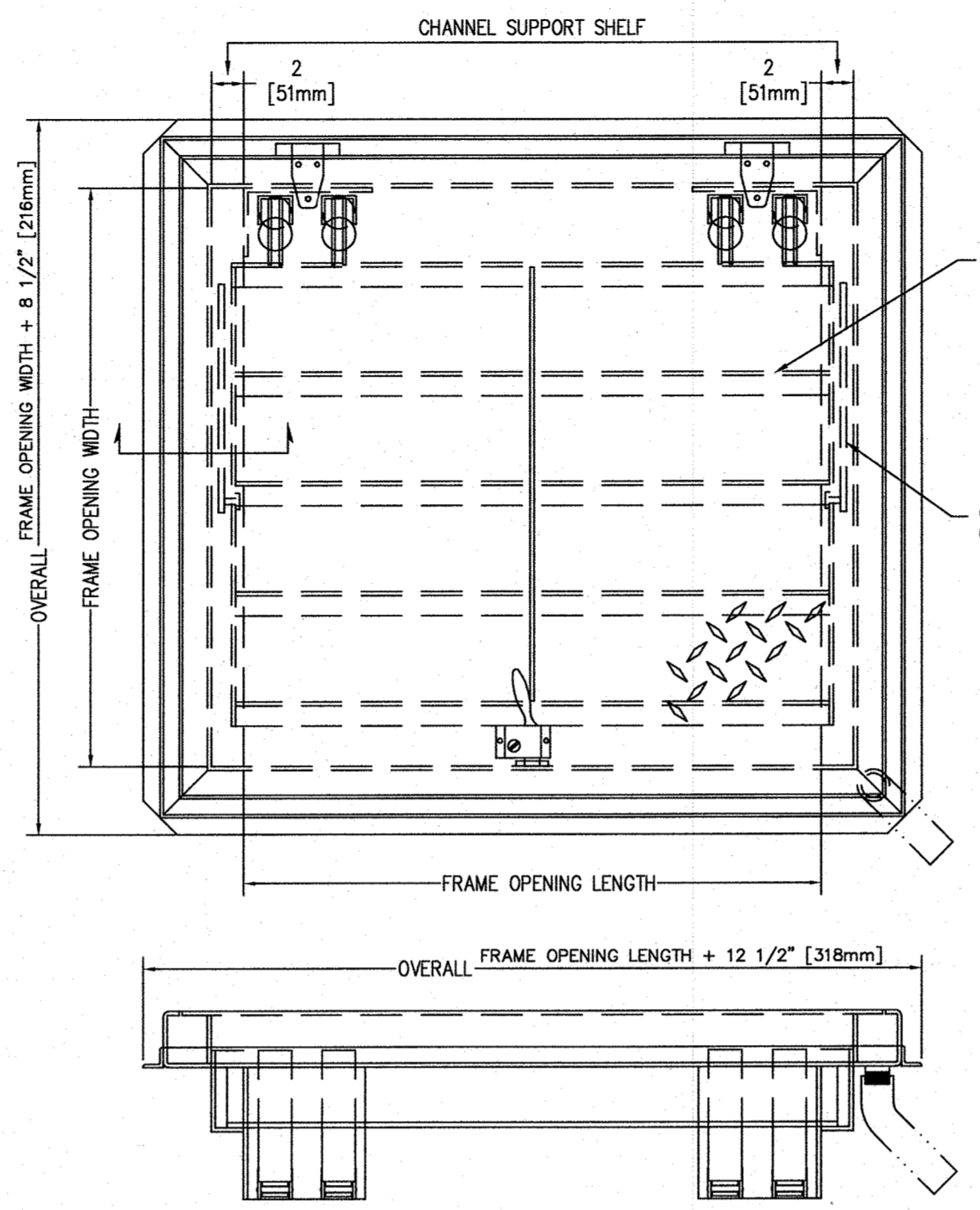
- NOTES**
1. POSTS, RAILS, AND FITTINGS SHALL BE HOT DIP GALVANIZED, AND VINYL COATED AT THE FACTORY.
  2. SEE SPECIFICATIONS FOR FURTHER MATERIAL AND INSTALLATION REQUIREMENTS.
  3. STEP FENCE WITH GRADE - ADJUST POST SPACING AS NEEDED TO ACCOMMODATE STEEP GRADE.
  4. SEE "CHAIN LINK GATE DETAIL" FOR GATE REQUIREMENTS.
  5. FENCE TO BE BLACK VINYL-COATED ALUMINUM.

**CHAIN LINK FENCE DETAIL**  
NOT TO SCALE



- NOTE**
1. SEE "CHAIN LINK FENCE DETAIL" FOR ADDITIONAL REQUIREMENTS.

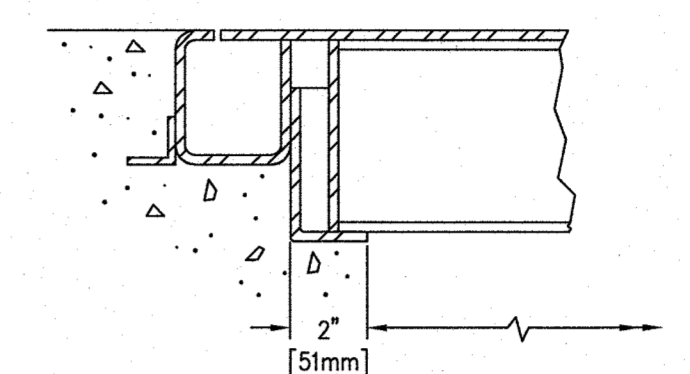
**CHAIN LINK GATE DETAIL**  
NOT TO SCALE



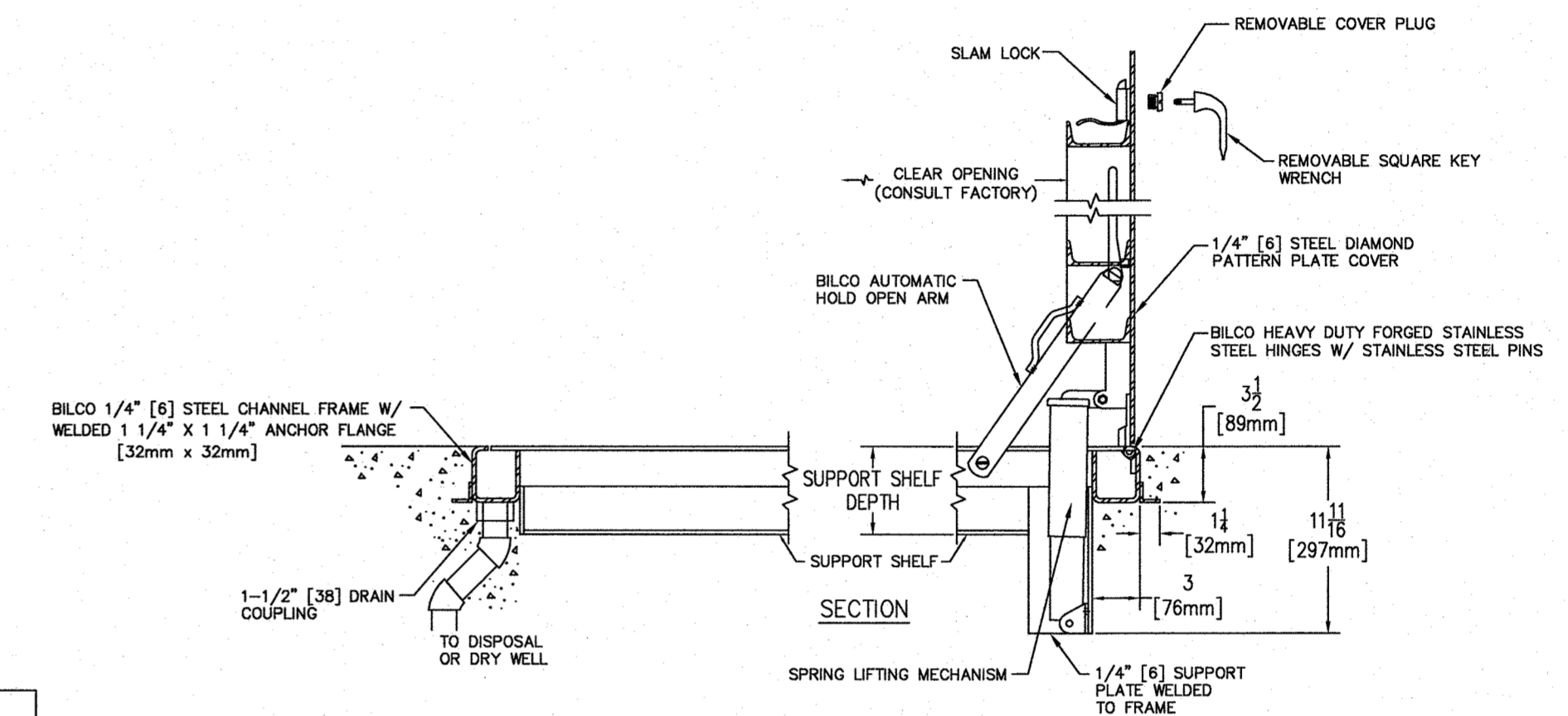
**Standard Sizes and Shipping Weights**  
Floor Access Doors - With Drainage Channel Frame

	SIZE		ALUMINUM		STEEL			
	(width x length)		Model#	Weight		Model#	Weight	
	inches	mm		lbs.	kg.		lbs.	kg.
Reinforced for an AASHTO H-20 Wheel Load	42 X 42	1067 X 1067	J-SALH20	235	107	J-5H20	635	288

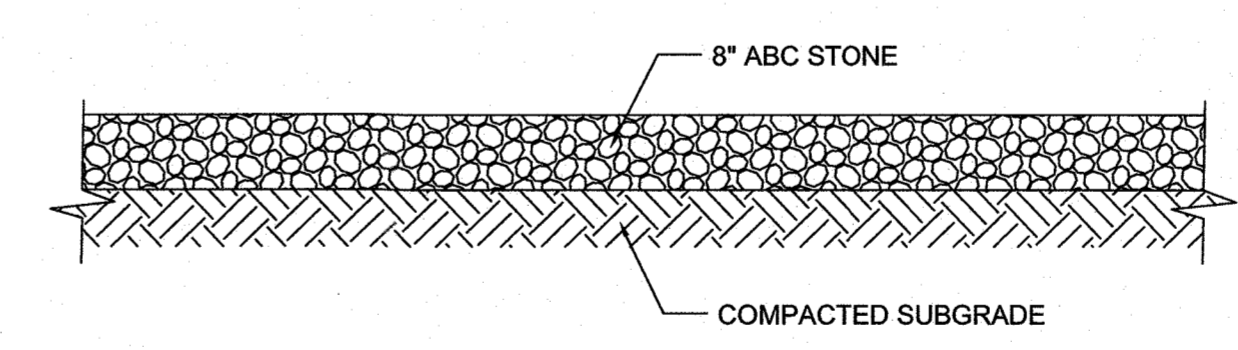
BILCO  
TYPE J-H20  
SIDEWALK DOOR



CHANNEL SUPPORT SHELF MUST BE SUPPORTED BY CONCRETE OR STEEL TO CARRY H-20 LOADING  
(SCALE: 2:1)



**ACCESS HATCH DETAIL**  
NOT TO SCALE



**SITE GRAVEL SECTION**  
NOT TO SCALE

**W.K. DICKSON**  
community infrastructure consultants

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WWW.WKDICKSON.COM

SOUTH CAROLINA  
REGISTERED PROFESSIONAL ENGINEER  
No. 36433  
W. K. DICKSON  
& COMPANY, INC.  
No. 000177  
3/19/2021  
PROFESSIONAL SEAL

SOUTH CAROLINA  
REGISTERED PROFESSIONAL ENGINEER  
W. K. DICKSON  
& COMPANY, INC.  
No. 000177  
CERTIFICATE OF AUTHORIZATION

NO.	DATE	DESCRIPTION	BY

**BID SET - NOT ISSUED FOR CONSTRUCTION**

PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT

DRAWING TITLE: CIVIL DETAILS

PROJ. MGR.: BWK  
DESIGN BY: BWK  
DRAWN BY: JDH  
PROJ. DATE: MARCH 2021  
DRAWING NUMBER: D.2  
WKD PROJ. NO.: 20200433.00.CL

GENERAL

1. THE STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE, AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, AND SEQUENCE. ALL APPLICABLE SAFETY REGULATIONS TO BE FOLLOWED STRICTLY.

2. THE STRUCTURE HAS BEEN DESIGNED TO RESIST DESIGN LOADS ONLY AS A COMPLETED STRUCTURE. APPLICATIONS OF CONSTRUCTION LOADS TO THE PARTIALLY COMPLETED STRUCTURE SHALL BE CONSIDERED BY THE CONTRACTOR AND SO INCLUDED IN THE DESIGN OF SHORING, BRACING, FORMWORK, AND ANY OTHER SUPPORTING ELEMENTS PROVIDED FOR CONSTRUCTION OF THE STRUCTURE. DURING ERECTION AND UNTIL ALL PERMANENT CONNECTIONS ARE MADE, THE CONTRACTOR MUST PROVIDE TEMPORARY BRACING FOR THE STRUCTURE IN ALL DIRECTIONS.

3. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND GRADE CONDITIONS (BOTH NEW AND EXISTING), REPORTING ANY DISCREPANCIES TO THE ENGINEER PRIOR TO ORDERING MATERIALS OR PROCEEDING WITH ANY PHASE OF THE WORK.

4. THE CONTRACTOR SHALL COMPARE STRUCTURAL SECTIONS WITH CIVIL SECTIONS AND REPORT ANY DISCREPANCY TO THE ENGINEER PRIOR TO FABRICATION OR INSTALLATION OF STRUCTURAL MEMBERS.

5. DO NOT SCALE DIMENSIONS FROM DRAWINGS. THE CONTRACTOR SHALL REQUEST, FROM THE ENGINEER, NECESSARY DIMENSIONS NOT SHOWN ON THE DRAWINGS.

6. IF ANY BIDDER IS IN DOUBT AS TO THE INTENT OF THE PLANS OR SPECIFICATIONS, THEY SHALL REQUEST AN INTERPRETATION FROM THE ENGINEER IN WRITING AT LEAST TEN (10) DAYS PRIOR TO THE SCHEDULED BID DATE.

7. PRINCIPAL OPENINGS IN THE STRUCTURE ARE SHOWN ON THESE DRAWINGS. THE GENERAL CONTRACTOR SHALL EXAMINE THE CIVIL DRAWINGS FOR REQUIRED OPENINGS AS THEY SHALL BE PROVIDED FOR WHETHER SHOWN ON THESE DRAWINGS OR NOT. GENERAL CONTRACTOR SHALL VERIFY SIZE AND LOCATION OF ALL OPENINGS WITH ALL SUB-CONTRACTORS PRIOR TO CONSTRUCTION.

8. WHERE A CONFLICT BETWEEN DRAWINGS AND SPECIFICATIONS OCCURS THE MORE STRINGENT REQUIREMENT SHALL APPLY.

9. WHERE A DETAIL IS SHOWN FOR ONE CONDITION, IT SHALL APPLY FOR ALL LIKE OR SIMILAR CONDITIONS EVEN THOUGH NOT SPECIFICALLY REFERENCED ON THE DRAWINGS.

DESIGN CRITERIA

1. APPLICABLE CODES:

- A. 2018 SOUTH CAROLINA STATE BUILDING CODE (2018 INTERNATIONAL BUILDING CODE WITH REVISIONS)
- B. MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES (ASCE/SEI 7-16)
- C. BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE (ACI 318-14)
- D. BUILDING CODE REQUIREMENTS/SPECIFICATIONS FOR MASONRY STRUCTURES (ACI 530/530.1-13)
- E. SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360-16)
- F. NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (ANSI/AWC NDS-2015)
- G. NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS (AISI S100-16)

2. LIVE LOADS

UNIFORM (PSF)	CONCENTRATED (LB)	
FLOOR LOAD	100	2,000
VEHICLE LOADING	N/A	32,000 PER AXLE
GROUND WATER	WALLS ARE NOT DESIGNED FOR WATER HYDROSTATIC PRESSURE	

3. RISK CATEGORY II

4. SNOW LOAD:  
GROUND SNOW LOAD Pg = 10 PSF

5. WIND LOAD: N/A

6. SEISMIC LOAD: N/A

7. FUTURE LOADS:  
UNLESS SPECIFICALLY NOTED, THERE ARE NO PROVISIONS MADE FOR FUTURE FLOORS, ROOFS, OR OTHER LOADS.

FOUNDATIONS

1. FOUNDATION DESIGN IS BASED ON A PRESUMPTIVE ALLOWABLE SOIL BEARING PRESSURE OF 2,000 PSF, ACCORDING TO TABLE 1806.2 OF THE INTERNATIONAL BUILDING CODE. THIS PRESUMPTIVE BEARING PRESSURE MUST BE FIELD VERIFIED BY A GEOTECHNICAL ENGINEER PRIOR TO FOUNDATION CONCRETE PLACEMENT.

2. FOOTINGS SHALL BE CARRIED TO LOWER ELEVATIONS THAN THOSE SHOWN ON THE DRAWINGS IF REQUIRED BY THE GEOTECHNICAL ENGINEER OR TESTING LAB TO REACH SOIL CAPABLE OF PROVIDING THE DESIGN ALLOWABLE SOIL BEARING PRESSURE.

3. MINIMUM SUBGRADE PREPARATION REQUIREMENTS ARE AS FOLLOWS:  
PREPARE SUBGRADE AND UNDERFLOOR FILL TO A POINT THAT EXTENDS 2'-0" (MINIMUM) BEYOND THE LIMITS OF THE FOUNDATIONS. COMPACT ALL FILL UNDER BUILDING TO 98% MAXIMUM DENSITY AS DETERMINED BY ASTM D698.  
PLACE IN LAYERS OF 8" (MAXIMUM) LOOSE THICKNESS.  
FIELD COMPACTION SHALL BE VERIFIED WITH AT LEAST ONE TEST PER 2,000 SQUARE FEET PER LAYER, IN ACCORDANCE WITH ASTM D1556 (SAND-CONE METHOD), ASTM D6938 (NUCLEAR METHODS, SHALLOW DEPTH), ASTM D2167 (RUBBER BALLOON METHOD), AND/OR ASTM D2937 (DRIVE-CYLINDER METHOD). SEE SPECIFICATIONS FOR OTHER TESTING REQUIREMENTS.

4. WALLS RETAINING SOIL SHALL BE TEMPORARILY BRACED DURING BACKFILLING AND UNTIL ALL SUPPORTING SOIL AND SLABS ARE IN PLACE AND ARE AT DESIGN STRENGTH UNLESS NOTED OTHERWISE ON PLANS AND DETAILS.

5. UTILITY LINES SHALL NOT BE PLACED THROUGH OR BELOW FOUNDATIONS WITHOUT APPROVAL OF THE STRUCTURAL ENGINEER. CONTRACTOR SHALL SUBMIT DETAILED DRAWINGS OF ALL SUCH CONDITIONS PRIOR TO CONSTRUCTION.

CONCRETE FORMWORK

1. THE DESIGN AND CONSTRUCTION OF ALL FORMWORK SHALL CONFORM TO THE LATEST EDITION OF ACI 318 AND THE RECOMMENDED PRACTICE FOR CONCRETE FORMWORK ACI 347.

2. CONSTRUCT FORMWORK SO CONCRETE MEMBERS AND STRUCTURES ARE OF SIZE, SHAPE, ALIGNMENT, ELEVATION, AND POSITION INDICATED, WITHIN TOLERANCE LIMITS OF ACI 117.

3. FORMS FOR CONCRETE WORK SHALL BE FABRICATED FROM SMOOTH, UNDAMAGED PLYWOOD, METAL OR MULTI-USE FIBERGLASS FORMS. FORMS SHALL BE OF ADEQUATE GAGE OR THICKNESS TO SUPPORT THE WEIGHT OF WET CONCRETE AND PROPERLY BRACED TO MINIMIZE DEFLECTION FOR THE PROPER APPEARANCE OF THE FINISHED CONCRETE.

4. FORMWORK AND SUPPORTS SHALL BE DESIGNED BY A FIRM EXPERIENCED IN FORMWORK DESIGN. ALL ELEVATED FORMWORK SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY AN ENGINEER REGISTERED IN THE STATE OF THE PROJECT.

5. PARTING COMPOUND FOR FORMWORK SHALL BE WAX FREE, CHEMICALLY NEUTRAL AND NON-STAINING AND SHALL PREVENT BONDING TO CONCRETE. COMPOUND SHALL BE EQUAL TO EUCO SUPER-SLIP BY EUCOLD CHEMICAL CO. AUTOMOBILE MOTOR OIL AND SIMILAR SUBSTANCES ARE NOT PERMITTED.

6. FORM TIES FOR EXPOSED CONCRETE SHALL BE STAINLESS STEEL OR GALVANIZED TWISTED-WIRE WITH INTEGRAL PULL CONE. SNAPPED OR TWISTED TIES SHALL NOT EXTEND ANY CLOSER THAN 1" INCH TO THE FINISH SURFACE OF THE CONCRETE.

7. INSTALL ALL PIPE CHASES, CONDUITS, ELECTRICAL BOXES, CAVITIES, SLOTS, SLEEVES, WATER STOPS, AND OTHER EMBEDDED PARTS AS REQUIRED.

8. EXPOSED CONCRETE FORMED SURFACES SHALL RECEIVE A SMOOTH FLAT-FORMED SURFACE; ALL TIE HOLES, HONEY COMBING AND ROUGH AREAS TO BE PATCHED TO MATCH SURROUNDING SURFACES.

9. THE SIDES OF FOOTINGS MAY BE EARTH-FORMED IF THE EXCAVATION CAN BE KEPT VERTICAL, CLEAN AND STABLE, OTHERWISE FORMS ARE REQUIRED.

10. ALL CORNERS AND EDGES SHALL BE CHAMFERED 1" INCH (ON THE SLOPE) OR 3/4" INCH HORIZONTAL/VERTICAL.

11. EXPOSED CONCRETE SURFACES SHALL BE FINISHED AS FOLLOWS:  
A. AREAS NOT EXPOSED TO VIEW (SUCH AS IN CONTACT WITH EARTH OR COVERED WITH A FINISH) SHALL HAVE A FORMWORK SURFACE FINISH - 1.0 AS DEFINED IN ACI 301.  
a. PATCH ALL VOIDS LARGER THAN 1.5" WIDE OR 0.5" DEEP.  
b. REMOVE ALL PROTECTION LARGER THAN 1".  
c. TIE HOLES SHALL BE PATCHED.  
B. AREAS EXPOSED TO VIEW (INCLUDING AREAS THAT WILL BE UNDER WATER INSIDE A TANK) SHALL HAVE A FORMWORK SURFACE FINISH - 3.0 AS DEFINED IN ACI 301  
a. PATCH ALL VOIDS LARGER THAN 3/4" WIDE OR 1/2" DEEP.  
b. REMOVE ALL PROJECTIONS LARGER THAN 1/8"  
c. PATCH ALL TIE HOLES  
d. SURFACE TOLERANCE SHALL MEET CLASS A AS DEFINED IN ACI 117.  
• ABRUPT IRREGULARITIES SHALL BE MEASURED WITHIN 1" OF THE IRREGULARITY AND SHALL NOT EXCEED 1/8".  
• GRADUAL SURFACE IRREGULARITY SHALL BE MEASURED BY DETERMINING THE GAP BETWEEN CONCRETE SURFACES OF A 5'-0" STRAIGHTEDGE AND SHALL NOT EXCEED 1/8".

WATERSTOP - PVC

1. WATERSTOP MANUFACTURER SHALL DEMONSTRATE 5 YEARS MINIMUM CONTINUOUS, SUCCESSFUL EXPERIENCE IN PRODUCTION OF WATERSTOPS.

2. FLEXIBLE PVC WATERSTOP, PROFILE STYLE AS NOTED ON THE DRAWINGS SHALL BE MANUFACTURED BY SIKA GREENSTREAK OR APPROVED EQUAL. WATERSTOP SHALL BE EXTRUDED FROM AN ELASTOMERIC PLASTIC MATERIAL OF WHICH THE BASIC RESIN IS PRIME VIRGIN POLYVINYL CHLORIDE. THE PVC COMPOUND SHALL NOT CONTAIN ANY SCRAPPED OR RECLAIMED MATERIAL OR PIGMENT.

3. PVC PERFORMANCE REQUIRED AS FOLLOWS:  
a. ULTIMATE ELONGATION - ASTM D638 - 350% MIN.  
b. TENSILE STRENGTH - ASTM D638 - 2000PSI MIN  
c. STIFFNESS IN FLEXURE - ASTM D747 - 1000PSI MIN  
d. WATER ABSORPTION - ASTM D570 - 0.15% MAX  
e. LOW TEMPERATURE BRITTLENESS - ASTM D746 - PASSES AT -35 DEG F

4. PROVIDE MANUFACTURER SUPPLIED WATERSTOP FABRICATIONS FOR ALL CHANGES OF DIRECTION, INTERSECTIONS AND TRANSITIONS LEAVING ONLY STRAIGHT BUTT JOINT SPLICES IN THE FIELD.

5. PROVIDE TEFLON COATED THERMOSTATICALLY CONTROLLED WATERSTOP SPLICING IRONS FOR THE FIELD BUTT SPLICES.

6. FIELD BUTT SPLICES SHALL BE HEAT FUSED WELDED USING A TEFLON COVERED THERMOSTATICALLY CONTROLLED WATERSTOP SPLICING IRON AT APPROXIMATELY 380 DEGREES F. FOLLOW APPROVED MANUFACTURER RECOMMENDATIONS.

7. LAPPING OF WATERSTOP. USE OF ADHESIVES OR SOLVENTS SHALL NOT BE ALLOWED.

8. CENTER WATERSTOP IN JOINT AND SECURE WATERSTOP IN CORRECT POSITION USING GROMMETS, PRE-PUNCHED HOLES, OR HOG RINGS AT 12" ON CENTER AT THE OUTERMOST EDGES OR RIBS ALONG THE LENGTH OF THE WATERSTOP AND WIRE TIE TO ADJACENT REINFORCING STEEL.

9. RETROFIT WATERSTOPS SHALL BE INSTALLED IN A SIMILAR WAY WITH JOINTS BUT SHALL BE FASTENED TO THE EXISTING CONCRETE WITH STAINLESS STEEL POST-INSTALLED ANCHORS, STAINLESS STEEL BATTEN BAR AND SIKA GREENSTREAK EPOXY 7300 TWO COMPONENT EPOXY GEL BETWEEN THE WATERSTOP AND EXISTING CONCRETE.

CONCRETE | REINFORCING STEEL

1. ALL CONCRETE SHALL CONFORM TO THE FOLLOWING PUBLICATIONS AND COMMENTARIES (LATEST EDITION):  
A. NCDOT: STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES  
B. ACI 318: BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE  
C. ACI 117: SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS.  
D. ACI 301: SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS  
E. ACI 305: RECOMMENDED PRACTICE FOR HOT WEATHER CONCRETING  
F. ACI 306: RECOMMENDED PRACTICE FOR COLD WEATHER CONCRETING  
G. ACI 315: DETAILS AND DETAILING OF CONCRETE REINFORCEMENT  
H. ASTM C94 SPECIFICATION FOR READY-MIXED CONCRETE

2. CONTRACTOR SHALL SUBMIT MIX DESIGNS TO THE ENGINEER FOR EACH SPECIFIED MIX. EACH SUBMITTAL SHALL INCLUDE PROPOSED MIX DESIGN, SUPPORTING PRODUCT DATA FOR ADMIXTURES, PROPOSED SLUMP AND AIR CONTENT, WATER/CEMENT RATIO, 30 COMPRESSION TEST RESULTS WITH ACTUAL SLUMP AND STANDARD DEVIATION FOR COMPRESSION TEST RESULTS IN ACCORDANCE WITH CHAPTER 5 OF ACI 318. IF DIFFERENT MANUFACTURERS ARE PROPOSED FOR DIFFERENT ADMIXTURE, CONTRACTOR SHALL SUBMIT LETTERS OF CERTIFICATION FROM EACH MANUFACTURER STATING THAT THEIR PRODUCT IS COMPATIBLE WITH THE OTHER PRODUCTS.

3. THE OWNER RESERVES THE RIGHT TO RETAIN AN INDEPENDENT TESTING LABORATORY TO MONITOR ALL CONCRETE CONSTRUCTION ACTIVITY, PERFORM ANY TEST DEEMED NECESSARY AND REJECT ANY CONCRETE WORK THAT DOES NOT MEET THIS SPECIFICATION.

4. WATER MAY ONLY BE ADDED AT THE SITE PROVIDED IT IS WITHHELD AT THE PLANT AND THE CONCRETE SLUMP AND WATER TO CEMENT RATIOS SPECIFIED IN THE APPROVED MIX DESIGN ARE COMPLIED WITH. THE TESTING LABORATORY HAS FULL AUTHORITY TO REJECT CONCRETE THAT DOES NOT MEET THE SPECIFICATIONS (INCLUDING ACI REQUIREMENTS).

5. ALL CONCRETE SHALL BE PLACED WITHIN 90 MINUTES OF BATCH TIME. IF THIS TIME IS EXCEEDED, TESTING INSPECTOR SHALL OBTAIN A SAMPLE OF THE CONCRETE AT THE END OF THE BATCH. IF THAT IS NOT PRACTICAL THEN, CONCRETE TEMPERATURE, CONSISTENCY AND COLOR SHALL BE DOCUMENTED.

6. ALL CONCRETE SHALL BE CONSOLIDATED IN PLACE USING INTERNAL VIBRATORS.

7. CONCRETE MIXTURES AS REQUIRED (BASED ON CLASS DESIGNATION):  
CLASS F - CONCRETE VAULT AND TOP SLAB - NWC - 4,500 PSI WITH AIR

8. CEMENT SHALL CONFORM TO AASHTO M85, TYPE 1. ONE BRAND OF CEMENT ONLY SHALL BE USED THROUGHOUT THE ENTIRE WORK. FLY ASH (IF USED) SHALL BE ASTM C618 CLASS C OR F AND LIMITED TO 20% MAXIMUM BY WEIGHT.

9. FINE AGGREGATE SHALL BE CLEAN, UNCOATED SAND CONFORMING TO NCDOT SECTION 1014.

10. COARSE AGGREGATE SHALL BE CRUSHED STONE CONFORMING TO NCDOT SECTION 1014.

11. WATER TO BE POTABLE COMPLYING WITH ASTM C94.

12. ALL CONCRETE SHALL CONTAIN A TYPE "A" WATER REDUCER CONFORMING TO AASHTO M194 TYPE "A".

13. NO CALCIUM CHLORIDE IS PERMITTED.

14. ALL EXTERIOR CONCRETE SHALL CONTAIN 6.0% +/- 1.5% ENTRAINED AIR. THE AIR CONTENT SHALL BE ACHIEVED BY ADDING AN AIR-ENTRAINING AGENT CONFORMING TO AASHTO M154.

15. ALL CONCRETE SHALL BE CURED WITH A CURING COMPOUND MEETING THE REQUIREMENTS OF AASHTO M148, EXCEPT THAT WHEN TESTED IN THE WATER RETENTION TEST DESCRIBED IN AASHTO T155 THE CURING COMPOUND SHALL RESTRICT THE LOSS OF WATER IN THE TEST SPECIMEN AT THE TIME OF APPLICATION OF THE COMPOUND TO NOT MORE THAN 0.007 OUNCES PER SQUARE INCH. THE COMPOUND SHALL BE TYPE 2, WHITE PIGMENTED EXCEPT THAT WHERE CLEAR TYPE IS REQUIRED, CLEAR TYPE SHALL BE TYPE 1D.

16. PATCHING CONCRETE OR POURING NEW CONCRETE TO EXISTING CONCRETE SHALL BE BONDED WITH A CONCRETE ADHESIVE MADE OF 2 COMPONENTS, 100% SOLIDS AND 100% REACTIVE EPOXY AND SUITABLE FOR USE ON DRY OR DAMP SURFACES EQUAL TO "SIKADURE 32 HI-MOD" BY SIKA CHEMICAL CO. THE ENTIRE SURFACE SHALL BE PREPARED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

17. ALL MINOR HONEYCOMBS SHALL BE CUT BACK TO SOUND CONCRETE AND REMOVED. PATCH AREA WITH CONCRETE ADHESIVE AND OR GROUT SO FINAL COLOR MATCHES SURROUNDING CONCRETE. DEEP HONEYCOMBS SHALL BE CUT OUT BACK TO SOUND CONCRETE AROUND ALL REINFORCING 1" INCH CLEAR, THEN PATCH WITH AN APPROVED REPAIR MORTAR FOLLOWING MANUFACTURER'S REQUIREMENTS.

18. REINFORCING:  
TYPICAL - ASTM A615, GRADE 60

19. REFER TO THE DRAWINGS FOR REINFORCING LAP REQUIREMENTS. WHERE LAP SPLICES ARE NOT SHOWN, LAP PER ACI 318 OR CRSI STANDARDS.

20. LAP WELDED WIRE FABRIC SHEETS 8" MINIMUM.

21. CLEAR COVER FROM FACE OF CONCRETE:  
CAST IN PLACE CONCRETE (MEASURE TO OUTERMOST REINFORCING) -  
CONCRETE CAST AGAINST AND EXPOSED TO EARTH 3"  
CONCRETE EXPOSED TO EARTH/WEATHER 2" FOR #6 BARS AND LARGER, 1 1/2" ELSE  
CONCRETE NOT EXPOSED TO EARTH/WEATHER 3/4" FOR SLABS AND WALLS, 1 1/2" (TO TIES) FOR BEAMS AND COLUMNS

22. BAR SUPPORTS FOR CONCRETE EXPOSED TO VIEW SHALL HAVE PLASTIC COATED LEGS OR BE HOT-DIP GALVANIZED AFTER FABRICATION.

23. REINFORCEMENT TO BE FREE TO EXCESSIVE RUST, LOOSE SCALES OR OTHER COATING OF ANY CHARACTER WHICH WOULD REDUCE OR DESTROY THE BOND.

24. ALL CLEARANCES, BENDING AND DETAILING SHALL CONFORM TO ACI 315, CRSI STANDARD DETAILS AND THESE DRAWINGS.

25. ALL REINFORCING SHALL BE DETAILED, FABRICATED AND INSTALLED IN ACCORDANCE WITH THE MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION OF CRSI (CRSI 63 "RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS" AND CRSI 65 RECOMMENDED PRACTICE FOR PLACING BAR SUPPORTS, SPECIFICATIONS AND NOMENCLATURE) AND THE MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES OF ACI.

26. PROVIDE CORNER BARS AT ALL LOCATIONS WHERE REINFORCEMENT CHANGES DIRECTION.

27. HEADED CONCRETE ANCHORS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A108, GRADES 1010, 1015, 1017, OR 1020. STUDS SHALL BE AUTOMATICALLY END WELDED IN THE SHOP OR FIELD IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

28. EMBED PLATES MUST BE SET IN THE FORM BEFORE POURING CONCRETE, NOT PLACED INTO TOP OF WET CONCRETE. THE CONTRACTOR SHALL CONTACT THE ARCHITECT FOR CORRECTIVE DETAILS FOR ANY EMBED PLATES LEFT OUT OF CONCRETE POURS.

29. REBAR SHALL NOT BE HEATED WITH A TORCH IN THE FIELD.

30. FIELD BENDING OR TWISTING OF REINFORCING BARS IS PROHIBITED UNLESS APPROVED BY THE ENGINEER IN WRITING. HOWEVER, THE FOLLOWING SCENARIOS WILL BE PERMITTED:  
A. TOP OF WALL OR COLUMNS WITH VERTICAL REINFORCING OF #5 OR SMALLER MAY BE FIELD BENT 90 DEGREES PROVIDED THE BENDING RADIUS DOES NOT EXTEND INTO THE TOP OF THE CONCRETE AND BAR TEMPERATURE IS ABOVE 32 DEGREES F. ALL BENDING MUST OCCUR OUTSIDE OF THE CONCRETE. REINFORCING MAY ONLY BE BENT ONE TIME. A REBAR BENDER SHALL BE USED. IF CRACKING OF THE TOP OF WALL OR COLUMN OCCURS, ALL CRACKS SHALL BE FILLED WITH A VERY HIGH VISCOSITY EPOXY REPAIR PRODUCT APPROVED BY THE ENGINEER.  
B. TOP OF WALL OR COLUMNS WITH HOOKED DOWELS THAT EXTEND HORIZONTAL FOR SUBSEQUENT SLAB POUR ARE TOO HIGH AND WILL STICK OUT OF SLAB. THE CAN BE FIELD BENT TO LOWER THE TOP ELEVATION OF THE REINFORCING PROVIDED THE NEW RADIUS DOES NOT EXTEND INTO THE CONCRETE. IF THE REINFORCING IS #6 OR LARGER, THEN HEAT REINFORCING TO BETWEEN 1100 DEGREES AND 1200 DEGREES F (MAXIMUM OF 1500 DEGREES F) AND BEND TO THE CORRECT HEIGHT. THE HEATED AREA SHALL EXTEND 5 BAR DIAMETERS IN EACH DIRECTION BUT IN NO CASE SHALL THE HEAT EXTEND INTO THE CONCRETE. IF CRACKING OF THE TOP OF WALL OR COLUMN OCCURS, ALL CRACKS SHALL BE FILLED WITH A VERY LOW VISCOSITY EPOXY REPAIR PRODUCT APPROVED BY THE ENGINEER.

31. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER EAR ENOUGH IN ADVANCE (48 HOURS) OF EACH CONCRETE POUR TO ALLOW AMPL TIME TO CHECK THE LAYOUT OF THE STEEL BEFORE THE BEGINNING OF THE ACTUAL POUR, BUT NOT PRIOR TO 90% OF THE STEEL HAVING BEEN PLACED.

ADHESIVE AND MECHANICAL POST-INSTALLED ANCHORS

1. ANCHOR BOLTS, REINFORCING STEEL, THREADED RODS, STAIR HANDRAILS, AND OTHER EMBEDDED STEEL ITEMS SHALL BE SET INTO HARDENED CONCRETE WITH ADHESIVE OR MECHANICAL POST-INSTALLED ANCHOR ONLY WHERE DETAILED ON THE DRAWINGS OR WHERE APPROVED BY THE ENGINEER.

2. PRE-APPROVED MANUFACTURERS ARE HILTI, SIMPSON STRONG-TIE, AND DEWALT. WHERE DETAILS INDICATE SPECIFIC ADHESIVE OR MECHANICAL POST-INSTALLED ANCHORS, IT IS ACCEPTABLE AT THE CONTRACTOR'S OPTION TO SUBMIT AN ALTERNATE SIMILAR PRODUCT PROVIDED BY A DIFFERENT MANUFACTURER AS LONG AS THE MANUFACTURER'S DATA PROVIDES EQUIVALENT LOAD CAPACITY TO THE ANCHOR SPECIFIED.

3. MANUFACTURER'S DATA FOR ALL ADHESIVE AND MECHANICAL POST-INSTALLED ANCHORS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO INSTALLATION. SUBMITTALS FOR ADHESIVE ANCHOR PRODUCTS SHALL INCLUDE ICC-ES EVALUATION REPORTS. STRICTLY FOLLOW THE MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS. HEED ALL LABEL WARNINGS. INSTALL IN ACCORDANCE WITH APPLICABLE SAFETY LAWS.

4. ALL HOLES SHALL BE DRILLED WITH A DIAMETER NO LARGER THAN 1/8" GREATER THAN THE DIAMETER OF THE STEEL MEMBER BEING INSTALLED.

5. ALL HOLES SHALL BE CLEANED WITH COMPRESSED AIR AND SHALL BE DRY PRIOR TO INSTALLATION OF ADHESIVE. HOLES SHALL BE FREE OF ALL DELETERIOUS MATERIAL SUCH AS LAITANCE, DUST, DIRT, AND OIL.

6. CONTRACTOR PERFORMING ADHESIVE WORK SHALL BE AN APPROVED CONTRACTOR BY THE MANUFACTURER FURNISHING THE ADHESIVE MATERIALS, AND SHALL HAVE NO LESS THAN FIVE YEARS EXPERIENCE IN THE VARIOUS TYPES OF ADHESIVE RELATED WORK REQUIRED IN THIS PROJECT. A CERTIFICATION FROM THE MANUFACTURER ATTESTING TO THE TRAINING SHALL BE SUBMITTED TO THE ENGINEER/ARCHITECT ALONG WITH THE PROPOSAL TO DO THE WORK.

7. WHERE ADHESIVE ANCHORS ARE TO BE INSTALLED IN HOLLOW MATERIAL WITH UNKNOWN CAPACITY, THE CONTRACTOR SHALL INSTALL THE ANCHOR IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

8. THE ADHESIVE SHALL BE INSTALLED IN THE HOLLOW BASE MATERIAL USING SCREEN TUBES SUPPLIED BY THE MANUFACTURER. THE ADHESIVE SHALL BE CAPABLE OF SUSTAINING MINIMUM TENSION AND SHEAR LOAD CAPACITIES NOTED ON THE DRAWINGS MULTIPLIED BY A FACTOR OF SAFETY OF 4. ALL HARDWARE AND MATERIAL SHALL BE SUPPLIED BY THE ANCHOR MANUFACTURER.

REPRODUCTION

1. THE USE OF REPRODUCTIONS OF THESE CONTRACT DRAWINGS BY ANY CONTRACTOR, SUBCONTRACTOR, ERECTOR, FABRICATOR, OR MATERIAL SUPPLIER IN LIEU OF PREPARATION OF SHOP DRAWINGS SIGNIFIES HIS ACCEPTANCE OF ALL INFORMATION SHOWN HEREIN AS CORRECT, AND OBLIGATES HIMSELF TO ANY JOB EXPENSE, REAL OR IMPLIED, ARISING DUE TO ANY ERRORS THAT MAY OCCUR HERE ON.

@	AT	HD	HEADED
Ø	AND	HORIZ	HIGH
Ø	DIAMETER	HSS	HORIZONTAL
Ø	ANCHOR BOLTS	INT	HOLLOW STRUCTURAL SECTION
ACI	AMERICAN CONCRETE INSTITUTE	INT	INTERIOR
ADDL	ADDITIONAL	JT	JOINT
ADH	ADHESIVE	K	KIP(S)
AFF	ABOVE FINISHED FLOOR	KB	KNEE BRACE
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION	KSI	KIPS PER SQUARE INCH
AISI	AMERICAN IRON AND STEEL INSTITUTE	LB	LONG BAR
ALT	ALTERNATE	LBS	POUNDS
ARCH	ARCHITECT'S / ARCHITECTURAL	LLH	LONG LEG HORIZONTAL
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS	LLV	LONG LEG VERTICAL
AWS	AMERICAN WELDING SOCIETY	LOC	LOCATION
B/ or BOT	BOTTOM	LO	LONG SIDE HORIZONTAL
B/CX	BOTTOM CHORD EXTENSION	LSH	LONG SIDE VERTICAL
BFB	BOTTOM FLANGE BRACE	LSV	LONG SIDE VERTICAL
BFF	BELOW FINISHED FLOOR	LWC	LIGHT WEIGHT CONCRETE
BLDG	BUILDING	MAX	MAXIMUM
BM	BEAM	MC	MOMENT CONNECTION
BOS	BOTTOM OF STEEL	MCJ	MASONRY CONTROL JOINT
BRG	BEARING	MECH	MECHANICAL
BTWN	BETWEEN	MFR	MANUFACTURER
CANT	CANTILEVER	MID	MIDDLE
CJ	CONTROL JOINT	MIN	MINIMUM
CL	CENTERLINE	MISC	MISCELLANEOUS
CLR	CLEAR	MOW	MIDDLE OF WALL
CMU	CONCRETE MASONRY UNIT	MP	MASONRY PILASTER
COL	COLUMN	No or #	NUMBER
CONC	CONCRETE	NS	NEAR SIDE
CONN	CONNECTION	NTS	NOT TO SCALE
CONST JT	CONSTRUCTION JOINT	NWC	NORMAL WEIGHT CONCRETE
CONT	CONTINUOUS	OC	ON CENTER
CONTR	CONTRACTOR	OPNG	OPENING
COORD	COORDINATE	OPP	OPPOSITE HAND
CTRD	CENTERED	PAF	POWDER ACTUATED FASTENER
DBA	DEFORMED BAR ANCHOR	PED	PEDESTAL
DEFL	DEFLECTION	PL	PLATE
DEPR	DEPRESSION / DEPRESSED	PSF	POUNDS PER SQUARE FOOT
DET	DETAIL	PSI	POUNDS PER SQUARE INCH
DIAG	DIAGONAL	PT	PRESSURE TREATED
DIM	DIMENSION	P-T	POST-TENSIONED
DIST	DISTANCE	REF	REFERENCE
DWL(S)	DRAWING(S)	REINF	REINFORCING
EA	EACH	REQD	REQUIRED
EE	EACH END	SB	SHORT BAR
EF	EACH FACE	SCHD	SCHEDULE
EJ	EXPANSION JOINT	SIM	SIMILAR
ELEV	ELEVATION	SOG	SLAB ON GRADE
EMBED	EMBEDDED / EMBEDMENT	SPEC(S)	SPECIFICATION(S)
ENGR	ENGINEER	SQ	SQUARE
EOD	EDGE OF DECK	STD	STANDARD
EOS	EDGE OF SLAB	STIFF	STIFFENER
EQ	EQUAL	STIRR	STIRRUP(S)
EQUIP	EQUIPMENT	STR	STRUCTURAL
EW	EACH WAY	T/	TOP
EXIST	EXISTING	TCX	TOP CHORD EXTENSION
EXP	EXPANSION	TOC	TOP CHORD CONCRETE
EXT	EXTERIOR	TOF	TOP OF FOOTING
FDN	FOUNDATION	TOS	TOP OF STEEL
FFE	FINISHED FLOOR ELEVATION	TOW	TOP OF WALL
FOM	FACE OF MASONRY	TYP	TYPICAL
FW	FACE OF WALL	UNO	UNLESS NOTED OTHERWISE
FS	FAR SIDE	VERT	VERTICAL
FTG	FOOTING	VIF	VERIFY IN FIELD
GA	GALVE	W/	WITH
GALV	GALVANIZED	WWF	WELDED WIRE FABRIC
		WP	WORK POINT

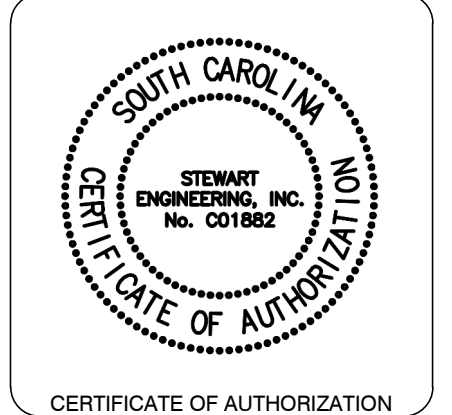


STEWART

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NO.	DATE	DESCRIPTION

PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT

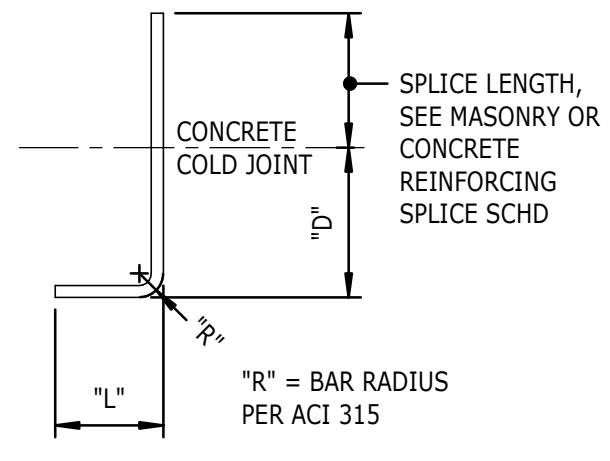
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PROJ. MGR.: MG  
DESIGN BY: BK  
DRAWN BY: DB  
PROJ. DATE: MARCH 2021  
DRAWING NUMBER: S.O  
WKD PROJ. NO.: 20200433.00.CL

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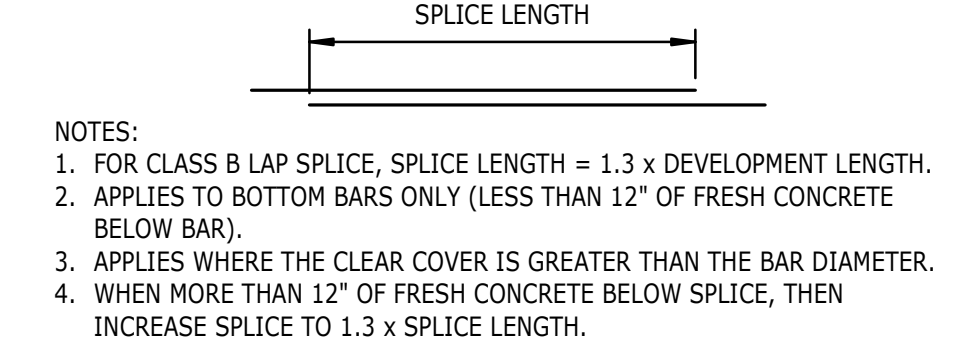
CONCRETE REINFORCING DOWEL EMBEDMENT				
BAR SIZE	LEG DIM, "L"	EMBEDMENT, "D"		
		f <sub>c</sub> = 3,000 PSI	f <sub>c</sub> = 4,000 PSI	f <sub>c</sub> = 5,000 PSI
#3	6"	6"	6"	6"
#4	8"	8"	7"	6"
#5	10"	10"	9"	8"
#6	12"	12"	10"	9"
#7	14"	14"	12"	11"
#8	16"	16"	14"	12"
#9	19"	18"	15"	14"
#10	22"	20"	17"	15"
#11	24"	22"	19"	17"



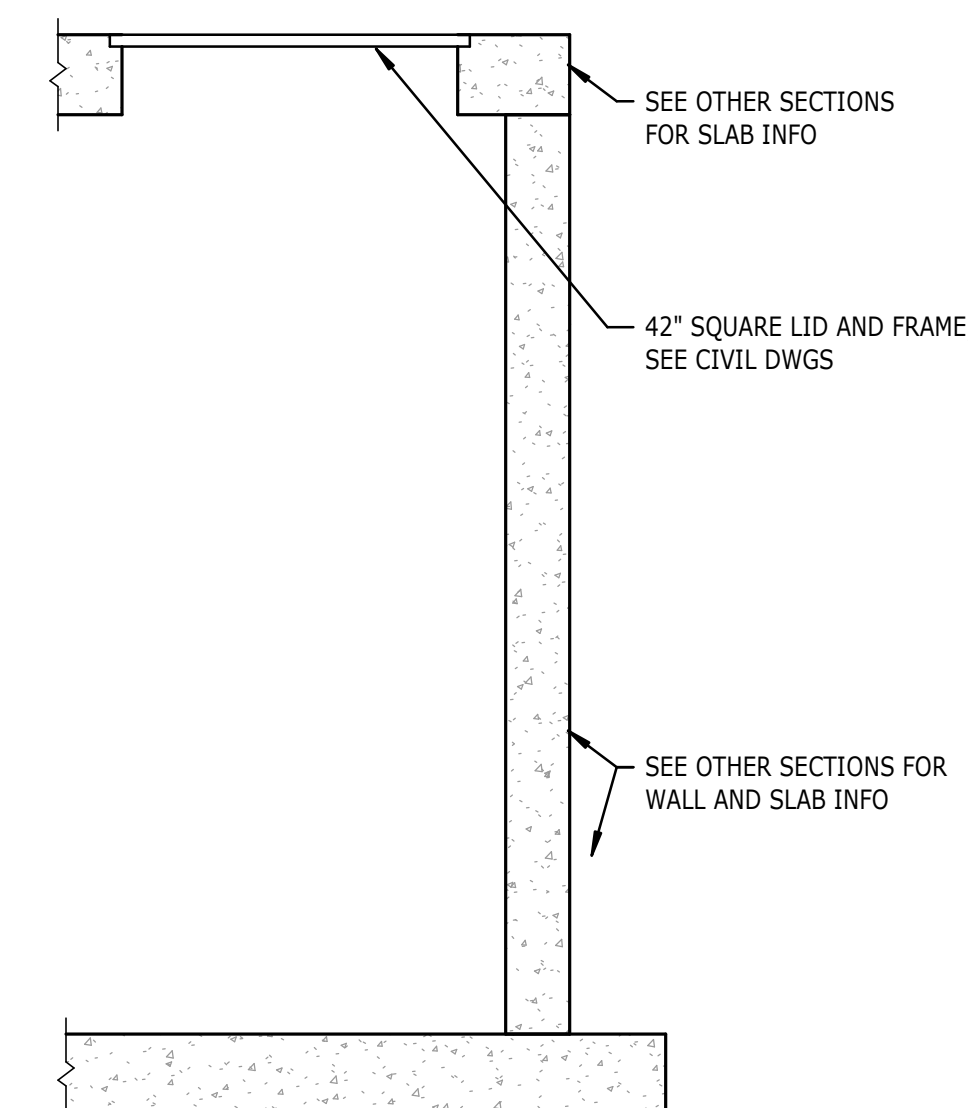
- NOTES:
- FOR CONCRETE STRENGTHS NOT PROVIDED, USE THE EMBEDMENT LENGTH FOR THE LOWER CONCRETE STRENGTH AS SHOWN IN THE TABLE.
  - DOWEL LENGTHS BASED ON NORMAL WEIGHT CONCRETE. FOR LIGHT WEIGHT, INCREASE DOWEL LENGTH "D" BY 30%.
  - SIDE COVER ON BARS MUST BE GREATER THAN 2 1/2". END COVER ON 90° HOOKED BARS MUST BE GREATER THAN 2".
  - FOR EPOXY-COATED BARS, INCREASE THE DOWEL LENGTH "D" BY 20%.

**6 DOWEL EMBEDMENT LENGTH SCHEDULE**  
S.1 3/4" = 1'-0"

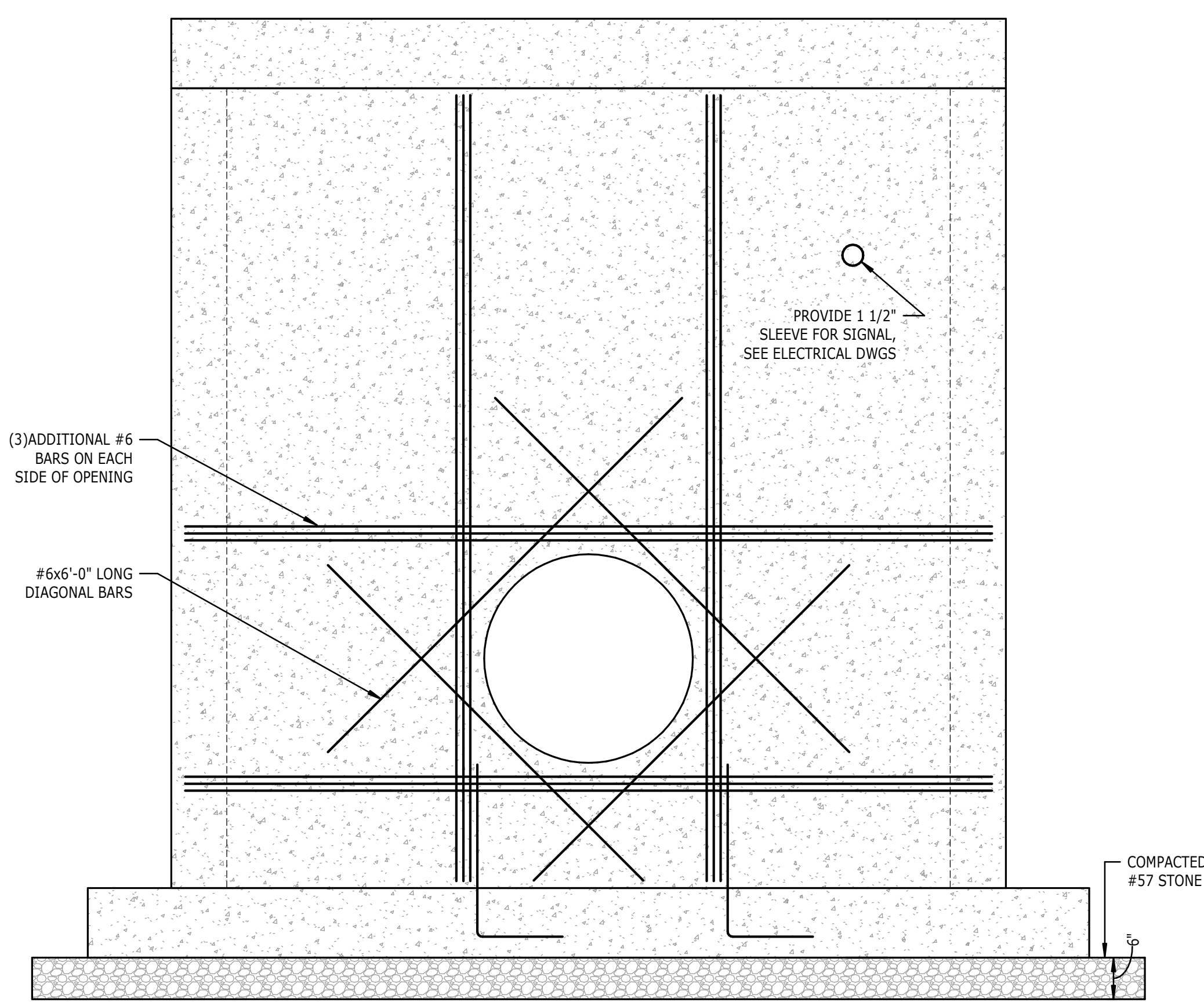
CONCRETE REINFORCING SPLICES			
BAR SIZE	f <sub>c</sub> = 3,000 PSI	f <sub>c</sub> = 4,000 PSI	f <sub>c</sub> = 5,000 PSI
#3	1'-10"	1'-7"	1'-5"
#4	2'-4"	2'-1"	1'-10"
#5	3'-0"	2'-7"	2'-4"
#6	3'-7"	3'-1"	2'-9"
#7	5'-2"	4'-6"	4'-1"
#8	5'-11"	5'-2"	4'-8"
#9	6'-6"	5'-10"	5'-3"
#10	7'-6"	6'-6"	5'-10"
#11	8'-4"	7'-3"	6'-6"



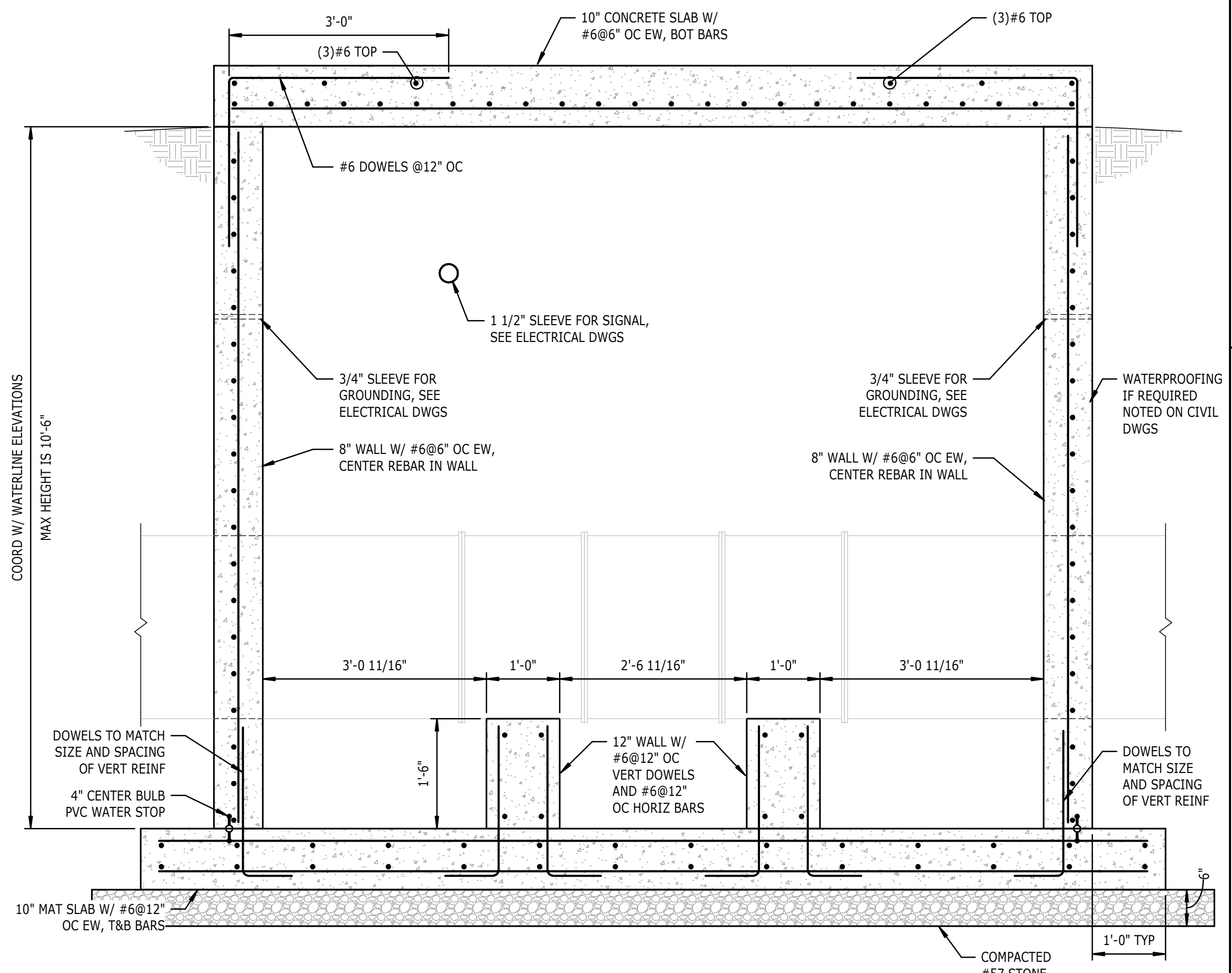
**7 CONCRETE REINFORCING SPlice SCHEDULE**  
S.1 3/4" = 1'-0"



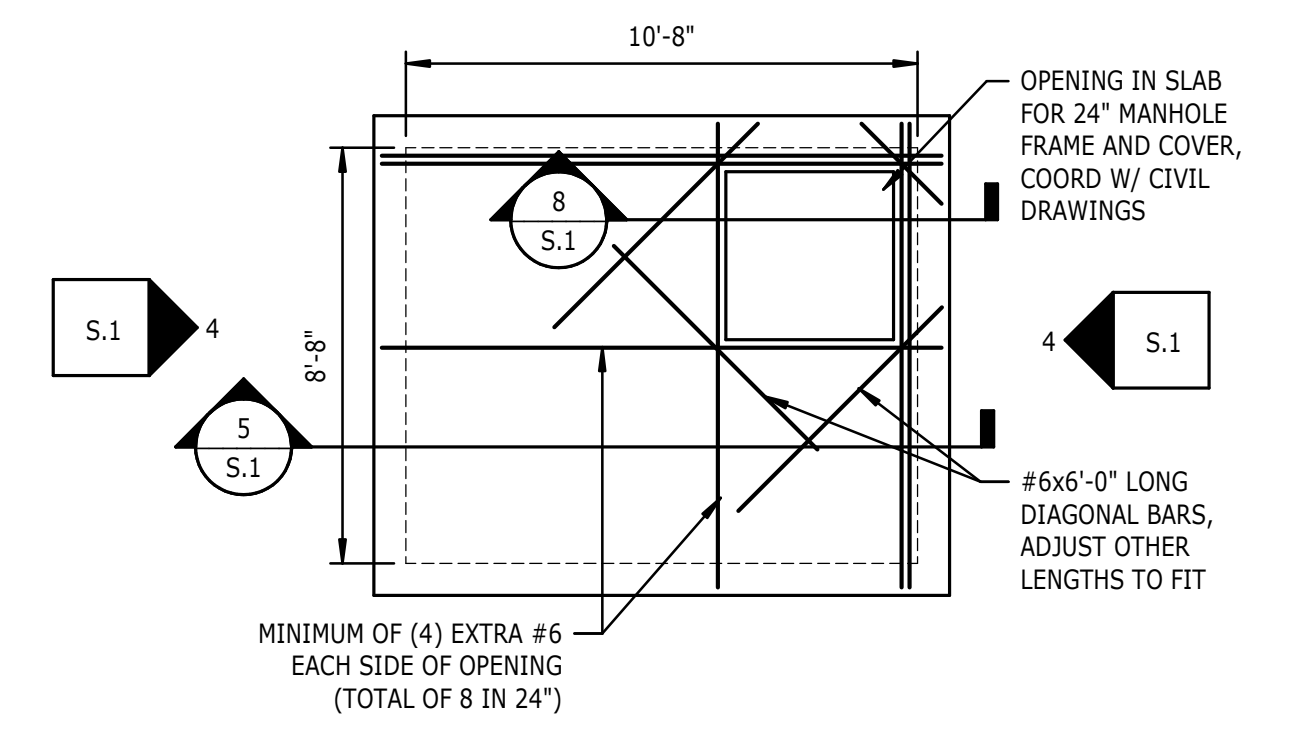
**8 SECTION**  
S.1 1/2" = 1'-0"



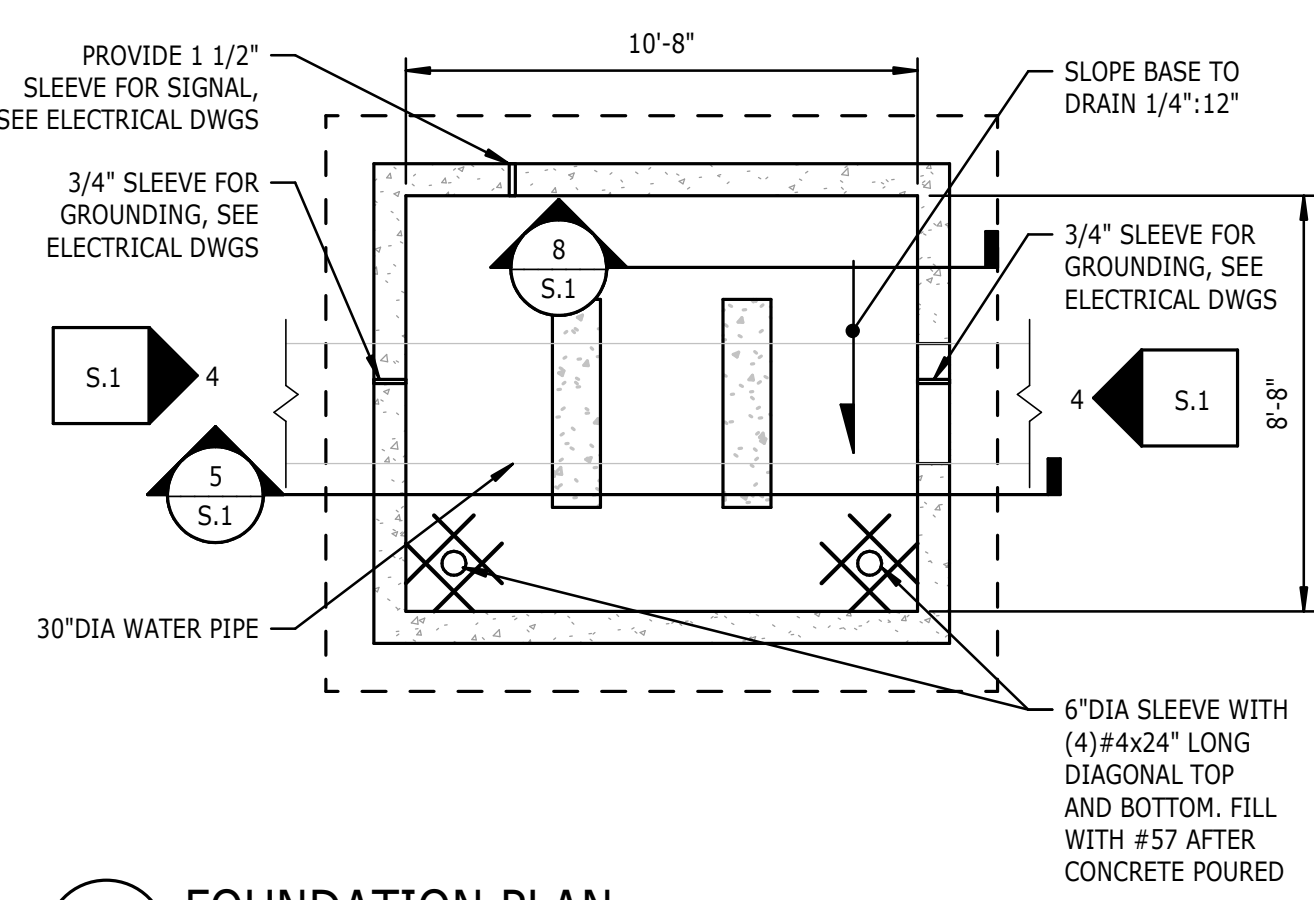
**4 PIPE ENTRANCE/EXIT WALL ELEVATION**  
S.1 3/4" = 1'-0"



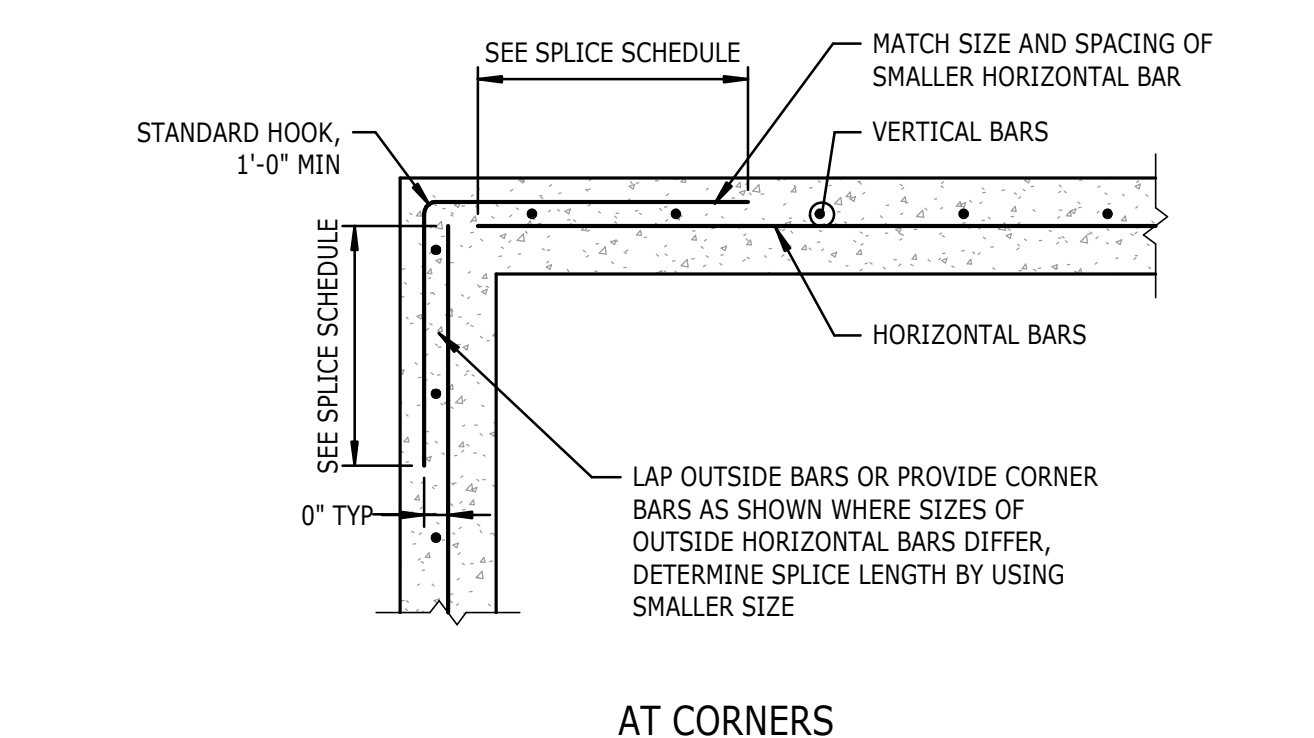
**5 SECTION**  
S.1 3/4" = 1'-0"



**1 ELEVATED SLAB PLAN**  
S.1 1/4" = 1'-0"



**2 FOUNDATION PLAN**  
S.1 1/4" = 1'-0"



**3 TYPICAL HORIZONTAL WALL REINFORCING**  
S.1 3/4" = 1'-0"

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**SOUTH CAROLINA PROFESSIONAL ENGINEER**  
No. 27913  
CAMEL A. GARDNER  
03/18/2021  
PROFESSIONAL SEAL

**SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION**  
STEWART ENGINEERING, INC.  
No. C01882  
CERTIFICATE OF AUTHORIZATION

NO.	DATE	DESCRIPTION	BY

**REVISION RECORD**

PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT

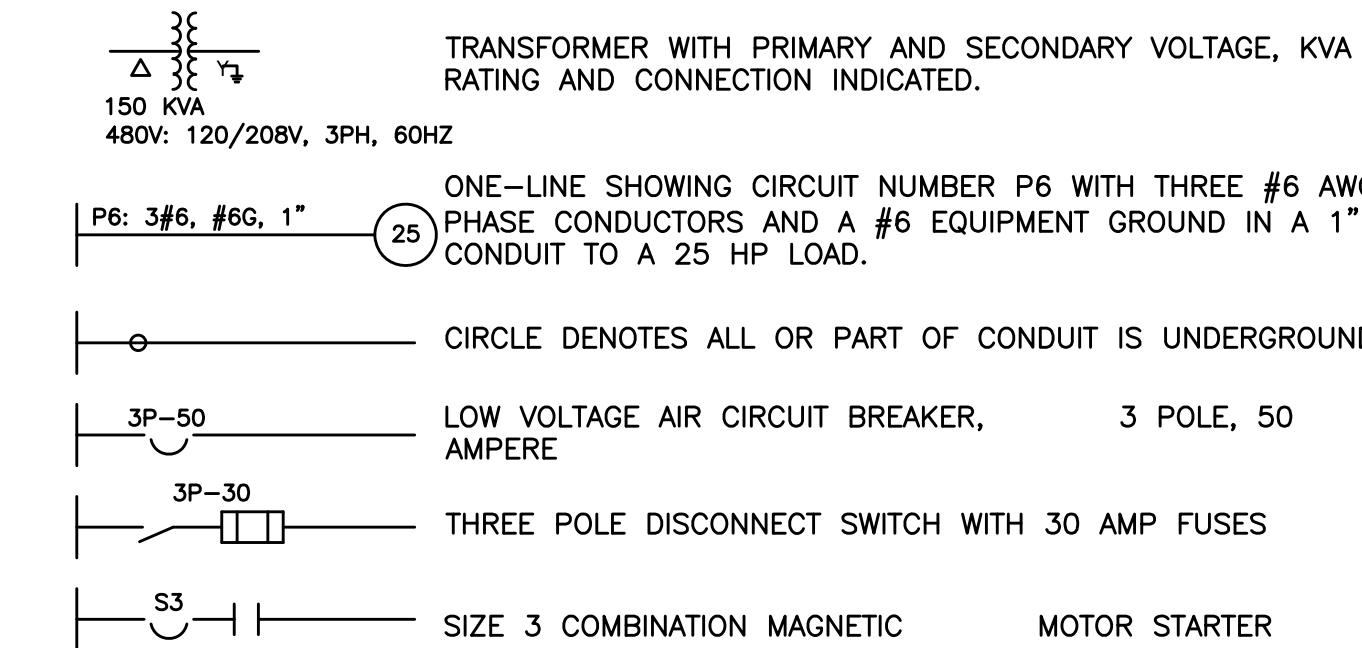
DRAWING TITLE: STRUCTURAL PLANS AND DETAILS

PROJ. MGR.: MG  
DESIGN BY: BK  
DRAWN BY: DB  
PROJ. DATE: MARCH 2021  
DRAWING NUMBER:  
**S.1**  
WKD PROJ. NO.:  
20200433.00.CL

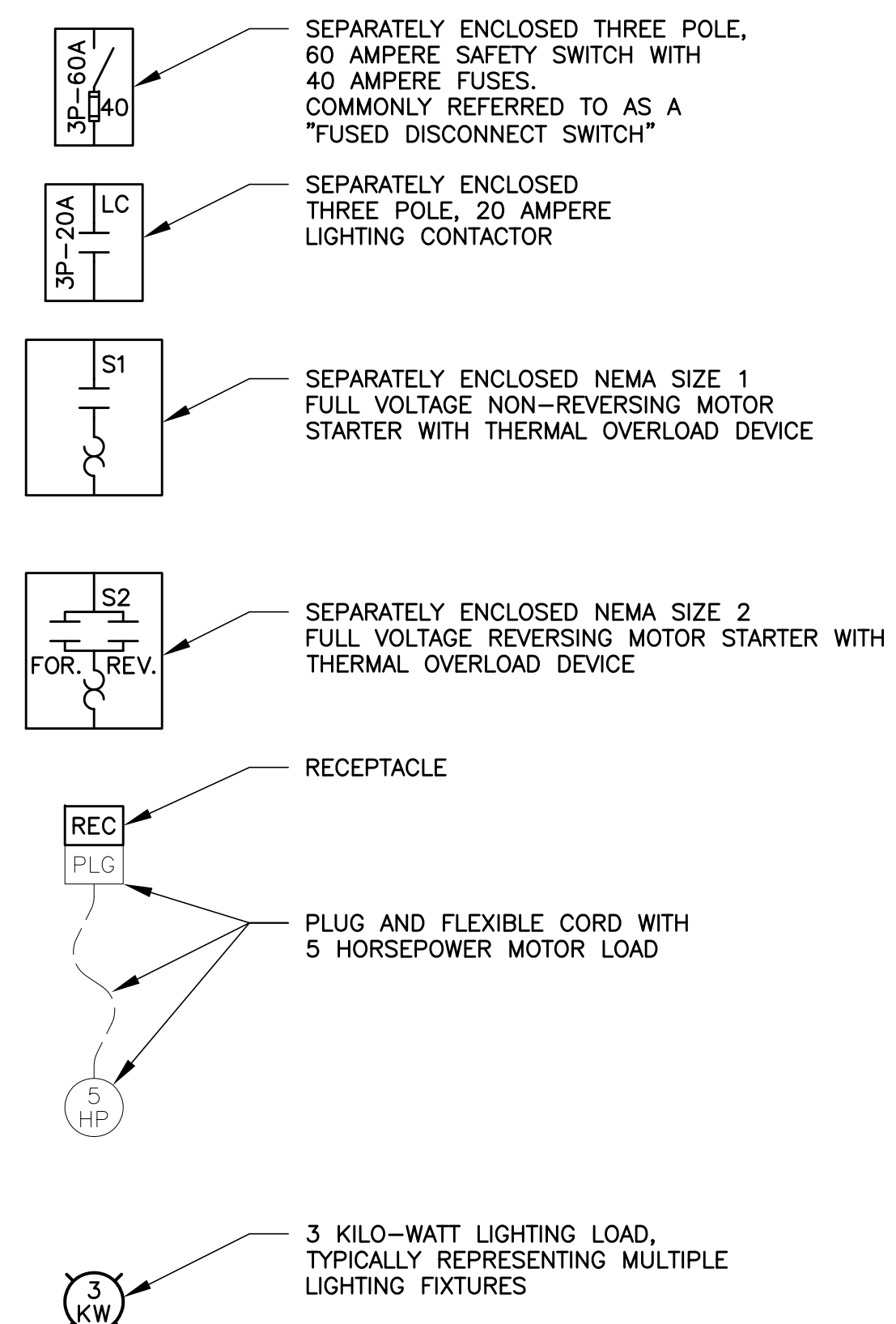
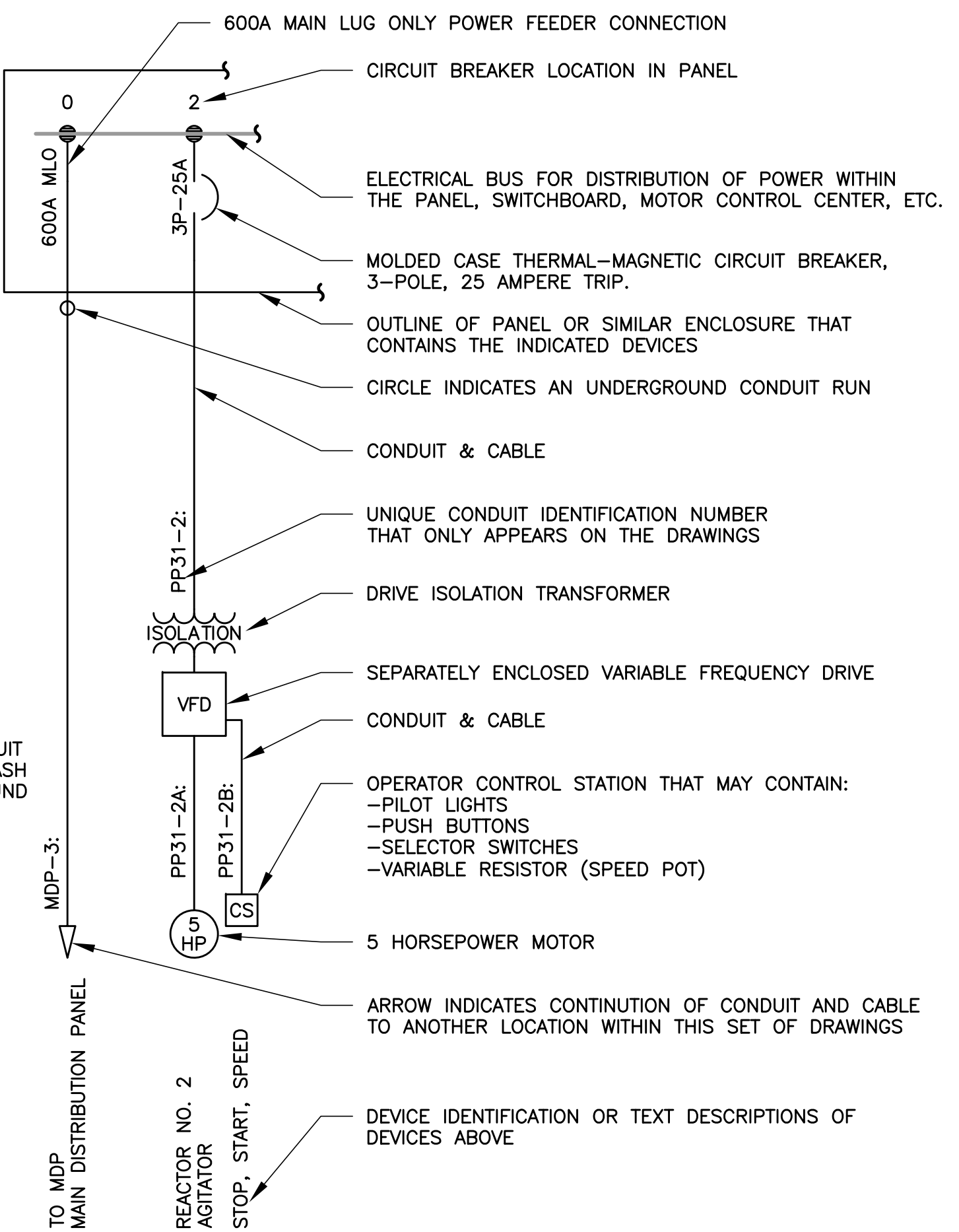
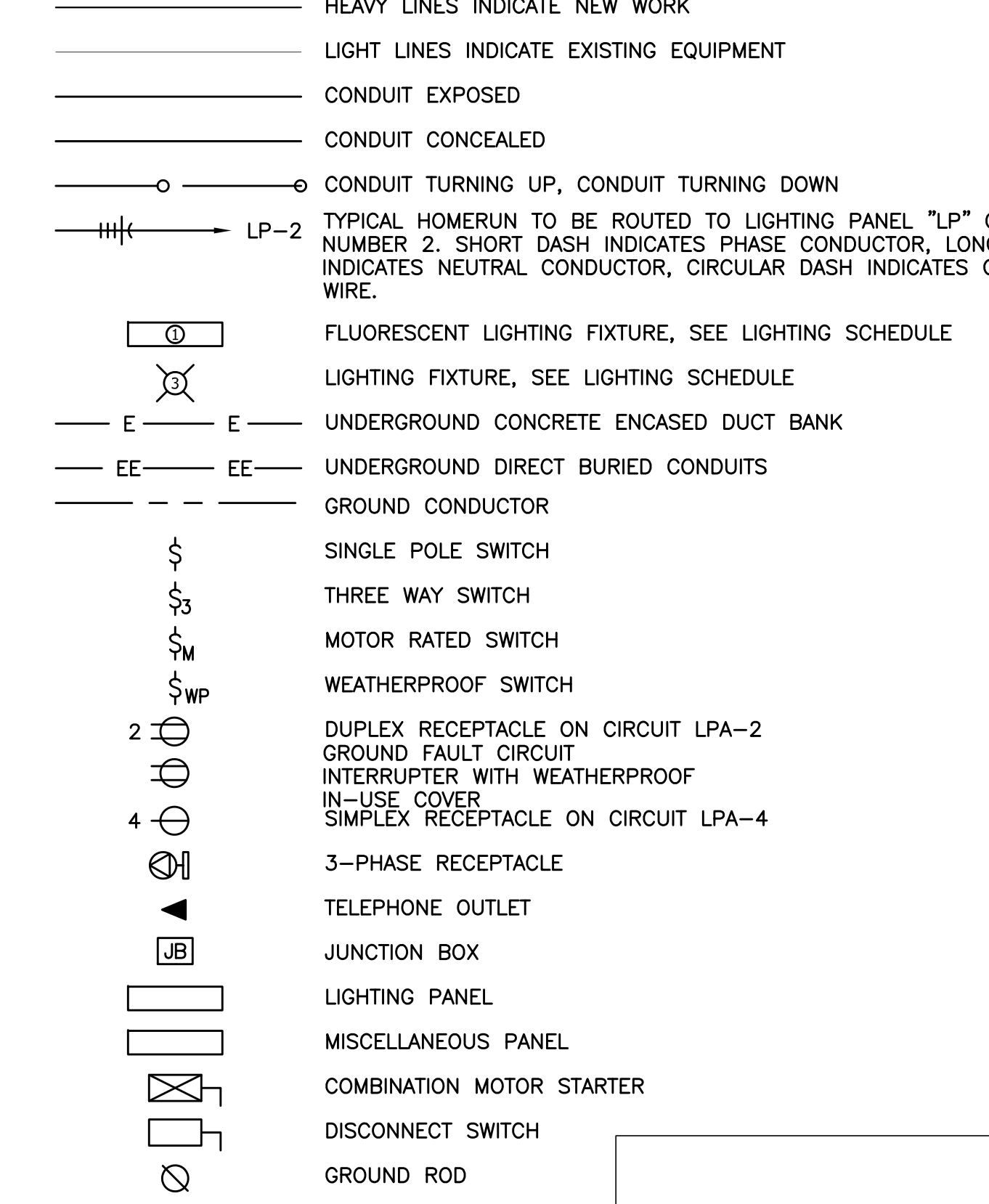
BID SET - NOT ISSUED FOR CONSTRUCTION



**ONE - LINES**



**PLANS**



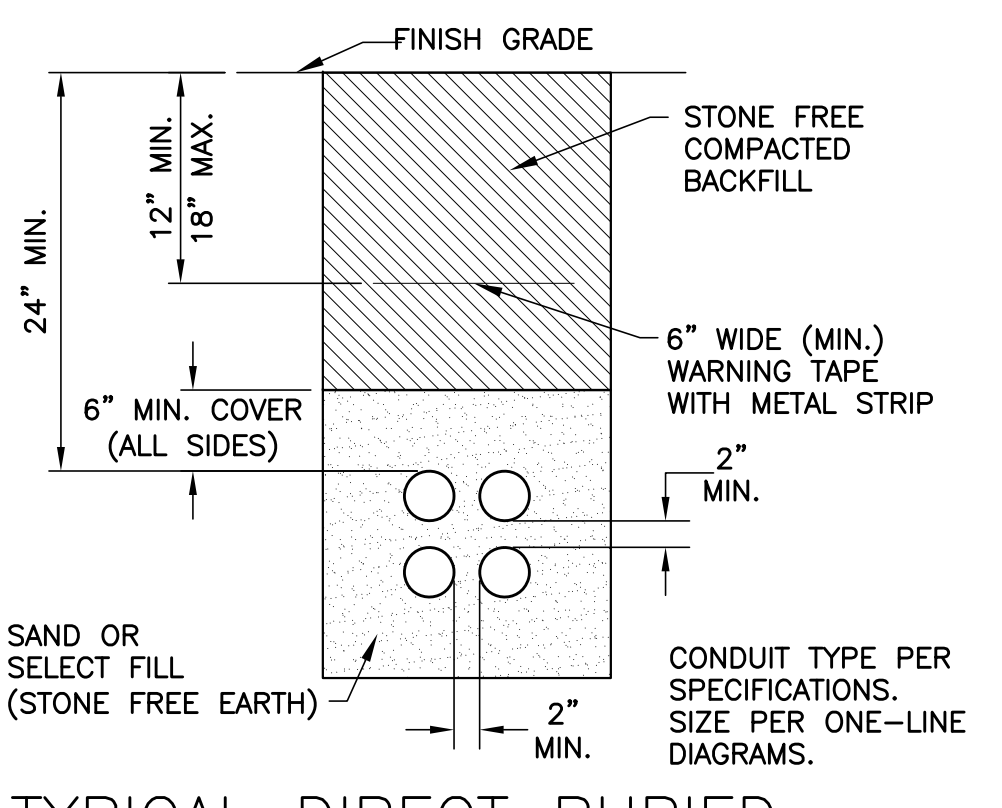
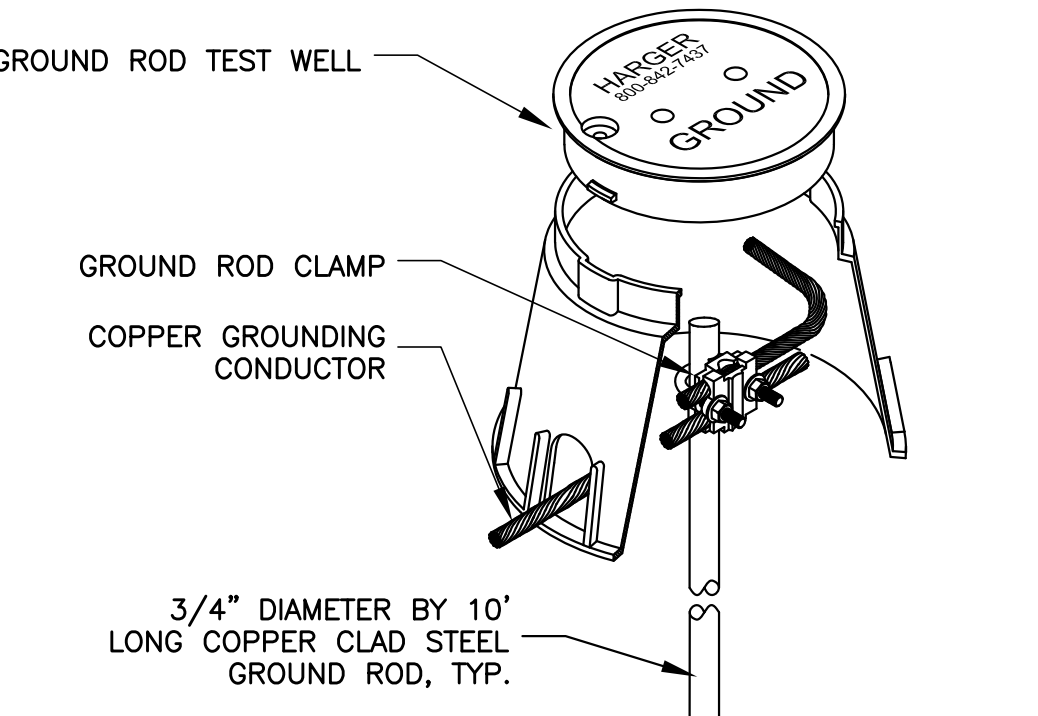
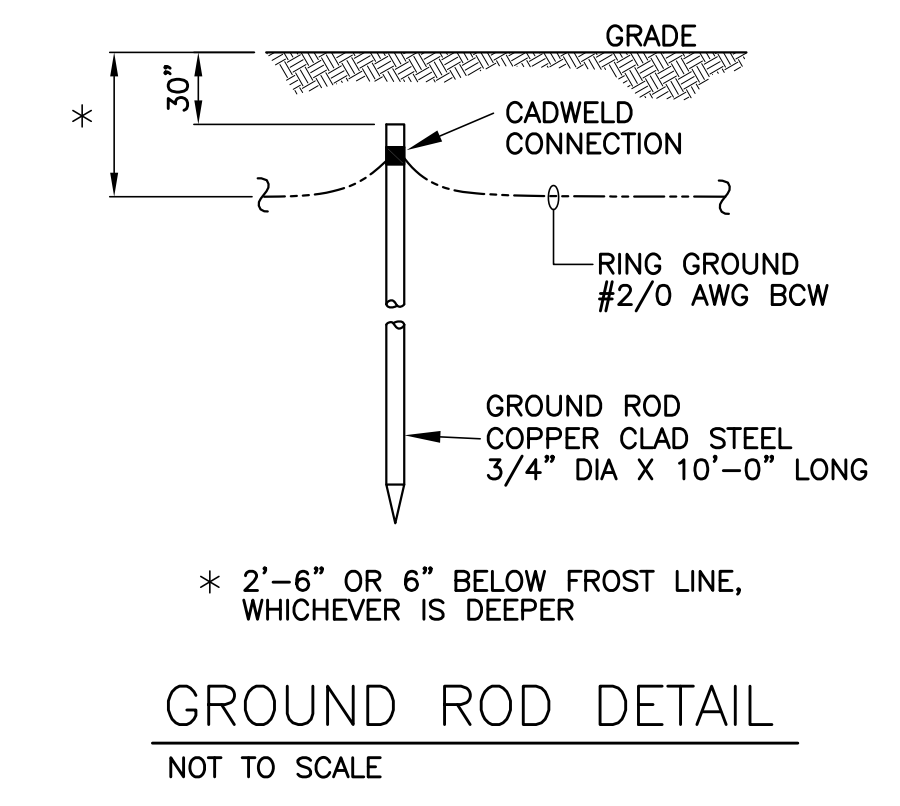
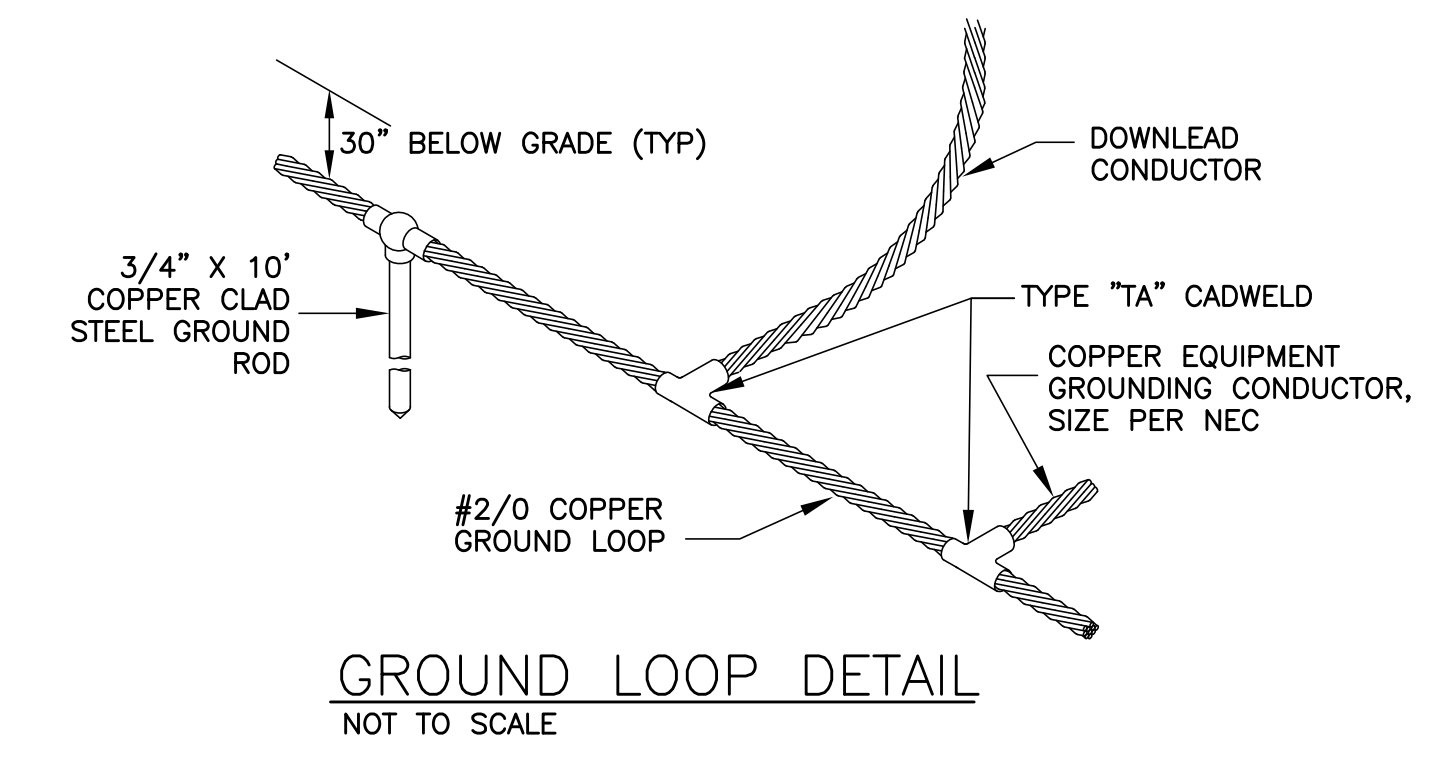
A AMPERE	MCC MOTOR CONTROL CENTER
AC ALTERNATING CURRENT	MCP MOTOR CIRCUIT PROTECTOR
A/C AIR CONDITIONER	MDP MAIN DISTRIBUTION PANEL
AFF ABOVE FINISHED FLOOR	MIN MINIMUM
AGL ABOVE GROUND LEVEL	MLO MAIN LUG ONLY
AMP AMPERE	MPC MINI-POWER CENTER
ATS AUTOMATIC TRANSFER SWITCH	MTS MANUAL TRANSFER SWITCH
AWG AMERICAN WIRE GAUGE	MSH MOTOR SPACE HEATER
BPS BOOSTER PUMP STATION	N NEUTRAL
C CONDUIT	NEC NATIONAL ELECTRICAL CODE
CB CIRCUIT BREAKER	NEMA NATIONAL ELECTRICAL MANUF. ASSOC.
CFL COMPACT FLOURESCENT	OL OVERLOAD (RELAY)
CP CONTROL PANEL	PB PUSH BUTTON
CR CONTROL RELAY	PCP PUMP CONTROL PANEL
CS CONTROL STATION	PE PHOTO-ELECTRIC CONTROL
CT CURRENT TRANSFORMER	PH PHASE
DC DIRECT CURRENT	PL PILOT LIGHT
DIA DIAMETER	PLC PROGRAMMABLE LOGIC CONTROLLER
DM DAMPER MOTOR	PMR POWER MONITOR RELAY
DS DISCONNECT SWITCH	PP POWER PANEL
EB ELECTRONIC BALLAST	PROP. PROPOSED
EC EMPTY CONDUIT	PSCP PUMP STATION CONTROL PANEL
E.C. ELECTRICAL CONTRACTOR	R RED
EF EXHAUST FAN	REQ REQUIRED
EL ELEVATION	RTU REMOTE TELEMETRY UNIT
EHH ELECTRICAL HAND HOLE	RVAT REDUCED VOLTAGE AUTOTRANSFORMER
EMW ELECTRIC WATER HEATER	SA SURGE ARRESTOR
EX EXISTING	SE SERVICE ENTRANCE
EXP EXPLOSION PROOF	SP SUB-PANEL
G GROUND	SS STAINLESS STEEL OR SELECTOR SWITCH
GEN GENERATOR	SSRV SOLID STATE REDUCED VOLTAGE SUPPRESSOR
GFCI GROUND FAULT CIRCUIT INTERRUPTER	SST STAINLESS STEEL
GFI GROUND FAULT INTERRUPTER	SSW SELECTOR SWITCH
GND GROUND	T THERMOSTAT
HID HIGH INTENSITY DISCHARGE (LIGHT)	TS TEMPERATURE SWITCH
HOA HAND-OFF-AUTOMATIC	TVSS TRANSIENT VOLTAGE SURGE SUPPRESSOR
HP HORSEPOWER	TYP TYPICAL
HVAC HEATING, VENTILATION, & AIR COND.	UH UNIT HEATER
HZ HERTZ	UM UTILITY METER
JB JUNCTION BOX	V VOLTS
KVA KILOVOLT-AMPERE	VAC VOLTS ALTERNATING CURRENT
KW KILOWATT	VFD VARIABLE FREQUENCY DRIVE
LAHJ LOCAL AUTHORITY HAVING JURISDICTION	W WATTS OR WHITE
LE LEVEL ELEMENT	WP WEATHERPROOF
LP LIGHTING PANEL	XP EXPLOSION PROOF
LS LEVEL SWITCH	ZS POSITION SWITCH
LSH LEVEL SWITCH - HIGH	3-PH THREE PHASE
LSL LEVEL SWITCH - LOW	4P FOUR POLE
M MAGNETIC MOTOR STARTER	& AND
M MOTOR	
MA MILLIAMPERE	
MAX MAXIMUM	
MCB MAIN CIRCUIT BREAKER	

2(3#350), #1N, 4" TWO PARALLEL SETS OF 3-PHASE 350MCM CONDUCTORS, ONE #1AWG NEUTRAL CONDUCTOR, NO GROUNDING CONDUCTOR, IN ONE 4" CONDUIT.

3(1PR#18STP)  
2(1TR#18STT)  
3#16STP  
3-7/C#14  
2-RS485

THREE - SINGLE PAIR, #18 AWG SHIELDED TWISTED PAIR CABLES  
TWO - SINGLE TRIADS, #18 AWG SHIELDED TWISTED TRIAD CABLES  
THREE - #16 AWG SHIELDED TWISTED PAIR CABLES  
THREE - SEVEN CONDUCTOR #14 AWG MULTICONDUCTOR CONTROL CABLES  
TWO CABLES FOR RS485 COMMUNICATION

- GENERAL NOTES:
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, PERMITS, AND OPERATIONS NECESSARY FOR THE PROPER EXECUTION AND COMPLETION OF ALL ELECTRICAL WORK INDICATED ON THE DRAWINGS.
  - ALL ELECTRICAL WORK AND MATERIALS SHALL COMPLY WITH THE NEC AND OTHER APPLICABLE FEDERAL, STATE (VOSH), AND LOCAL CODES, ALL ELECTRICAL EQUIPMENT SHALL BE UL OR SUITABLE THIRD PARTY LISTED OR LABELED.
  - ALL DISCONNECT SWITCHES, JUNCTION BOXES, MOTOR CONTROLLERS, AND OTHER EQUIPMENT REQUIRING ELECTRICAL POWER CONNECTION SHALL BE MARKED WITH VOLTAGE PRESENT, AS APPROPRIATE TO DESIGNATE 120, 208, 240, 277, 480 VOLTS AND SINGLE OR THREE PHASE, AS APPLICABLE.
  - CONTRACTOR SHALL BE RESPONSIBLE FOR ROUTING ALL CONDUITS. THIS INCLUDES CONDUITS ON ONE-LINES AND HOMERUNS ON PLANS. CABLE AND CONDUIT MAY NOT ALWAYS BE SHOWN ON ALL PLAN SHEETS. UNDERGROUND DUCT BANKS SHALL BE ROUTED TO AVOID INTERFERENCE WITH EXISTING EQUIPMENT.
  - CONTRACTOR SHALL VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTION POINTS PRIOR TO INSTALLATION.
  - UNLESS OTHERWISE NOTED, MOUNT LIGHT SWITCHES AND CONVENIENCE RECEPTACLES 45" ABOVE FINISHED FLOOR. ALL CONVENIENCE RECEPTACLES SHALL HAVE GROUND FAULT PROTECTION.
  - ( ——— ) SOLID LINES INDICATE NEW WORK OR EQUIPMENT.
  - ( - - - - ) SCREENED OR LIGHT WEIGHT LINES INDICATE EXISTING WORK OR EQUIPMENT.
  - ( --- ) DASHED LINES INDICATE FUTURE WORK OR EQUIPMENT.
  - THIS IS A GENERAL LEGEND SHEET. SOME SYMBOLS AND ABBREVIATIONS MAY NOT BE UTILIZED ON THIS SPECIFIC PROJECT.



GROUND ROD TEST WELL DETAIL  
SCALE: NOT TO SCALE

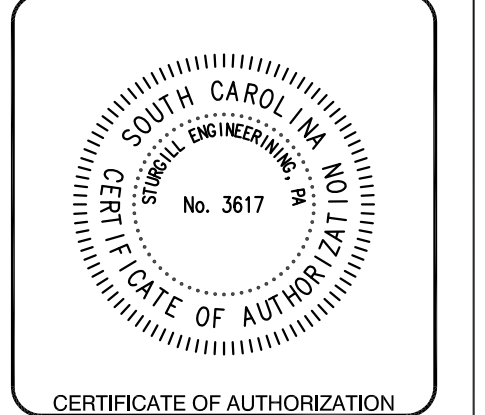
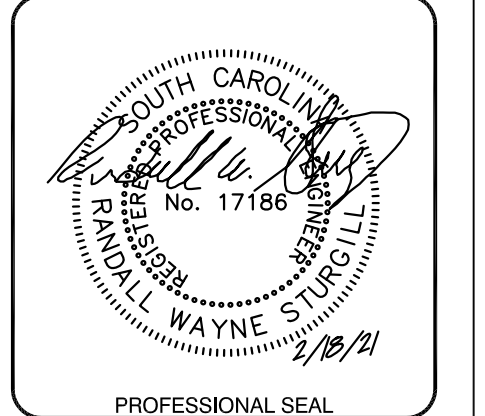
TYPICAL DIRECT BURIED CONDUIT SECTION  
NOT TO SCALE



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NO.	DATE	DESCRIPTION

PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT

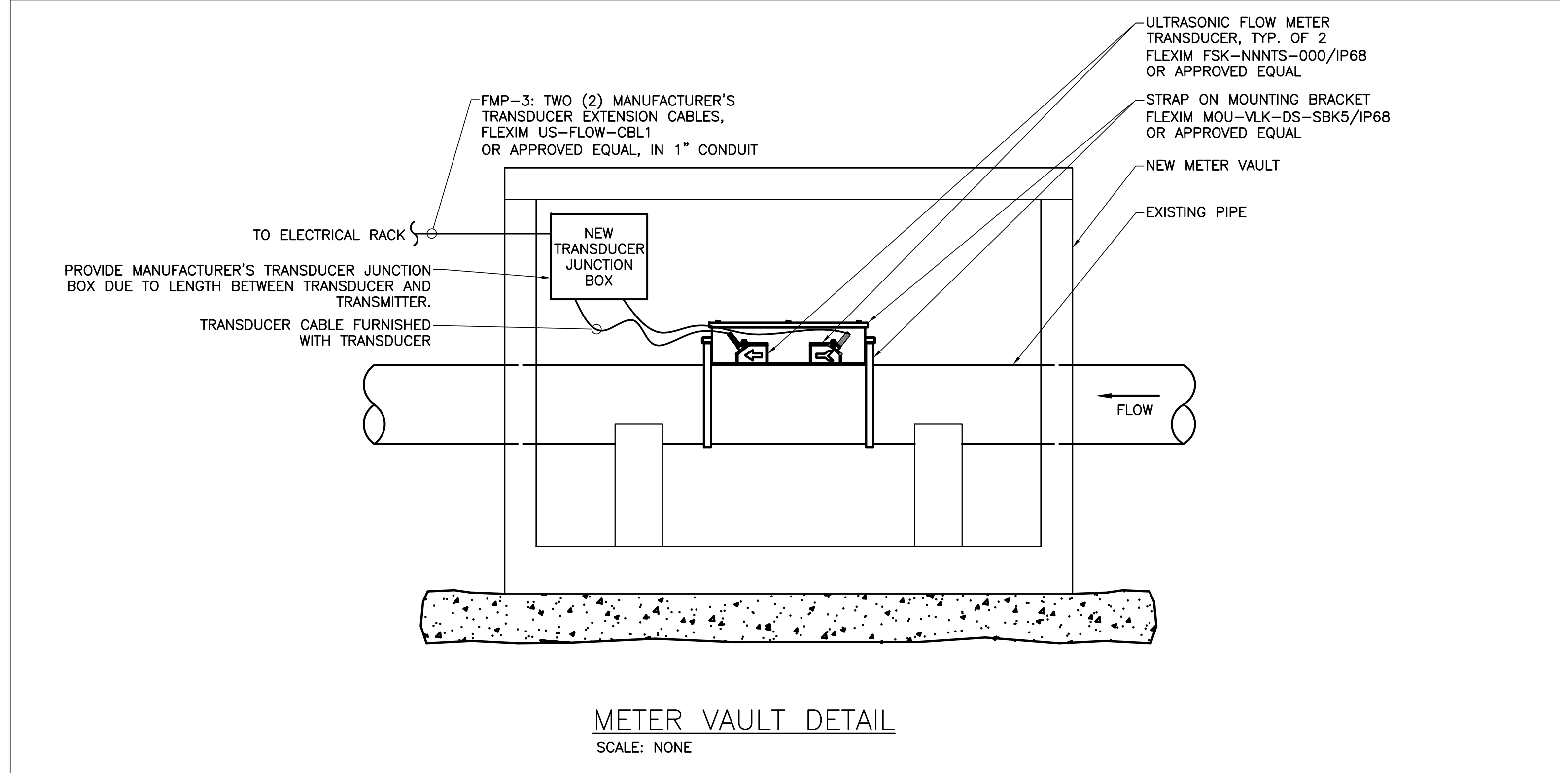
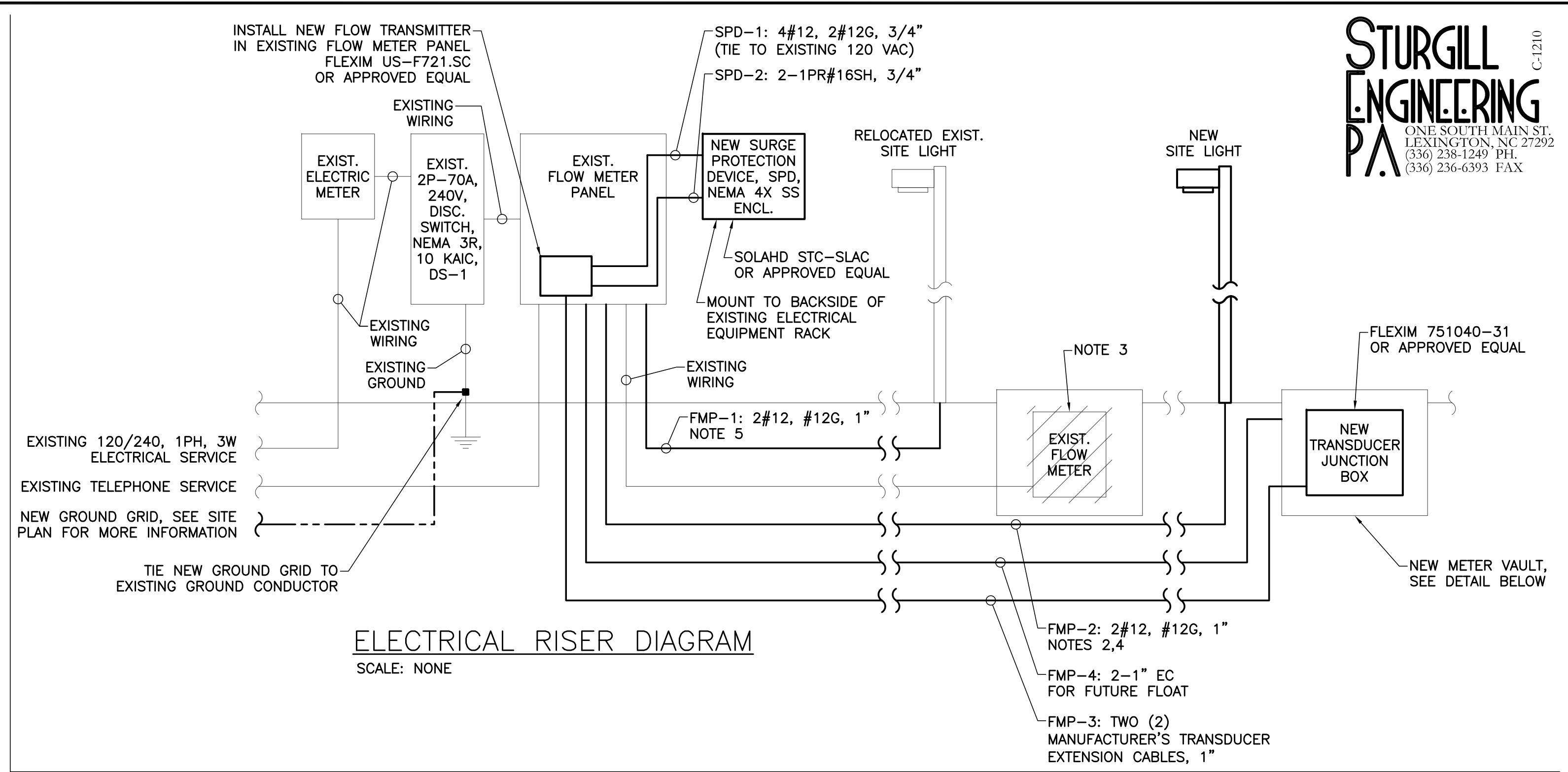
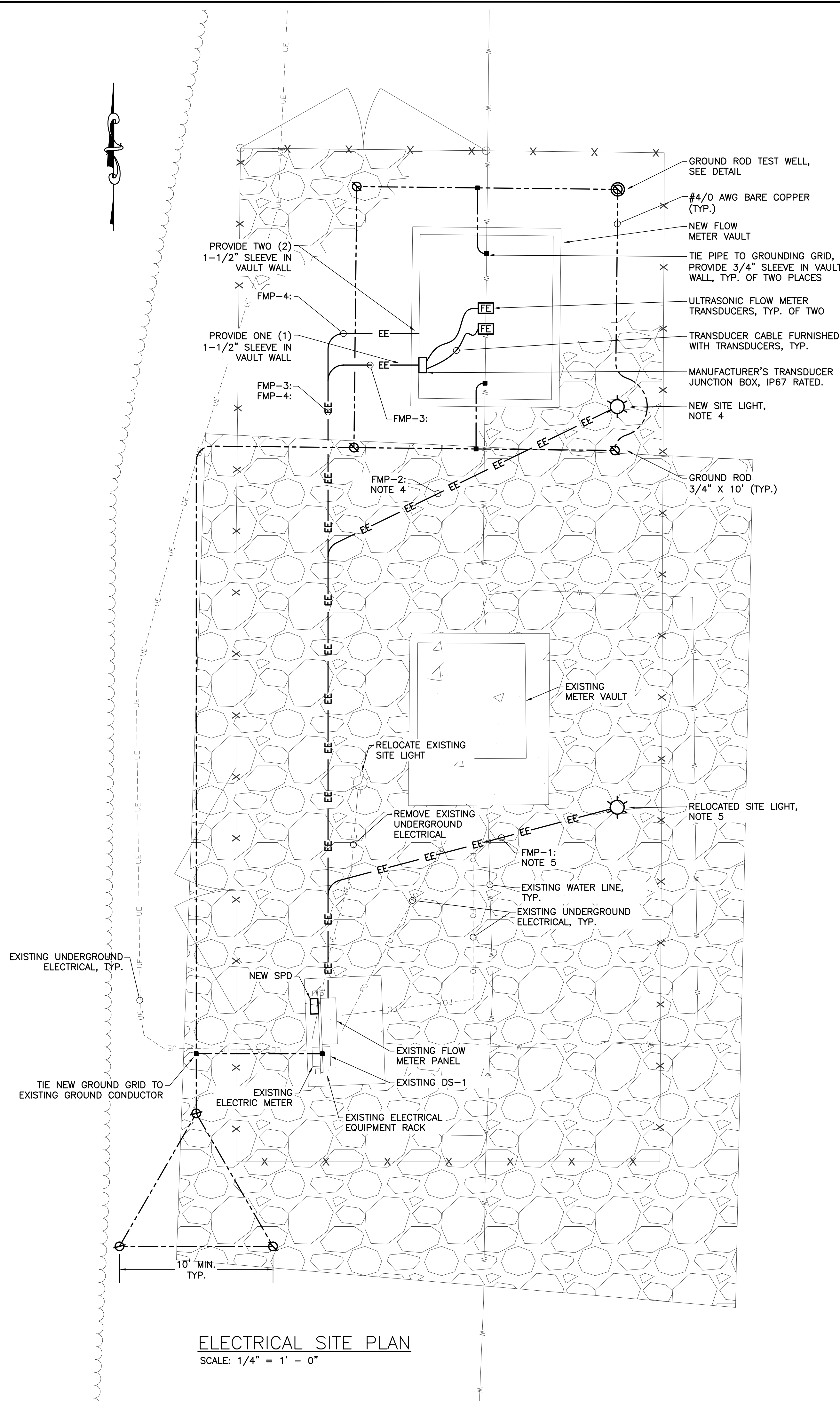
ELECTRICAL LEGEND AND ABBREVIATIONS

DRAWING TITLE:

PROJ. MGR.: FRWS  
DESIGN BY: FRWS  
DRAWN BY: FRWL  
PROJ. DATE: FEB 2021  
DRAWING NUMBER: E.1  
WKD PROJ. NO.: 20200433.00.CL

BID SET - NOT ISSUED FOR CONSTRUCTION

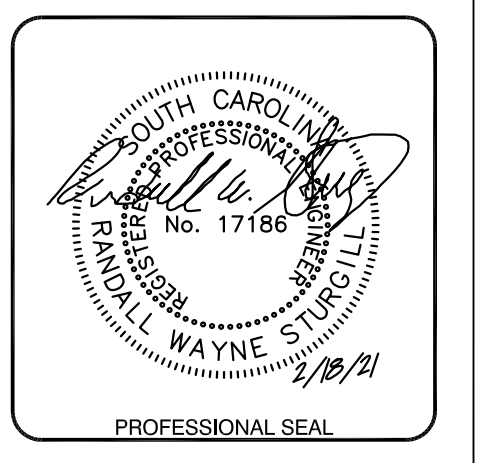
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- NOTES:**
- SEE SHEET E1 FOR ELECTRICAL LEGEND, ABBREVIATIONS, AND NOTES.
  - CONNECT NEW SITE LIGHT TO EXISTING SITE LIGHT CIRCUIT INSIDE EXISTING FLOW METER PANEL.
  - EXISTING FLOW METER TO BE REMOVED ALONG WITH ASSOCIATED CABLE. ABANDON CONDUIT IN PLACE.
  - NEW LIGHT POLE TO BE PROVIDED AND INSTALLED BY CITY OF ROCK HILL. FIELD COORDINATE EXACT LOCATION WITH OWNER. PROVIDE 2#12, #12G, 1" FROM FLOW METER PANEL TO LIGHT POLE.
  - EXISTING LIGHT POLE TO BE RELOCATED BY CITY OF ROCK HILL. FIELD COORDINATE EXACT LOCATION WITH OWNER. PROVIDE 2#12, #12G, 1" FROM FLOW METER PANEL TO LIGHT POLE.

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 (704) 334-0078  
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NO.	DATE	DESCRIPTION	BY

PROJECT NAME: YORK COUNTY & ROCK HILL MASTER METER REPLACEMENT  
 DRAWING TITLE: ELECTRICAL SITE PLAN

PROJ. MGR.: FRWS  
 DESIGN BY: FRWS  
 DRAWN BY: FRWL  
 PROJ. DATE: FEB 2021  
 DRAWING NUMBER: E.2  
 WKD PROJ. NO.: 20200433.00.CL



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