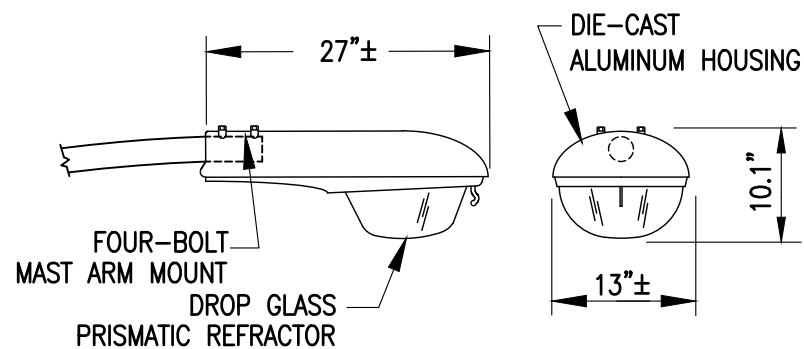
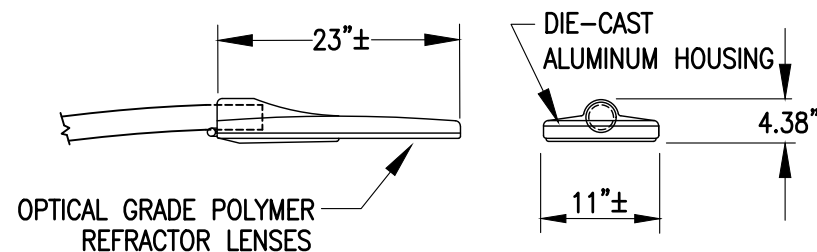




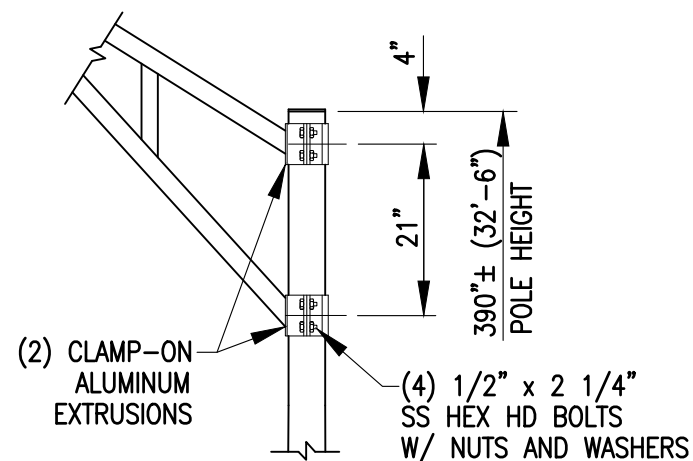
-HPS FIXTURE-



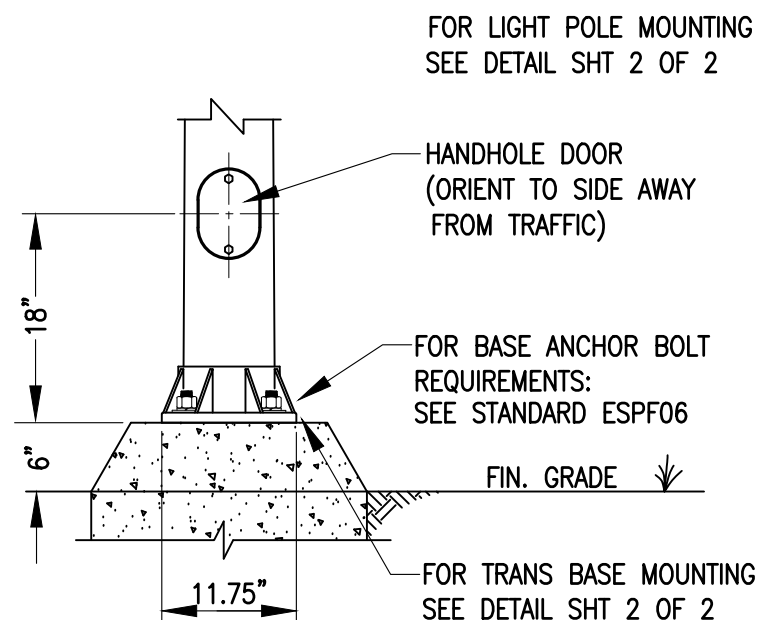
-LED FIXTURE-

COBRAHEAD LUMINAIRE DETAILS

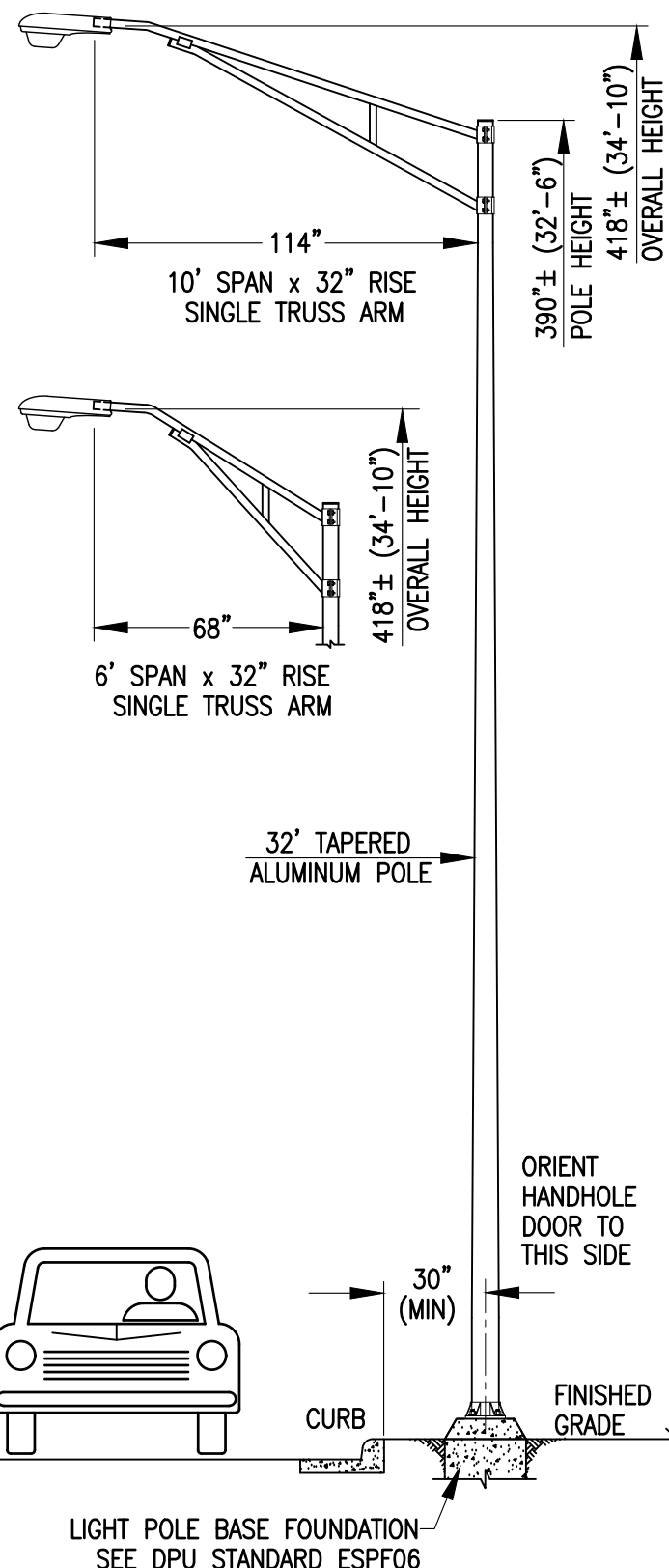
LED FAWS (FIELD ADJUSTABLE WATTAGE SELECTOR) SETTING		
HPS WATT/LOCATION	LED WATTAGE	FAWS SETTING
100W - ALLEY	72W	1
150W - ALLEY	72W	1
250W - ALLEY	72W	2
150W - ROADWAY	72W	2
250W - ROADWAY	160W	2
400W - ROADWAY	160W	4



BRACKET MOUNTING DETAILS



LIGHT POLE BASE DETAILS



SPECIFICATIONS:

- LUMINAIRE**
HPS: SINGLE DOOR COBRAHEAD, POWDER COATED, DIE-CAST ALUMINUM, FOUR-BOLT INTERNAL MAST ARM MOUNT NO PHOTO-CONTROL RECEPTACLE. (ACUITY BRANDS LIGHTING INC., ROADWAY SERIES XXX, #XXX XXX CA MT2 R3 DG 4B NR, OR EQUAL.) - ENGINEERING TO PROVIDE SPEC
LED: SINGLE DOOR COBRAHEAD, POWDER COATED, DIE-CAST ALUMINUM, FOUR-BOLT INTERNAL MAST ARM MOUNT NO PHOTO-CONTROL RECEPTACLE. (SIGNIFY BRANDS - ROADFOCUS SERIES RFM, #RFM XXXX 3K G2 R2M UNV DMG FAWS RCD7 SP2 GY3, OR EQUAL.) - ENGINEERING TO PROVIDE SPEC
- OPTICS**
HPS: LUMINAIRE HOOD HOUSES DROP GLASS PRISMATIC REFRACTOR, TYPE III (ASYMMETRIC) LIGHT DISTRIBUTION.
LED: LUMINAIRE HOOD HOUSES OPTICAL GRADE POLYMER REFRACTOR LENS, TYPE II (ASYMMETRIC) LIGHT DISTRIBUTION.
- LAMP HOLDERS:**
HPS: MEDIUM BASE PORCELAIN.
LED: POLARIZED PLUG/RECEPTACLE COMBINATION.
- LAMPS:**
HPS: 150W, 250W, OR 400W
LED: 3000 CCT
- BALLAST/DRIVER:**
HPS: ELECTRONIC BALLAST, PEAK LEAD, AUTOTRANSFORMER TYPE, MULTI-TAP VOLTAGE WIRED FOR 240V.
LED: STD 0-10V DIMMING CAPABILITY, HIGH POWER FACTOR OF 95%. ELECTRONIC DRIVER OPERATING RANGE 50/60 Hz. AUTO-ADJUSTING VOLTAGE INPUT 120-277 VAC.
- SHAFT:**
TAPERED, 8.00" DIA BASE, 4.50" DIA TOP, 32'-0" LENGTH, 6063 T4 ALLOY ALUMINUM TUBING, HEAT TREATED TO T6, CIRCUMFERENTIALLY WELDED TO BASE, FACTORY INSTALLED VIBRATION DAMPENER. SHAFT TO HAVE WIRE CLAMPS PROVIDED INSIDE PRE-WIRED POLE. GROUNDING LUG TO BE PROVIDED INSIDE FLUSH HANDHOLE. ACCESS DOOR WITH AN 18" PLASTIC SHEATHED KEEPER CHAIN AND TAMPER RESISTANT HARDWARE. HOLOPHANE NO. 320045805T4A-SB, OR EQUAL.
- WIRING:** 35'-0", 14/2 WITH GROUND (TYPE UF-B) WIRE LEADS TO BE PROVIDED, POLE AND LUMINAIRE TO BE PRE-WIRED.
- POLE BASE:**
ONE PIECE 12.0" SQ, ASTM A356 ALUMINUM ALLOY, HEAT TREATED TO A T6 CONDITION, WITH AN 11"-12" BOLT CIRCLE.

-CONTINUED ON SHEET 2 OF 2-

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:
ESMA01, ESMA04, ESPF06



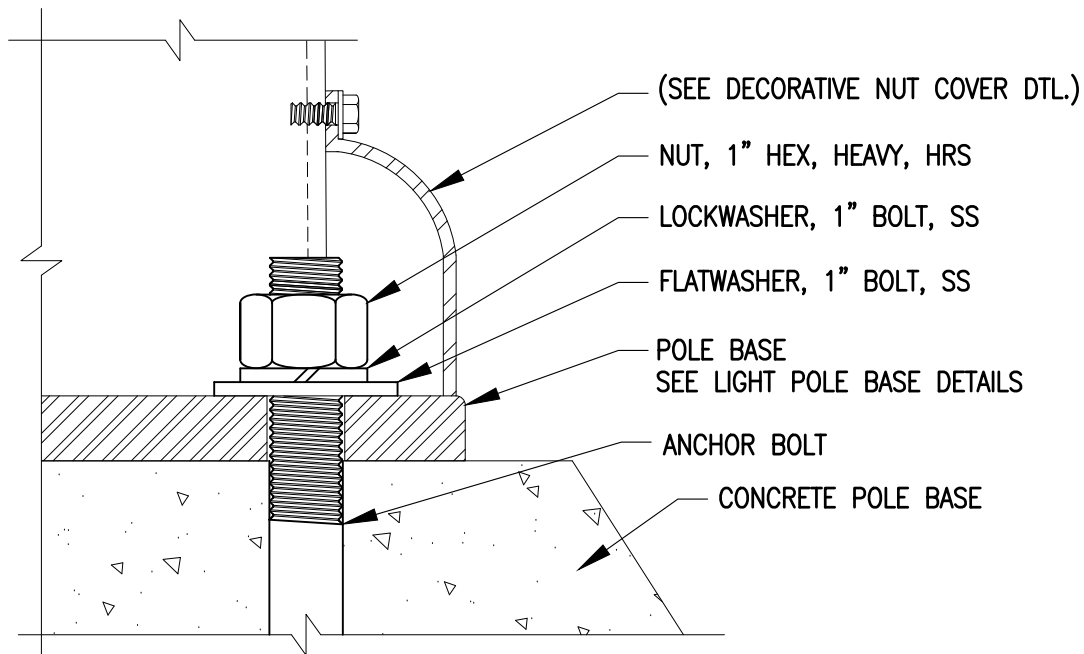
STANDARD FIXTURE ASSEMBLY DETAIL
**32ft ALUMINUM POLE WITHOUT TRANSFORMER PEDESTAL BASE
FOR 6ft & 10ft BRACKET ARM
WITH COBRAHEAD FIXTURE**



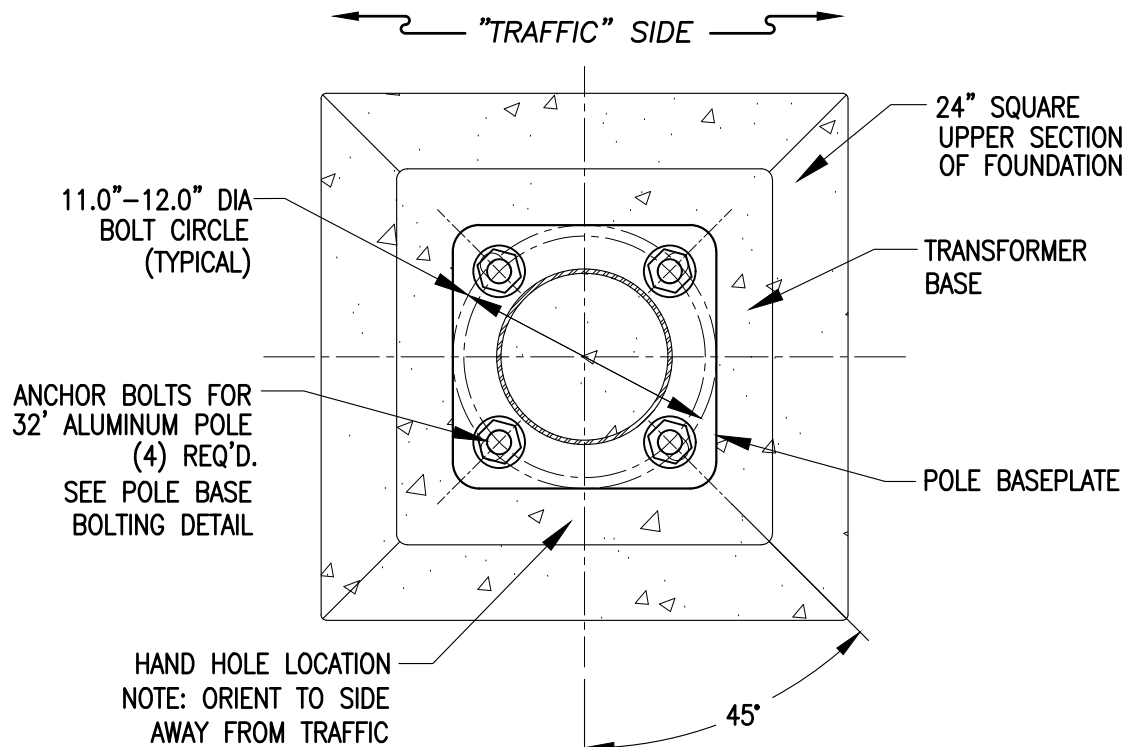
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

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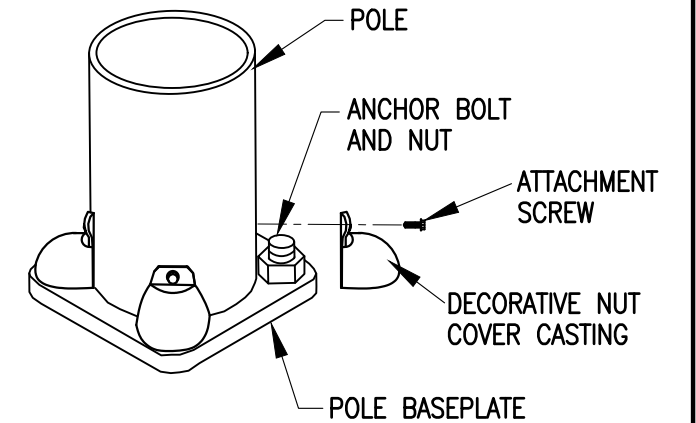
SHEET 1 OF 2
ESFA22



LIGHT POLE BASE BOLT DETAIL



POLE BASE DETAIL



DECORATIVE NUT COVER DETAIL

SPECIFICATIONS:

9. POLE ANCHORING:
(4) 1" DIA ANCHOR BOLTS, x 36" LG X 4" HOOK LENGTH MIN., THREADED END GALVANIZED A MINIMUM OF 12".
FOR EACH 1" ANCHOR BOLT: (2) HEAVY HEX NUTS, SS, (2) FLAT WASHERS, SS, AND (1) LOCKWASHER, SS.
10. POLE FINISH:
NATURAL ALUMINUM WITH 100 GRIT SATIN POLISH FINISH.
11. TRUSS ARMS:
MAIN TRUSS: 3.5" O.D. X 0.125" WALL 6063-T6 ALUMINUM ALLOY. TAPERED TO 2.375" O.D. AND FLATTENED TO 4.34"x 2.375" ELLIPTICAL.
SUPPORT TRUSS: 2.375" O.D. x 0.154" WALL (2" SCH 40) 6063-T6 ALUMINUM ALLOY TUBE.
HOLOPHANE NO. 1TA0632C45 (6FT) OR 1TA1032C45 (10FT) OR EQUAL.

MATERIAL LIST

QTY	DESCRIPTION
1	LUMINAIRE, COBRAHEAD, HPS OR LED
1	POLE, 32 FT, ALUMINUM
1	TRUSS, ALUMINUM, 6FT OR 10FT
4	NUT, 1" NOM, HEX, HEAVY, HRS
4	LOCKWASHER, 1" NOM., SS
4	FLATWASHER, 1" NOM., SS
A/N	WIRE, 14/2 TYPE UF-B, COPPER, WITH GROUND

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ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
ESMA01, ESMA04, ESPF06



STANDARD FIXTURE ASSEMBLY DETAIL
32ft ALUMINUM POLE WITH TRANSFORMER PEDESTAL BASE
FOR 6ft & 10ft BRACKET ARMS
WITH COBRAHEAD FIXTURE

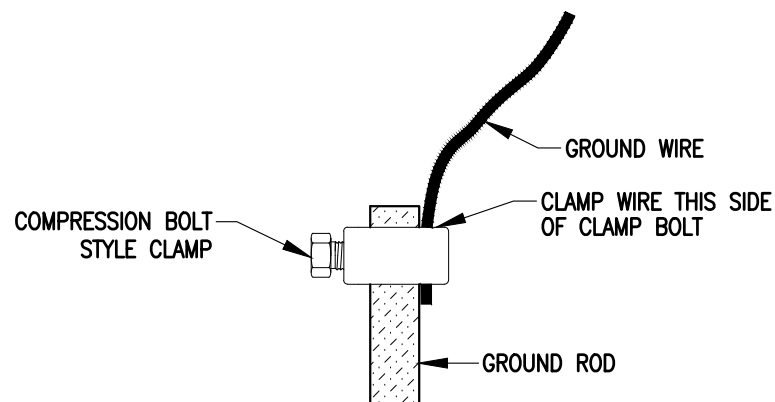


CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

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01/2022

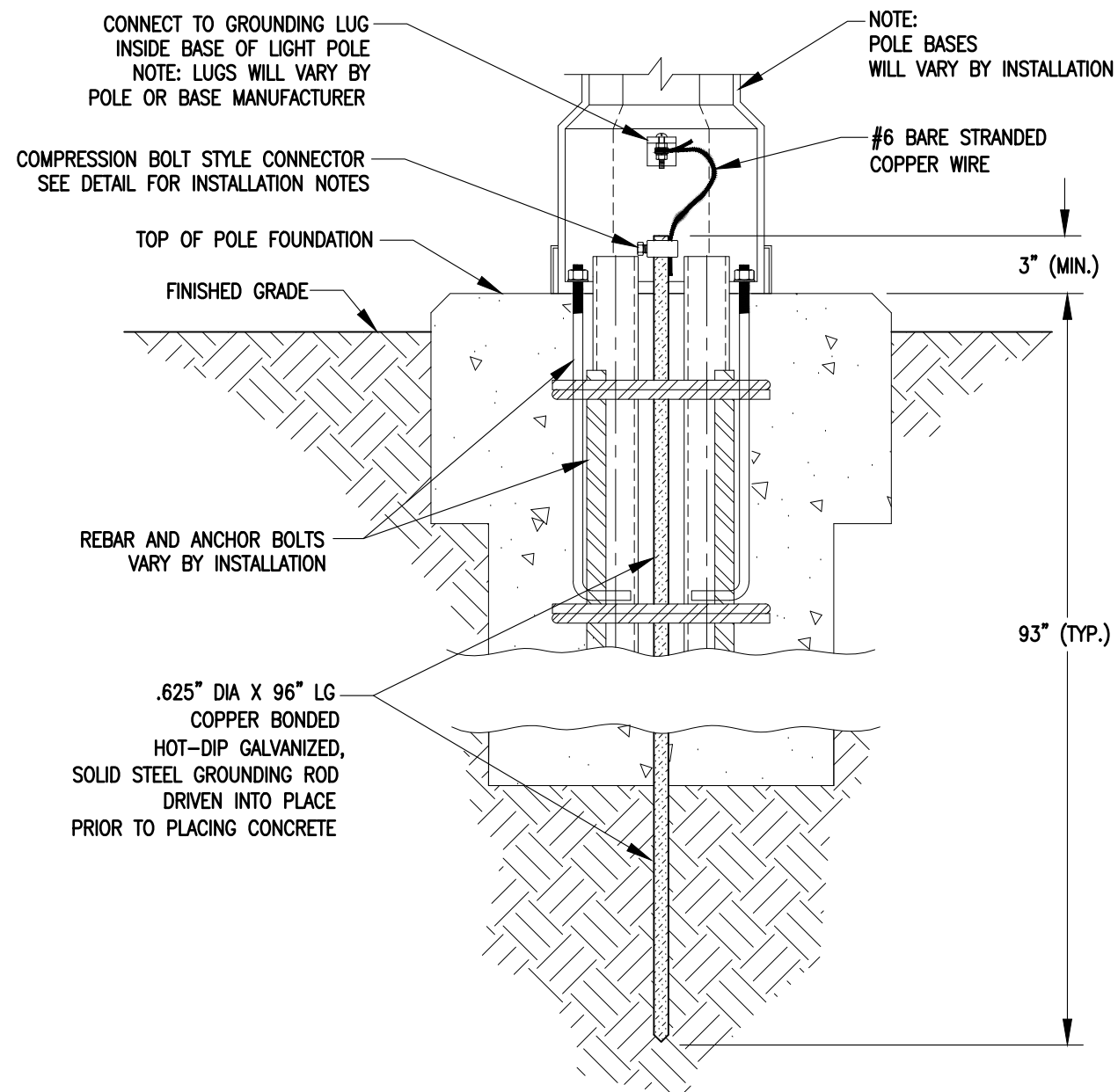
SHEET 2 OF 2
ESFA22

STANDARD DRAWINGS
III: MISCELLANEOUS ASSEMBLIES
(ESMA)



1. GROUND ROD CLAMP BOLT MUST TIGHTEN AGAINST THE GROUND ROD AND NOT AGAINST THE GROUND WIRE.
2. TORQUE BOLT PER MANUFACTURER'S INSTRUCTIONS.

COMPRESSION CLAMP DETAILS



STANDARD GROUNDING METHOD DETAILS

GENERAL NOTES:

1. HOT-DIP GALVANIZED SOLID STEEL GROUND RODS SHALL BE 0.625" DIAMETER X 96" LONG.
2. RODS ARE TO BE DRIVEN INTO UNDISTURBED, PERMANENTLY MOIST EARTH, AND SHALL BE A MINIMUM OF 93" DEEP IN THE COMBINED FOUNDATION CONCRETE AND UNDISTURBED EARTH.
3. ALL GROUNDING BOLTS, CLAMPS, NUTS, AND WASHERS SHALL BE HIGH COPPER ALLOY OR BRONZE MATERIAL.
4. INSTALLATION SHALL BE WITNESSED BY THE INSPECTOR OR BY THE ENGINEER.

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REFERENCES:
VDOT 2016 ROAD AND BRIDGE STANDARDS



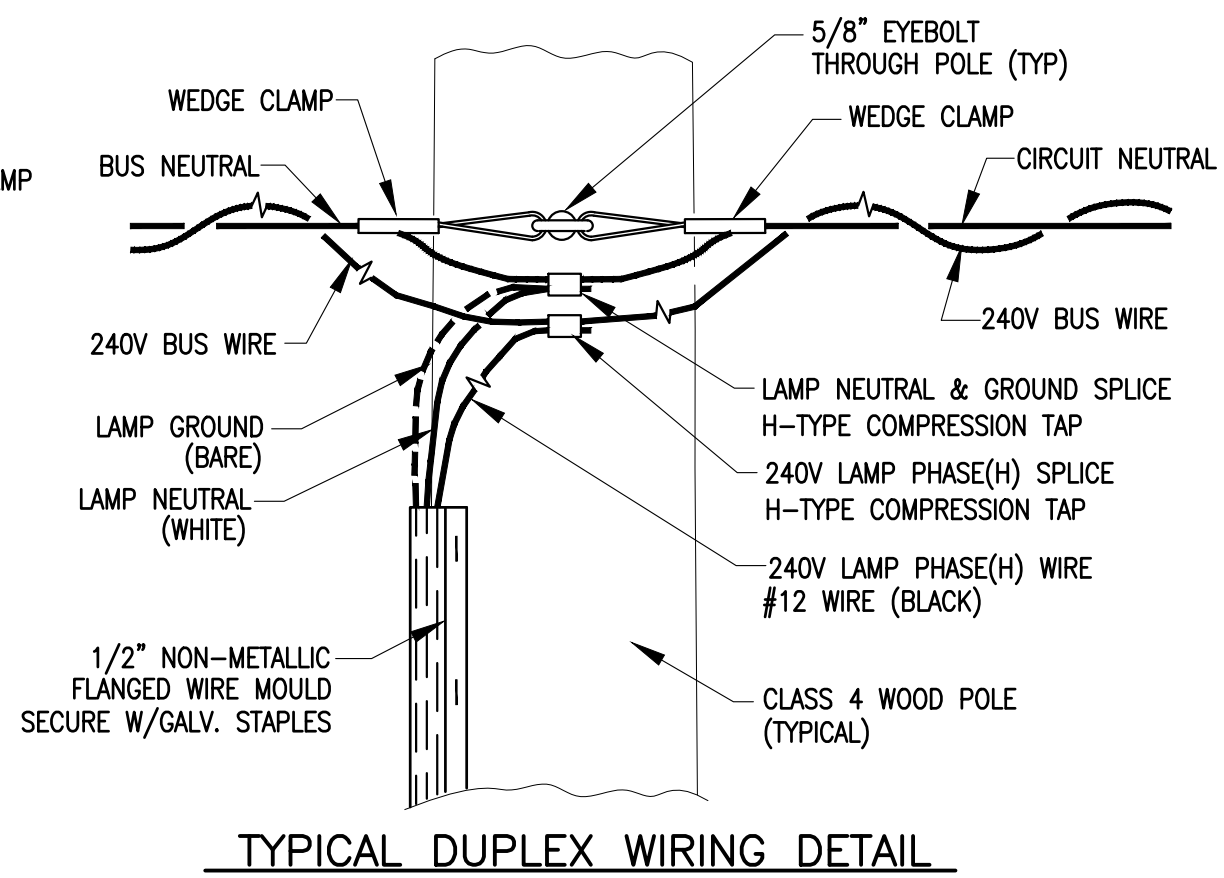
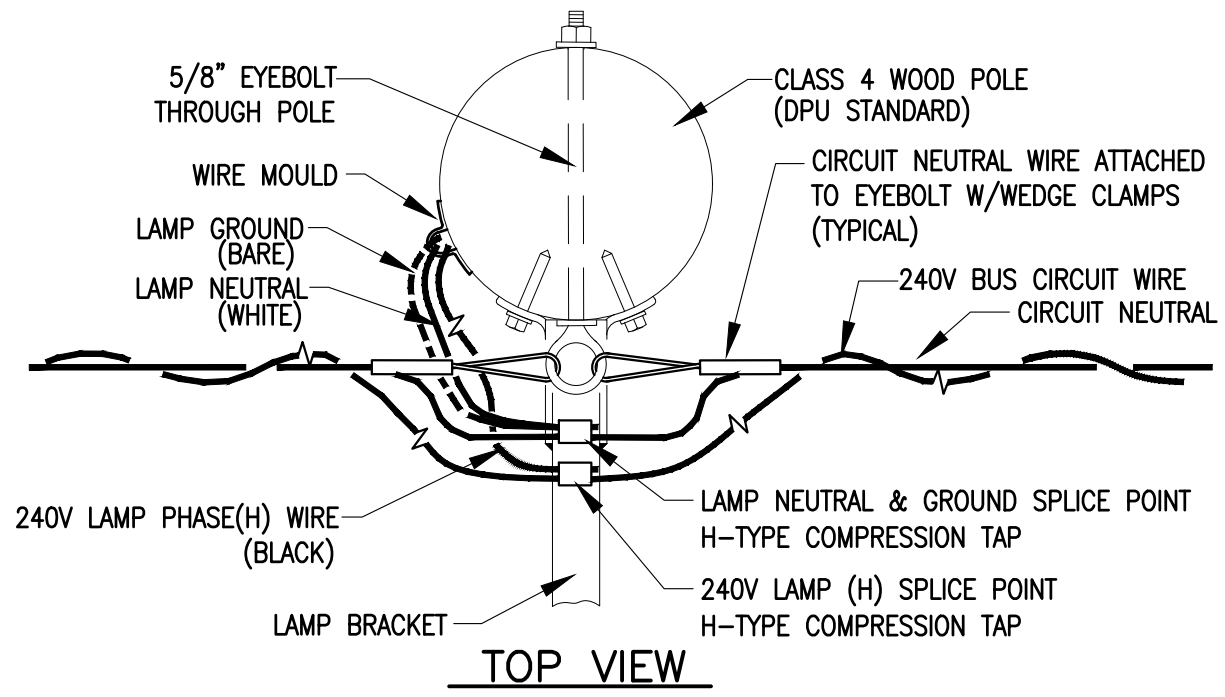
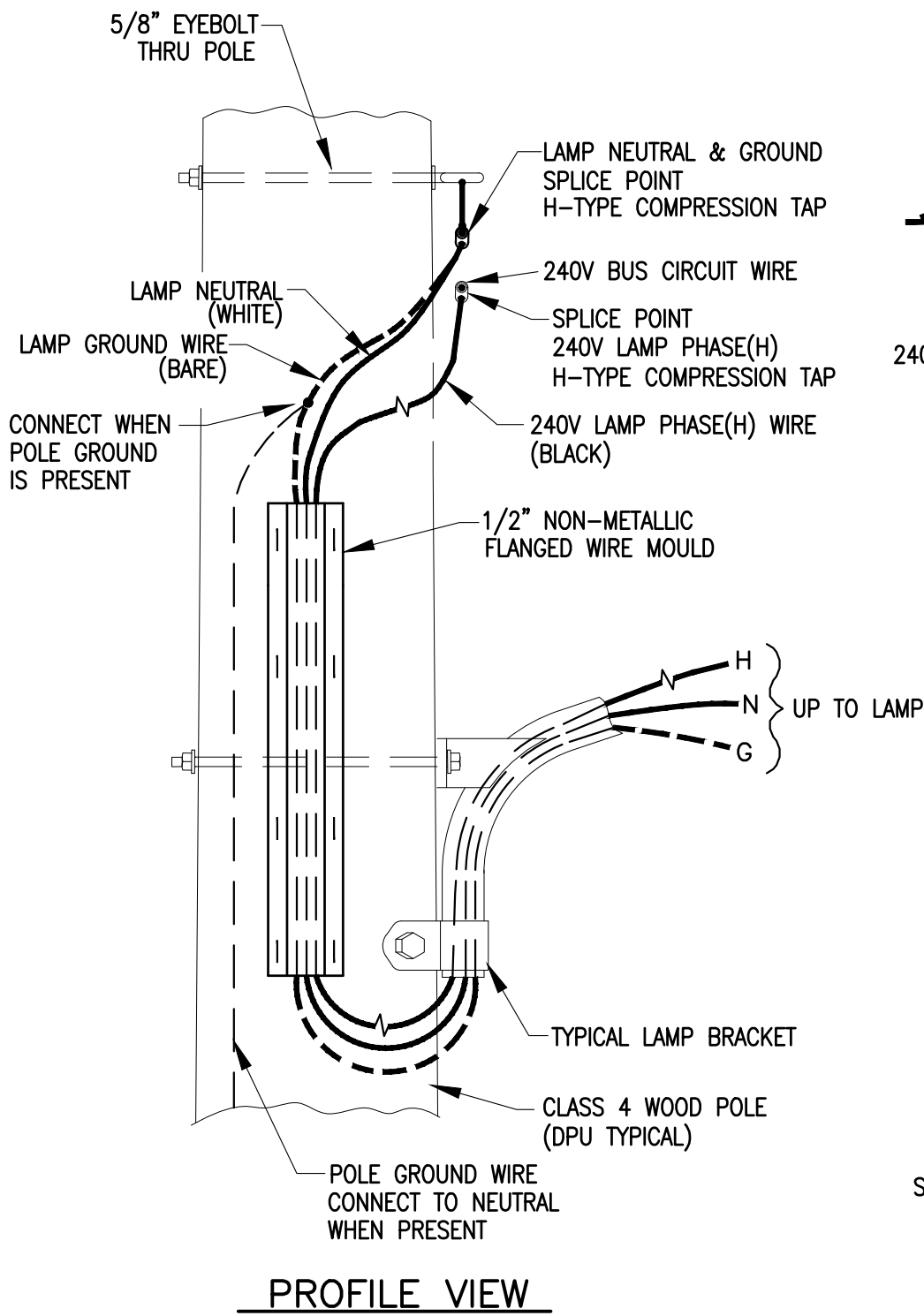
STANDARD MISCELLANEOUS ASSEMBLY DETAILS LIGHT POLE GROUNDING METHOD FOR LIGHT POLES WITH CONCRETE FOUNDATIONS



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

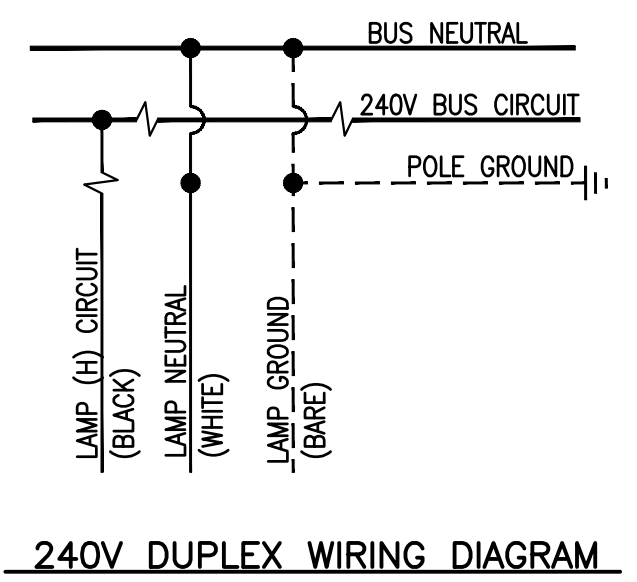
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REVISION DATE
01/2022

SHEET 1 OF 1
ESMA01



GENERAL NOTES:

1. CONNECT FOR 240V OPERATION.
2. ROUTE THE WIRE THROUGH THE NON-METALLIC WIRE MOULD. SECURE MOULD WITH GALVANIZED STAPLES.
3. ELECTRICAL SPLICES SHALL BE ELECTRICALLY SECURE AND MADE WITH PRESSURE OR COMPRESSION FITTINGS AS MANUFACTURED BY THOMAS & BETTS, BURNDY, 3-M, OR AN APPROVED EQUAL.
4. ALL WIRE CONNECTIONS SHALL BE COATED WITH NO-LOX COMPOUND, WITH ALL SHARP CORNERS OR VOIDS FILLED, FOLLOWED BY THREE (3) HALF-LAPPED LAYERS OF RUBBER ELECTRICAL TAPE, DIELECTRIC STRENGTH, 300V PER MIL SELF-VULCANIZING, FOLLOWED BY (3) HALF-LAPPED LAYERS OF SCOTCH LOCK BRAND 33 PLUS OR APPROVED EQUAL, VINYL PLASTIC ELECTRICAL TAPE. FINALLY, THE ENTIRE SPLICE AND 1" BEYOND TO BE COATED WITH SKOTCH KOTE OR APPROVED EQUAL.



REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

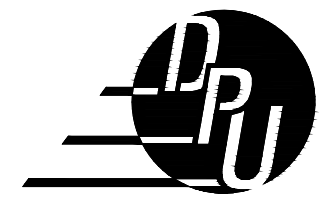
REFERENCES:



STANDARD MISCELLANEOUS ASSEMBLY DETAILS

240V DUPLEX WIRING DETAILS

FOR WOOD POLE MOUNTED 240V LIGHT FIXTURES (OVERHEAD WIRE)



CITY OF RICHMOND PUBLIC UTILITIES

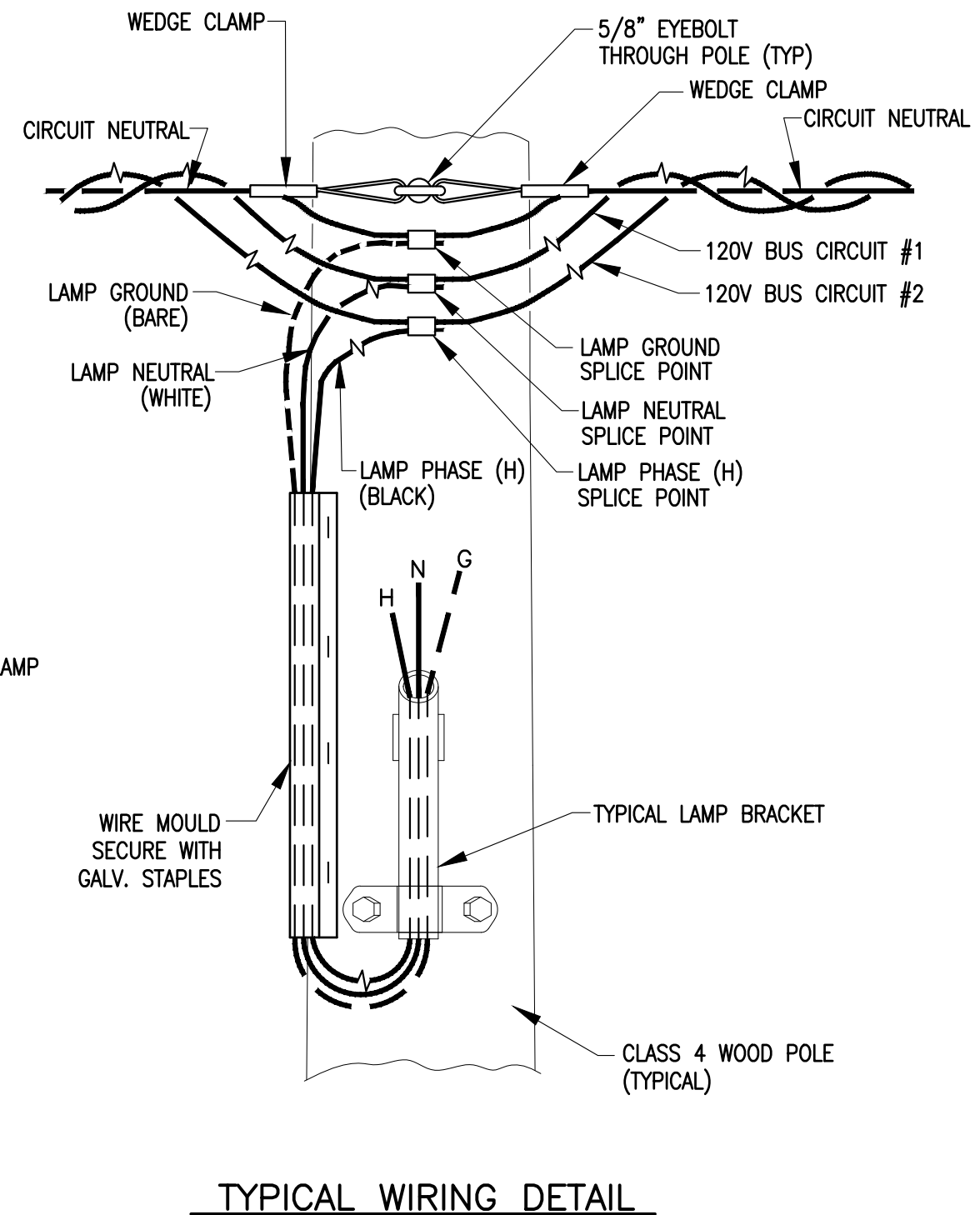
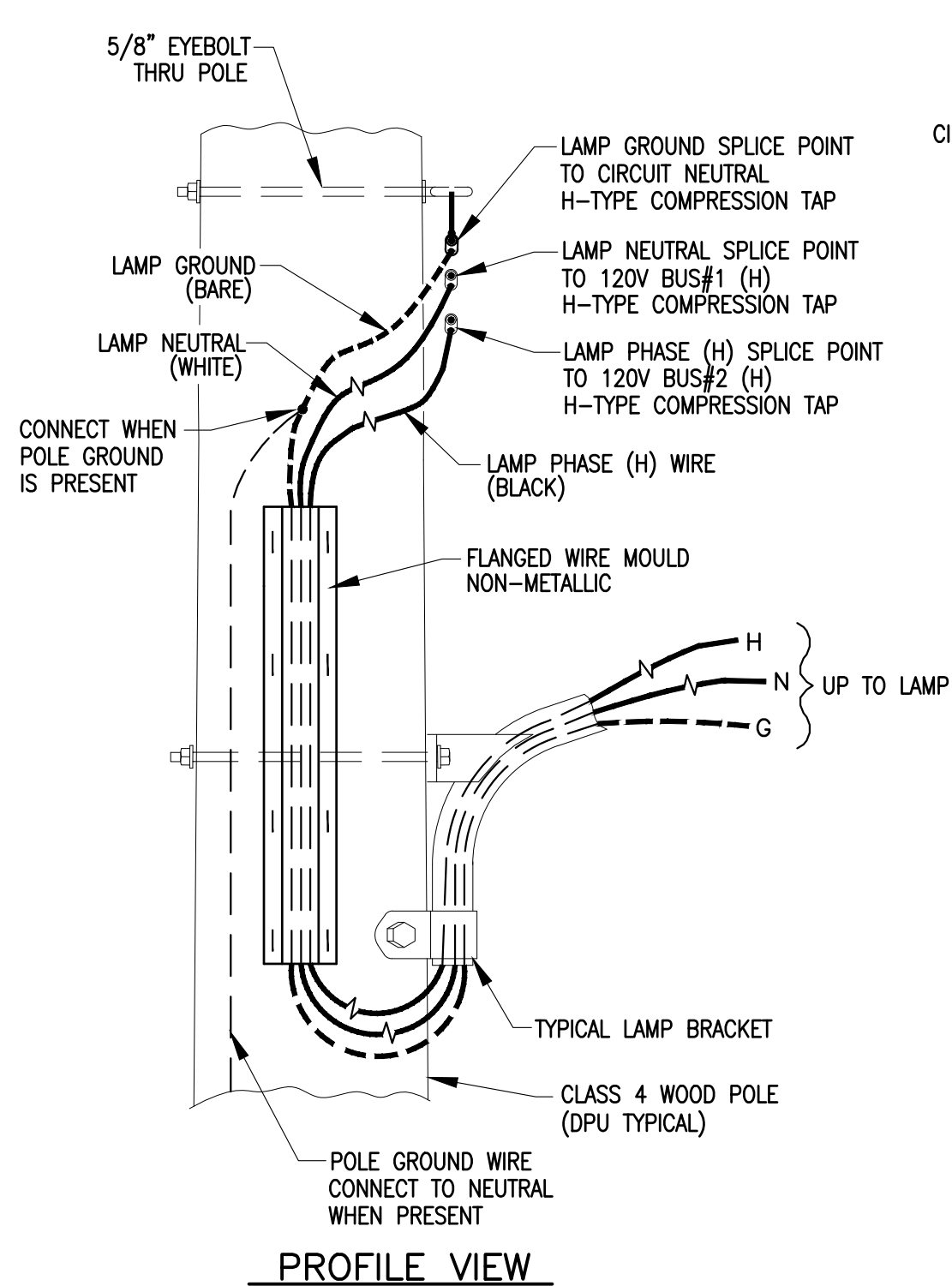
STREET LIGHT STANDARDS

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REVISION DATE 01/2022

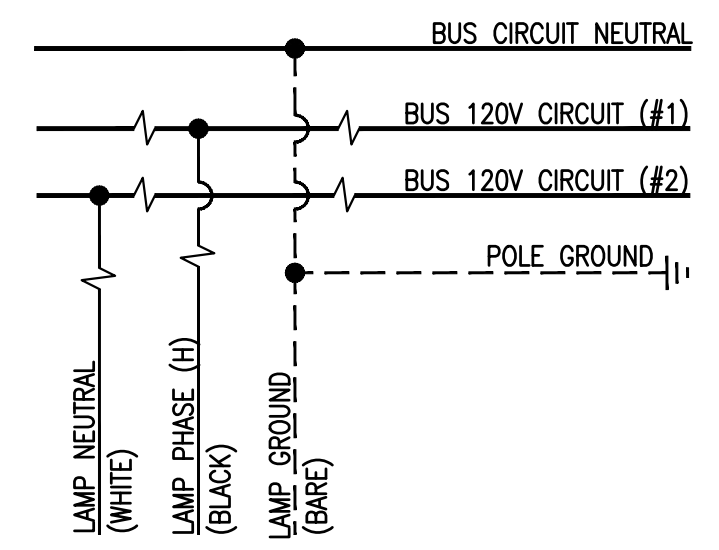
SHEET 1 OF 1

ESMA02



GENERAL NOTES:

1. CONNECT FOR 240V OPERATION VIA (2) 120V CIRCUITS.
2. ROUTE THE WIRE THROUGH THE NON-METALLIC WIRE MOULD. SECURE MOULD WITH GALVANIZED STAPLES.
3. ELECTRICAL SPLICES SHALL BE ELECTRICALLY SECURE AND MADE WITH PRESSURE OR COMPRESSION FITTINGS AS MANUFACTURED BY THOMAS & BETTS, BURNDY, 3-M, OR AN APPROVED EQUAL.
4. ALL WIRE CONNECTIONS SHALL BE COATED WITH NO-LOX COMPOUND, WITH ALL SHARP CORNERS OR VOIDS FILLED, FOLLOWED BY THREE (3) HALF-LAPPED LAYERS OF RUBBER ELECTRICAL TAPE, DIELECTRIC STRENGTH, 300V PER MIL SELF-VULCANIZING, FOLLOWED BY (3) HALF-LAPPED LAYERS OF SCOTCH LOCK BRAND 33 PLUS OR APPROVED EQUAL, VINYL PLASTIC ELECTRICAL TAPE. FINALLY, THE ENTIRE SPLICE AND 1" BEYOND TO BE COATED WITH SKOTCH KOTE OR APPROVED EQUAL.



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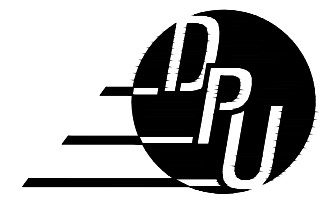
REFERENCES:



STANDARD MISCELLANEOUS ASSEMBLY DETAILS

240V TRIPLEX WIRING DETAILS

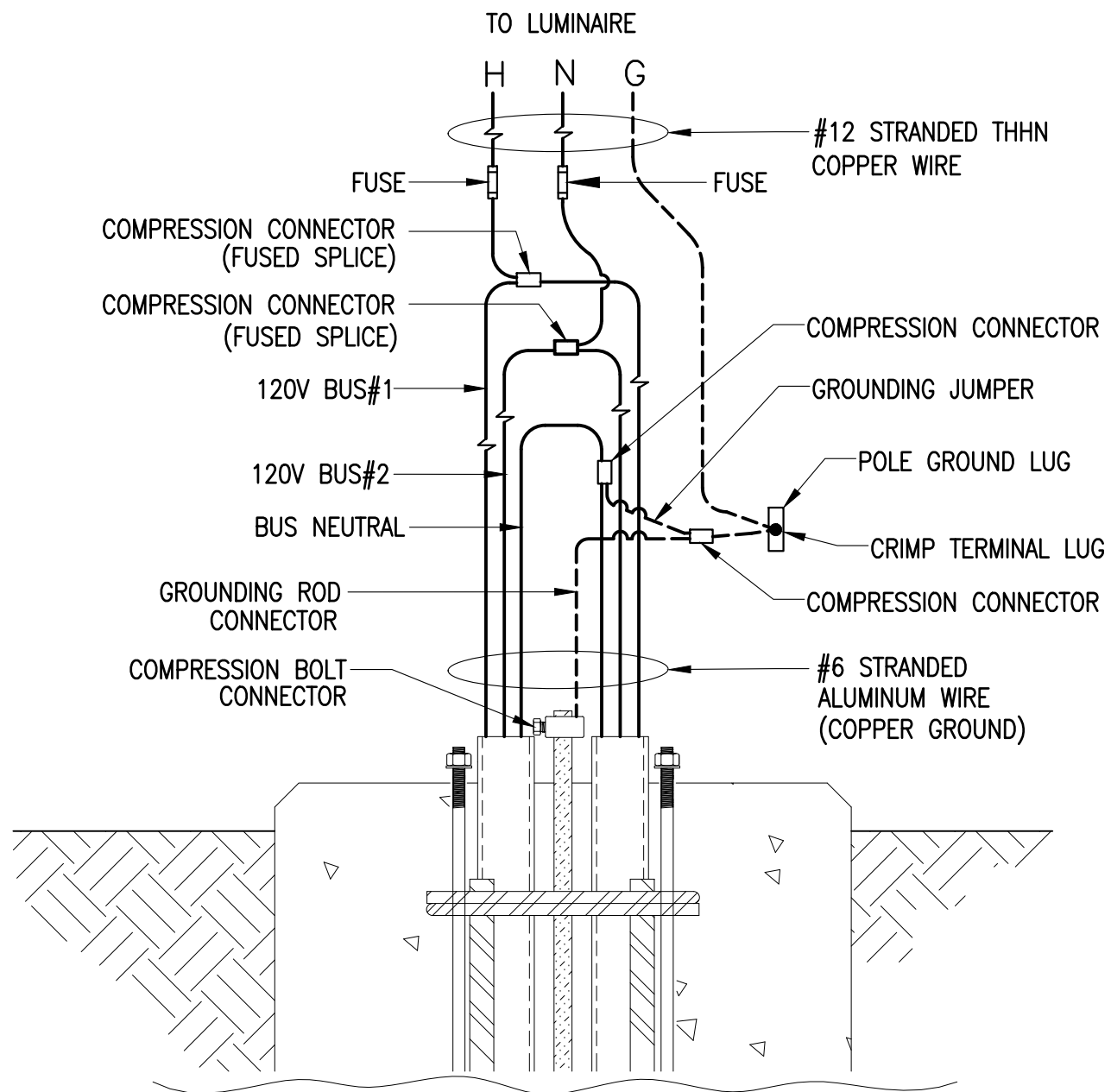
FOR WOOD POLE MOUNTED 240V LIGHT FIXTURES



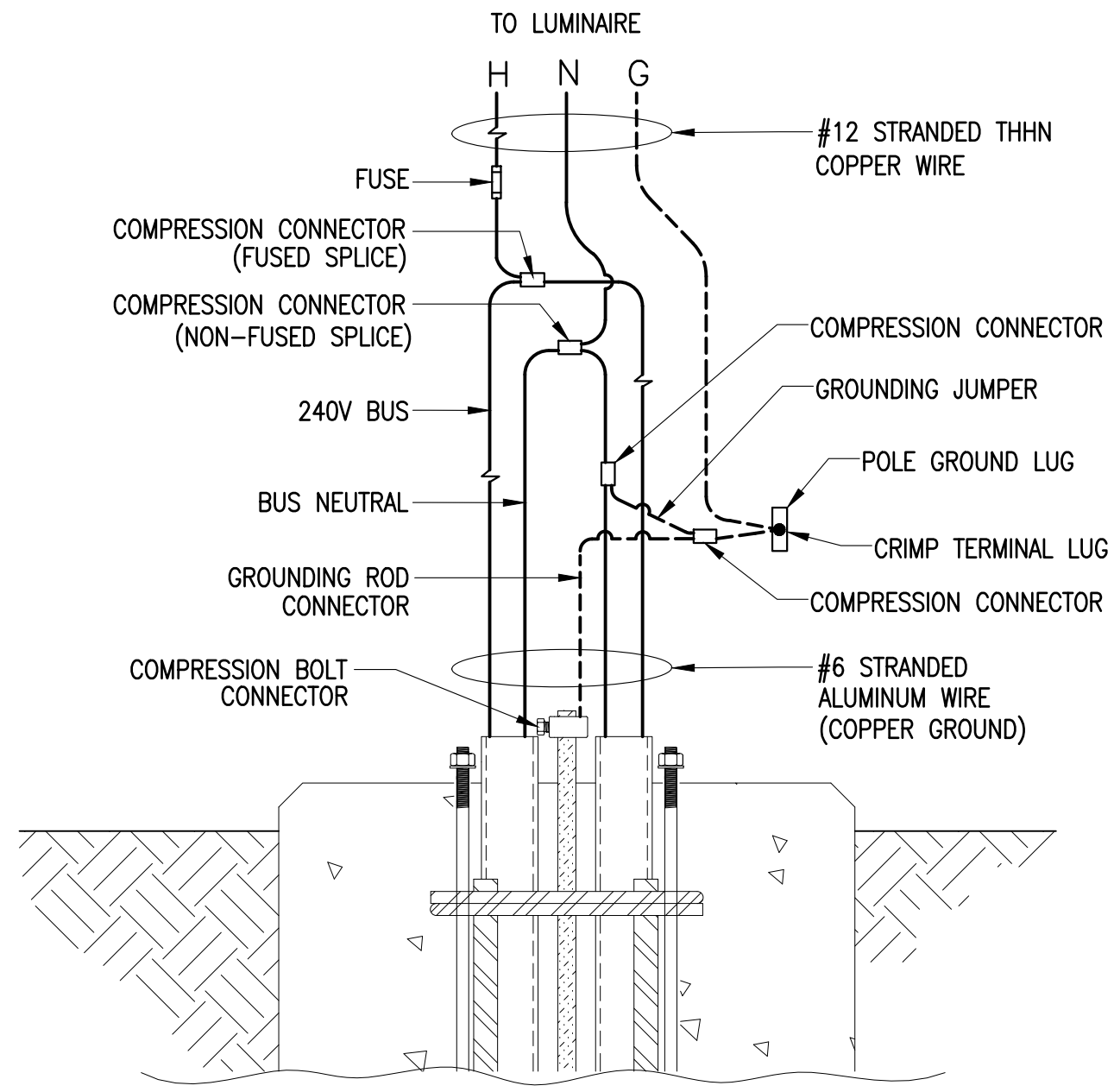
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 1
ESMA03



240V "TRIPLEX" WIRING DETAILS



240V "DUPLEX" WIRING DETAILS

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REFERENCES:



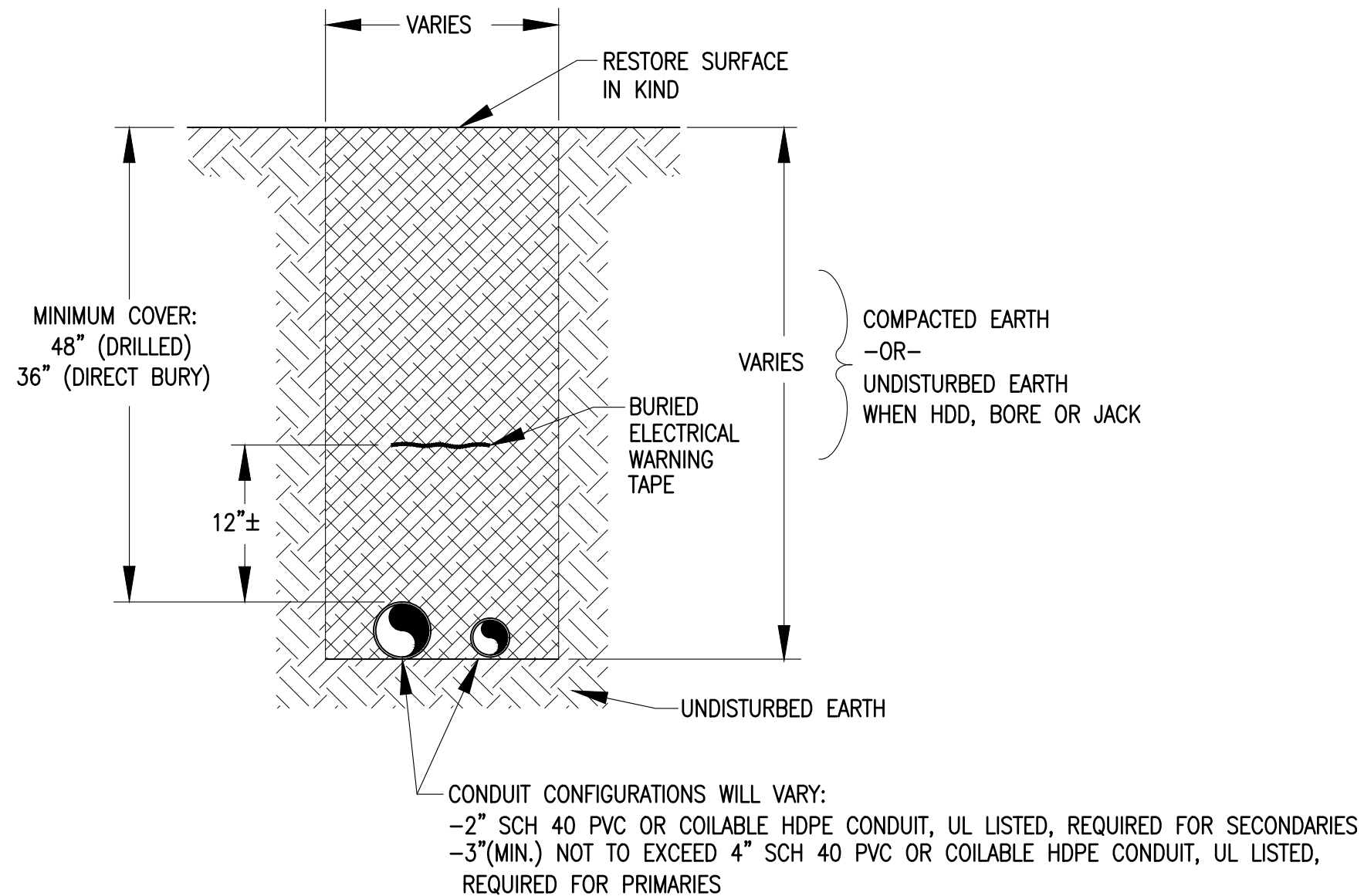
STANDARD MISCELLANEOUS ASSEMBLY DETAILS
TYPICAL STREET LIGHT WIRING METHODS
 FOR LIGHT POLES ON CONCRETE FOUNDATIONS (UNDERGROUND WIRING)



CITY OF RICHMOND PUBLIC UTILITIES
 STREET LIGHT STANDARDS

REVISION 0
 REVISION DATE
 01/2022

SHEET 1 OF 1
ESMA04



NON-ENCASED CONDUIT REQUIREMENTS

-SEE SHEET 2 OF 2 FOR ENCASED CONDUIT REQUIREMENTS-

GENERAL NOTES:

1. PRIMARY CIRCUIT CONDUIT IS TO BE 3"(MIN) BUT NOT TO EXCEED 4" SCH 40 PVC OR COILABLE HDPE, UL LISTED.
2. SECONDARY CIRCUIT CONDUIT IS TO BE 2" SCH 40 PVC OR COILABLE HDPE, UL LISTED.
3. ALL NON-ENCASED DIRECT BURY CONDUIT WILL HAVE A MINIMUM OF 36" OF COVER.
4. ALL HORIZONTALLY DIRECTIONALLY DRILLED CONDUIT WILL BE IN UNDISTURBED EARTH AND HAVE A MINIMUM OF 48" OF COVER.
5. FOR NON-ENCASED DIRECT BURY CONDUITS, THE WARNING TAPE SHOULD BE PLACED AT A MINIMUM OF 12" ABOVE THE CONDUIT.
6. NO MORE THAN TWO (2) 90° BENDS ALLOWED PER SINGLE RUN, RISERS INCLUDED, WITHOUT THE ADDITION OF A SECONDARY ENCLOSURE OR PULL-BOX.
7. NO RUNS OVER 300' WITHOUT THE ADDITION OF A HANDHOLE.
8. POLE BASE TO POLE BASE RUNS ARE SINGLE 2" SCH 40 PVC OR COILABLE HDPE, UNLESS OTHERWISE NOTED.
9. CONDUITS RUNNING PARALLEL TO OTHER UTILITY LINES, MUST HAVE A MINIMUM OF 36" OF HORIZONTAL SEPARATION.
10. ALL OTHER UTILITY CROSSINGS MUST MAINTAIN A MINIMUM OF 12" VERTICAL SEPARATION.
11. BACKFILL, COMPACTION, AND SURFACE RESTORATION WILL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF RICHMOND DEPARTMENT OF PUBLIC WORKS STANDARDS FOR TRENCH AND SURFACE RESTORATION.

(CONTINUED ON SHT 2 OF 2)

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REFERENCES:
VDOT 2016 ROAD AND BRIDGE STANDARDS



STANDARD MISCELLANEOUS ASSEMBLY DETAILS STANDARD CONDUIT REQUIREMENTS AND INSTALLATION DETAILS FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



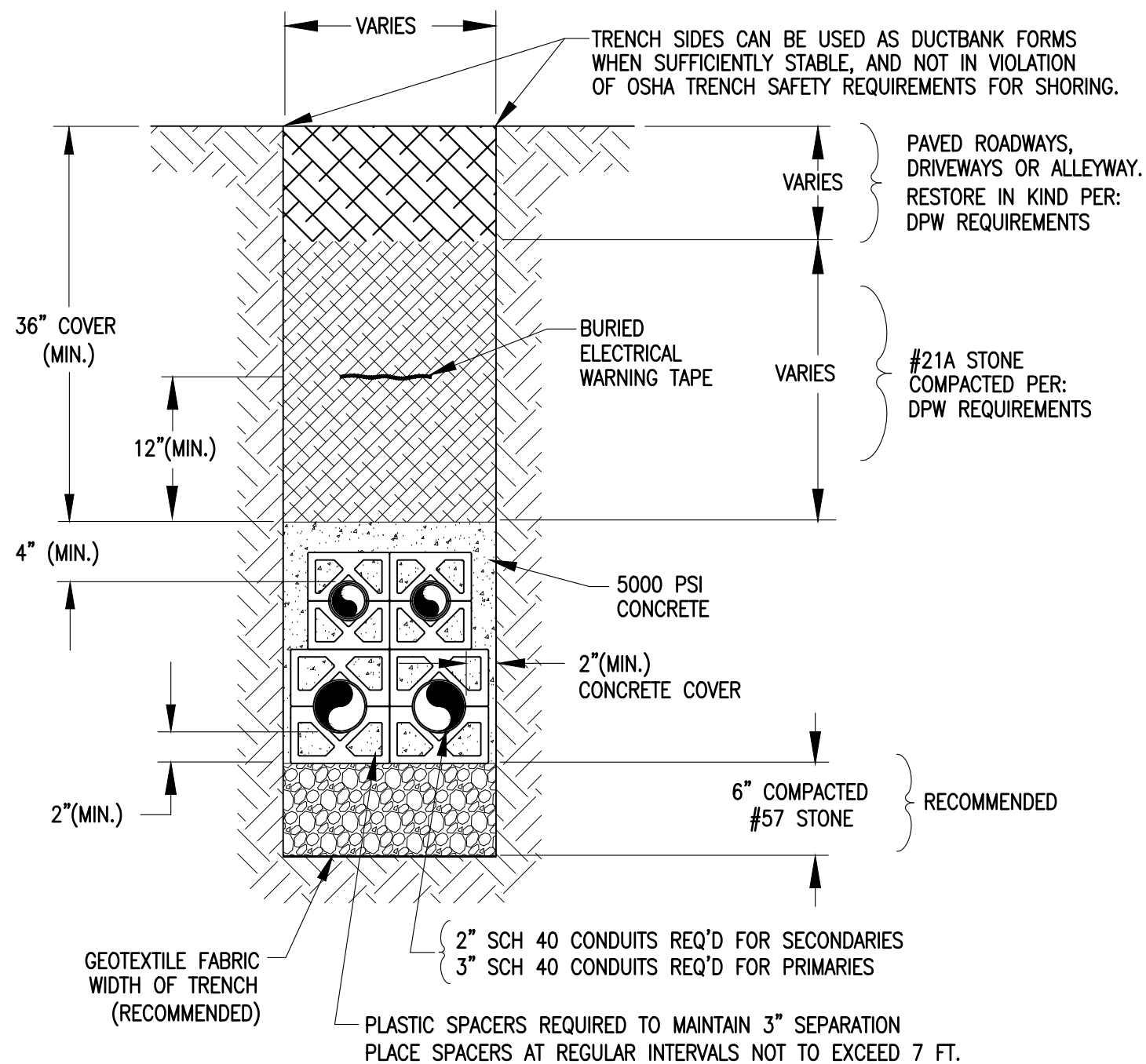
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 2
ESMA05



SHEET 2 OF 2
ESMA05



SECTION VIEW

GENERAL NOTES:

1. PRIMARY CIRCUIT CONDUIT IS TO BE 3"(MIN) BUT NOT TO EXCEED 4" SCH 40, UL LISTED, PVC.
2. SECONDARY CIRCUIT CONDUIT IS TO BE 2" SCH 40, UL LISTED PVC.
3. ELECTRICAL WARNING TAPE IS TO BE PLACED DIRECTLY OVER AND A MINIMUM OF 12" ABOVE THE ENCASEMENT.
4. PLASTIC CONDUIT SPACERS TO BE USED, AS REQUIRED, TO MAINTAIN A 3" SPACING BETWEEN CONDUITS AND TO MAINTAIN CONDUIT RUN ALIGNMENT.
5. PLASTIC SPACERS TO BE SECURED TO CONDUIT TO PREVENT DISPLACEMENT DURING ENCASEMENT OR BACKFILLING.
6. DUCTBANK MUST BE SUPPORTED AT REGULAR INTERVALS, NOT TO EXCEED SEVEN FEET (7').
7. GEOTEXTILE FABRIC, IN BOTTOM OF TRENCH, IS RECOMMENDED TO REDUCE STONE LOSS INTO THE SUBGRADE.
8. CONCRETE TO BE 5000 PSI AT 28 DAYS. MECHANICAL VIBRATION REQUIRED DURING PLACEMENT.
9. NO RUNS OVER 300' WITHOUT THE ADDITION OF A MANHOLE OR VAULT.
10. ALL DIRECTIONAL CHANGES IN DUCTBANKS REQUIRE THE ADDITION OF A MANHOLE OR VAULT.
11. DUCTBANKS RUNNING PARALLEL TO OTHER UTILITY LINES, MUST HAVE A MINIMUM OF 36" OF HORIZONTAL SEPARATION.
12. ALL OTHER UTILITY CROSSINGS MUST MAINTAIN A MINIMUM OF 12" VERTICAL SEPARATION.
13. BACKFILL, COMPACTION, AND SURFACE RESTORATION WILL BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF RICHMOND DEPARTMENT OF PUBLIC WORKS STANDARDS FOR TRENCH AND SURFACE RESTORATION.
14. BY DESIGN, EVERY PRIMARY OR SECONDARY RUN WILL HAVE A "SPARE" ACCOMPANYING CONDUIT RUN.

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REFERENCES:
N/A



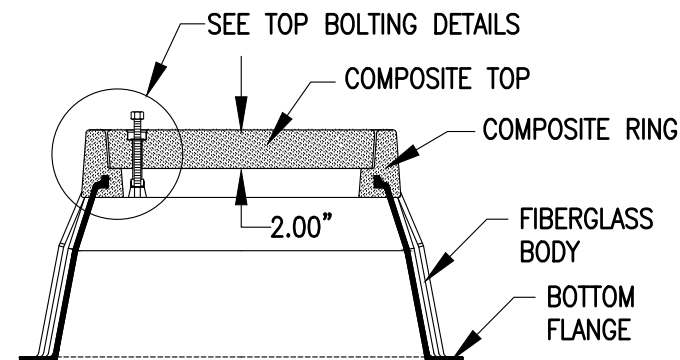
STANDARD MISCELLANEOUS ASSEMBLY DETAILS
DUCT BANK REQUIREMENTS AND INSTALLATION DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



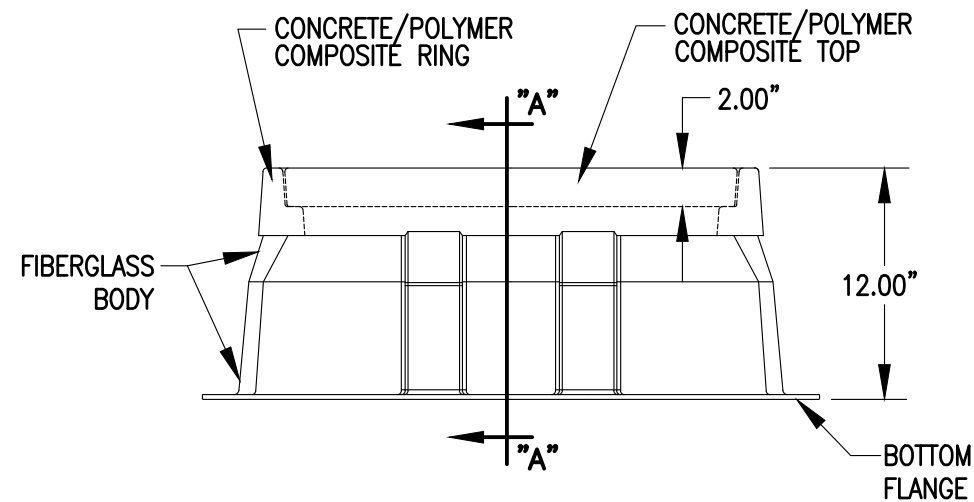
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

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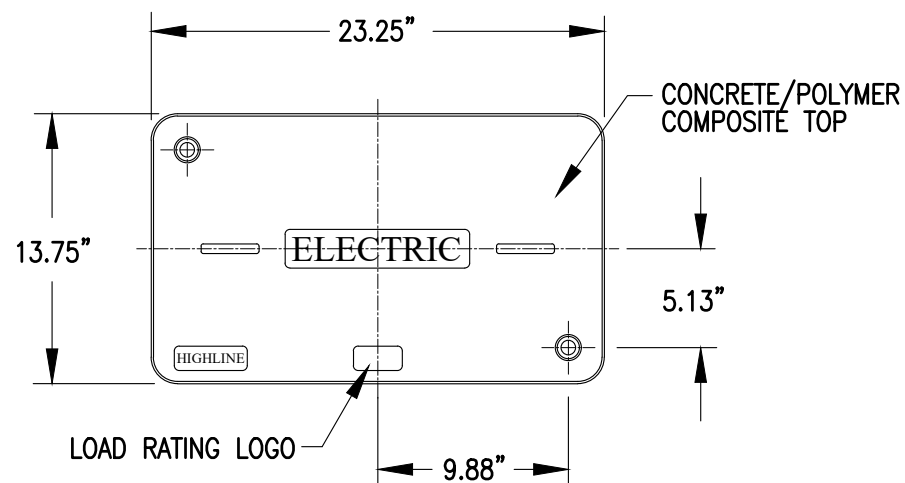
SHEET 1 OF 1
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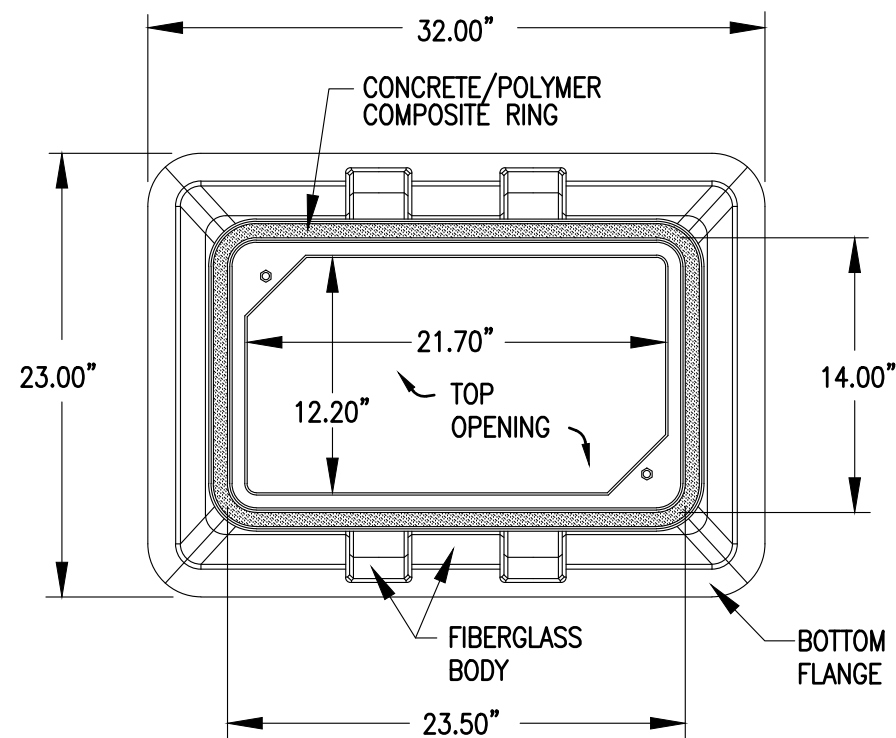
SECTION "A-A"



BOX DETAILS – SIDE VIEW

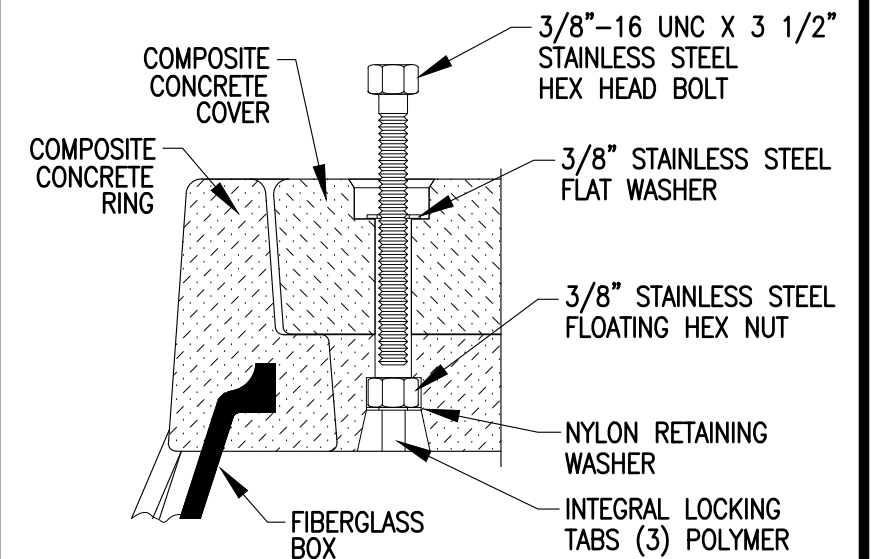


TOP DETAILS



BOX DETAILS – TOP VIEW

SEE SHEET 2 OF 2 FOR INSTALLATION DETAILS



TOP BOLTING DETAILS

SPECIFICATIONS:

1. BOX IS TO BE DESIGNED AND RATED FOR TIER 15 (22,500 LBS).
2. PULL BOX BASE SHALL BE OF THE DIMENSIONS 23" WIDTH BY 32" LENGTH BY 12" DEPTH.
3. BOX MUST BE NON-CONDUCTIVE AND CONSTRUCTED OF FIRE RETARDANT MATERIALS.
4. BOX TO BE CONSTRUCTED OF FIBERGLASS
5. BOX RING AND COVER TO BE CONSTRUCTED OF COMPOSITE POLYMER CONCRETE.
6. BOX COVER SHALL BE FACTORY EMBOSSED WITH "ELECTRIC".
7. COVER SHALL BE SECURED WITH (2) 3/8-16 BOLTS.
8. NUTS IN BOX COVER MUST BE FIELD REPLACEABLE.
9. CURRENT STANDARD IS: HIGHLINE PRODUCTS MODEL CHA132412, OR EQUAL.

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:
N/A



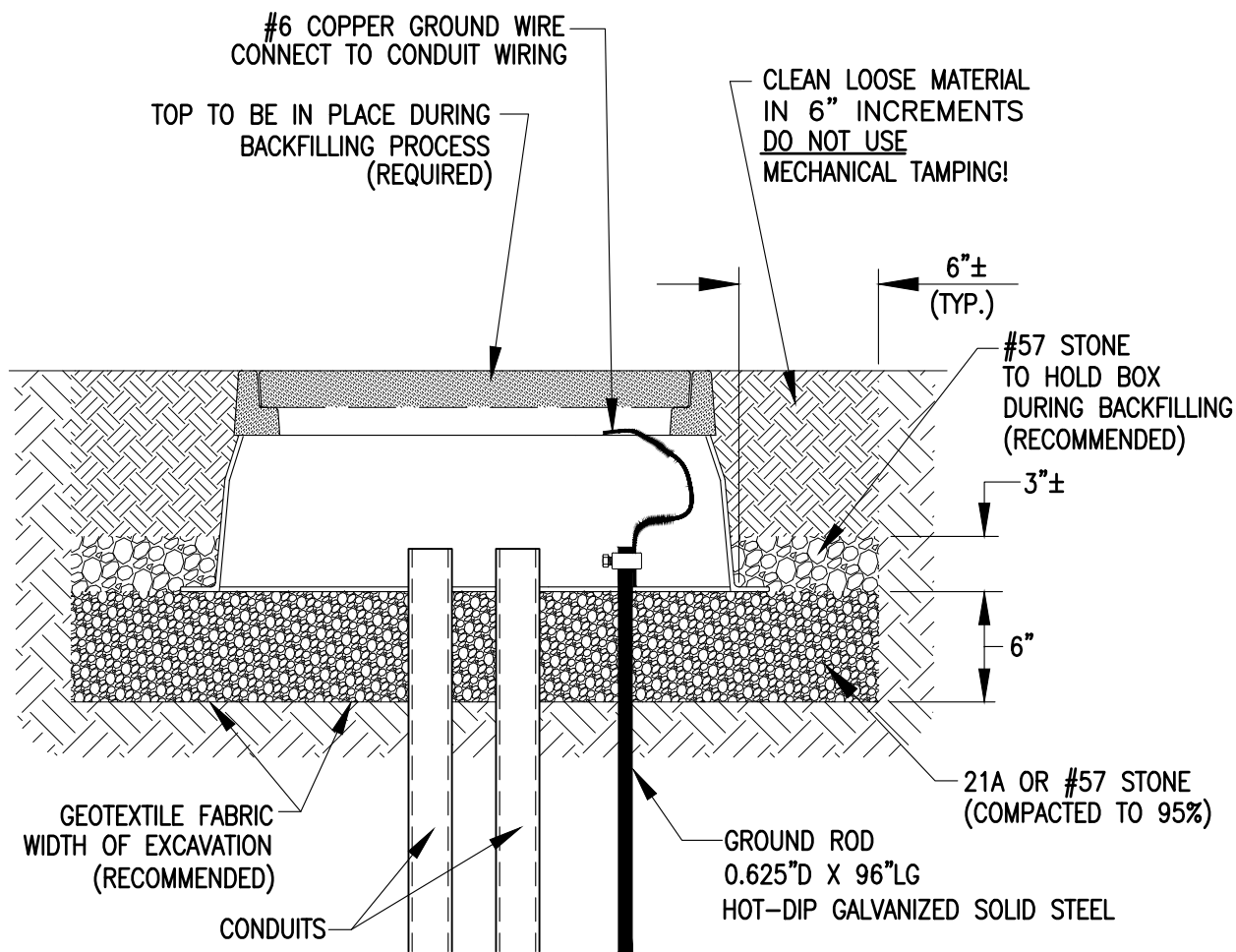
STANDARD MISCELLANEOUS ASSEMBLY DETAILS
STANDARD HAND HOLE BOX SPECIFICATIONS AND INSTALLATION DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 2
ESMA07

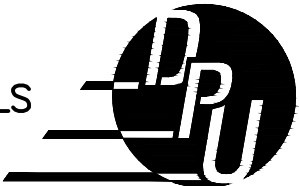


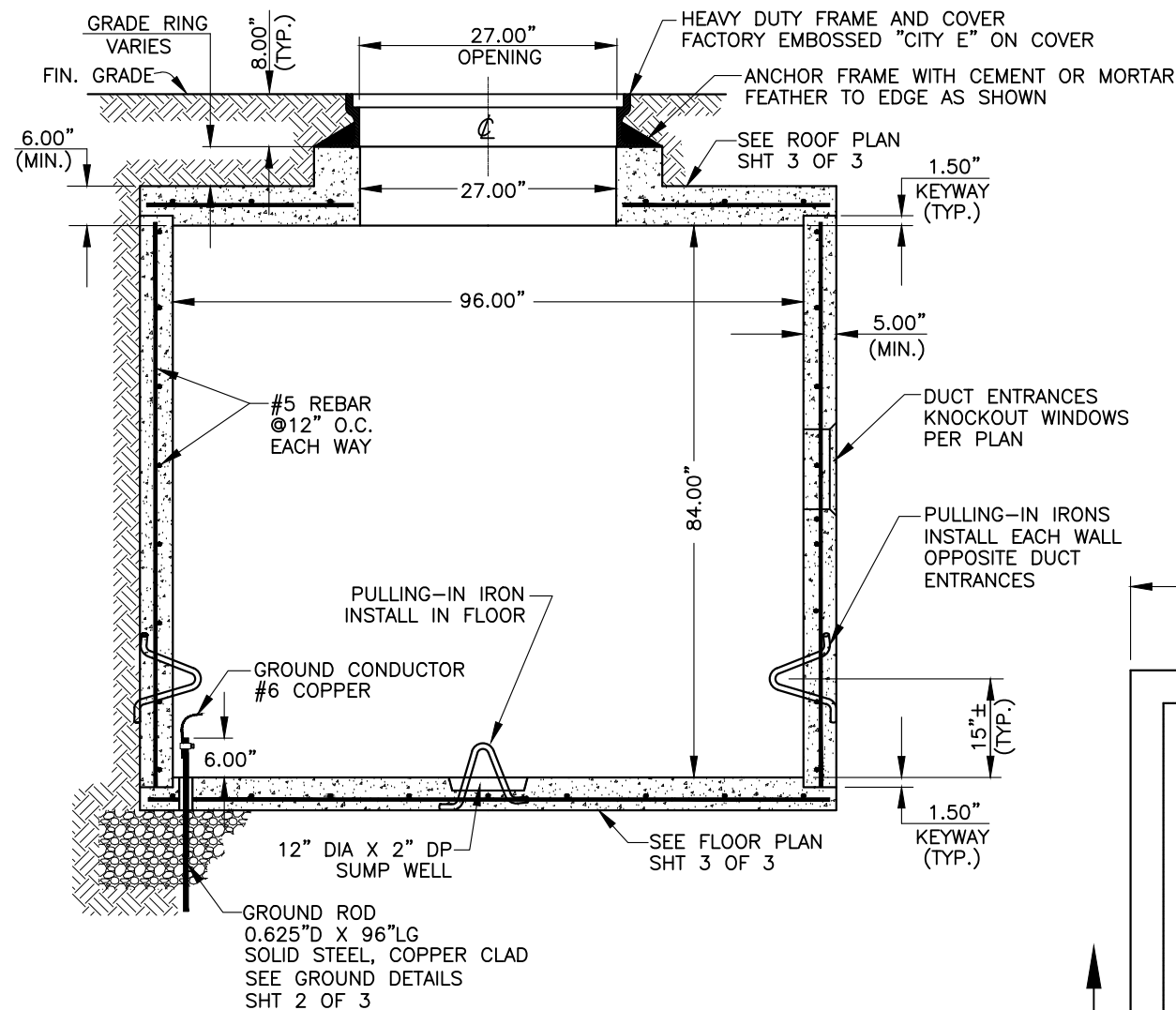
TYPICAL HAND HOLE INSTALLATION DETAILS

GENERAL NOTES –INSTALLATION:

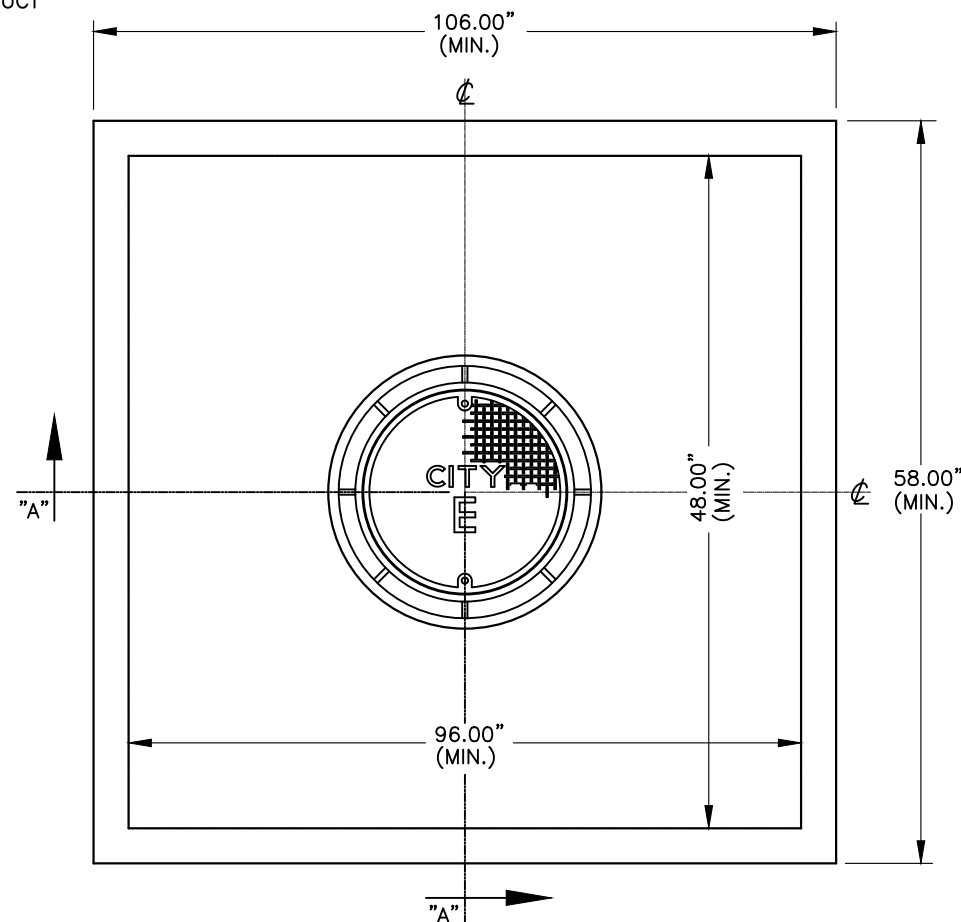
1. IT IS RECOMMENDED THAT THE EXCAVATION FOR THE HAND HOLE BE 6" LARGER ON ALL SIDES THAN THE BASE DIMENSIONS.
2. GEOTEXTILE FABRIC IS RECOMMENDED UNDER BASE STONE TO MINIMIZE STONE LOSS TO THE SUBGRADE.
3. A MINIMUM OF 6" OF 21A OR #57 STONE LEVELED AND COMPACTED TO 95% SHALL BE PLACED BELOW THE BASE.
4. A SINGLE GROUND ROD IS REQUIRED.
5. GROUND ROD SHALL BE HOT-DIP GALVANIZED SOLID STEEL, 0.625" DIA X96" LG.
6. GROUND ROD IS TO BE DRIVEN INTO UNDISTURBED EARTH AND SHALL BE A MINIMUM OF 92" IN THE GROUND.
7. BACKFILL AND COMPACTION WILL BE DONE AS PRESCRIBED.
8. SURFACE RESTORATION WILL BE AS PRESCRIBED, BUT MAY BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE CITY OF RICHMOND DEPARTMENT OF PUBLIC WORKS STANDARDS FOR TRENCH AND SURFACE RESTORATION WHEN APPLICABLE.
9. IT IS REQUIRED TO HAVE THE COVER IN PLACE DURING INSTALLATION TO MINIMIZE COLLAPSE DUE TO COMPACTION.

MATERIAL LIST	
QTY	DESCRIPTION
1 EA	HAND HOLE, COMPOSITE, 23 X 32 X 12
1 EA	GROUND ROD, 0.625" X 96", SOLID STEEL, HOT-DIP GALVANIZED
1 EA	GROUNDING CLAMP, COMPRESSION BOLT STYLE
1 EA	WIRE, #6 COPPER X 18"
1 EA	STONE, 21A or #57, X 8 CU. FT.
1 EA	GEOTEXTILE FABRIC X 11 SQ. FT. (OPTIONAL)





PROFILE VIEW



PLAN VIEW

GENERAL NOTES:

1. MANHOLES SHALL BE USED WHEN SPECIFICALLY REQUIRED BY PROJECT REQUIREMENTS. MANHOLES SHALL BE PROVIDED AT ALL DIRECTION CHANGES OF UNDERGROUND ELECTRICAL DUCTS.
2. DESIGN SHALL CONFORM TO ASTM C494 GOVERNING CAST-IN-PLACE CONCRETE.
3. DESIGN SHALL CONFORM TO AASHTO HS-20, WHEEL LOAD AND APPLICABLE IMPACT, VERTICAL AND LATERAL SOIL PRESSURES, AND REINFORCING COVER.
4. RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS PER CRSI (CONCRETE REINFORCING STEEL INSTITUTE).
5. MANHOLES SHALL HAVE A MINIMUM INSIDE DIMENSIONS OF 8 FEET LONG, 4 FEET WIDE AND 7 FEET HIGH.
6. MANHOLES CLEAR HORIZONTAL WORKSPACE SHALL BE GOVERNED BY THE NESC PART B, SECT. 323.
7. CONCRETE SHALL BE 5000 PSI AT 28 DAYS.
8. WALLS AND FLOOR SHALL BE A MINIMUM OF 5 INCHES THICK, ROOF SHALL BE A MINIMUM OF 6 INCHES THICK.
9. REBAR SHALL BE ASTM A615 GRD 60.
10. KNOCKOUT WINDOWS SHALL BE PROVIDED AT DUCT ENTRANCES AND EXITS.
11. PULLING-IN IRONS SHALL BE INSTALLED IN WALLS OPPOSITE DUCT ENTRANCES AND ONE INSTALLED IN CENTER OF FLOOR.
12. GROUNDING WIRE SHALL BE BOLTED TO THE GROUND ROD BY COMPRESSION TYPE CLAMP.
13. STRUCTURAL FIBERGLASS VERTICAL CABLE SUPPORT RACKS AND HORIZONTAL CABLE SUPPORT ARMS SHALL BE INSTALLED PER DESIGN.
14. MANHOLE FRAME AND COVER SHALL BE CAST IRON AND PROVIDE A 27 INCH OPENING, PER STANDARD ESMA09.
15. MANHOLE COVER SHALL BE EMBOSSED WITH THE WORD "CITY E" AS SHOWN.

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:
ESMA09, ASTM C494, AASHTO HS-20, NESC



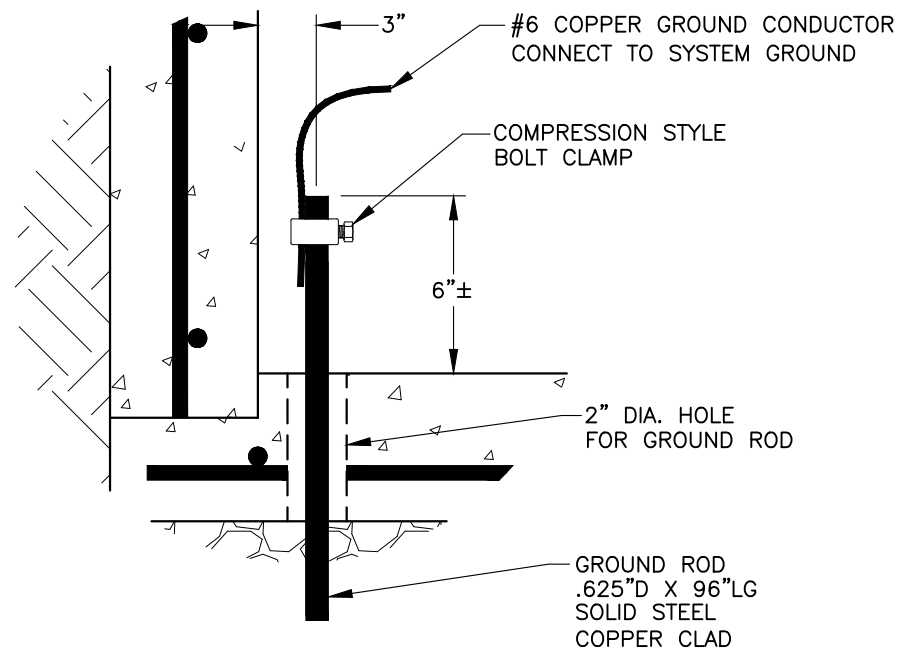
STANDARD MISCELLANEOUS ASSEMBLY DETAILS STANDARD CAST-IN-PLACE WORKING MANHOLE SPECIFICATIONS AND DETAILS FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



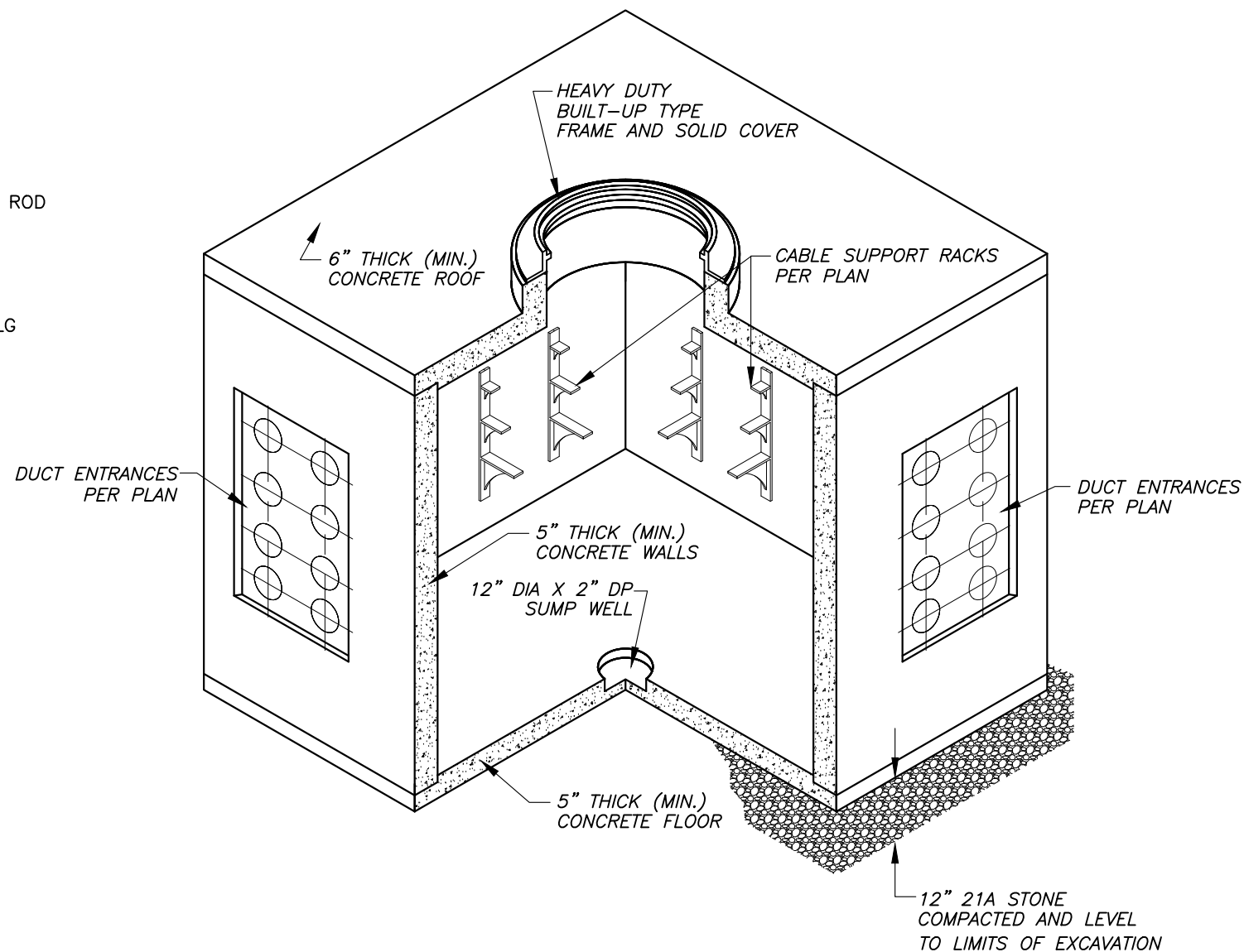
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 3
ESMA08



GROUND DETAILS



SECTION "A-A"

CONSTRUCTION NOTES:

1. FOUNDATION SHALL BE A MINIMUM OF 12" OF VDOT 21-A STONE, COMPACTED TO 95% AND LEVEL, EXTENDING TO THE EXCAVATION LIMITS, BUT NOT LESS THAN 6 INCHES BEYOND THE MANHOLE LIMITS.
2. REBAR TO BE SPREAD AROUND ALL OPENINGS.
3. MECHANICAL VIBRATION REQUIRED DURING THE PLACEMENT OF THE CONCRETE FLOOR, WALLS, AND ROOF, TO ELIMINATE ALL VOIDS AND AIR POCKETS.
4. CONCRETE ENCASEMENT OF THE DUCTS SHALL EXTEND TO THE INTERIOR PLANE OF THE MANHOLE WALL.
5. CONDUITS ENTERING THE MANHOLE SHALL BE PROVIDED WITH ENDBELL FITTINGS.
6. THE MANHOLE FRAME AND COVER SHALL BE INSTALLED FLUSH WITH THE FINAL FINISHED GRADE.
6. BACKFILL SHALL NOT BEGIN UNTIL THE CONCRETE HAS REACHED 75% OF ITS 28-DAY COMPRESSIVE STRENGTH.

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:
N/A



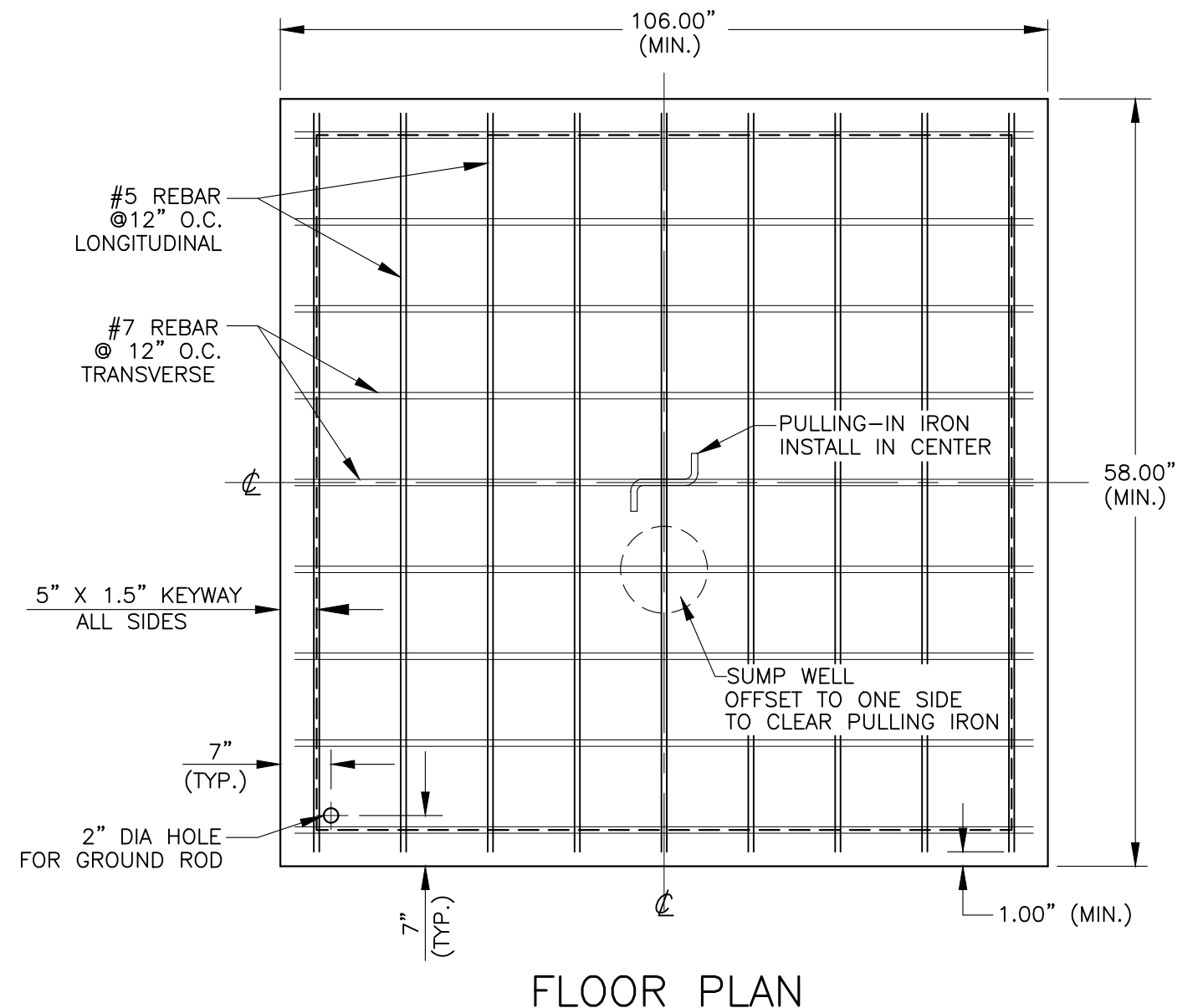
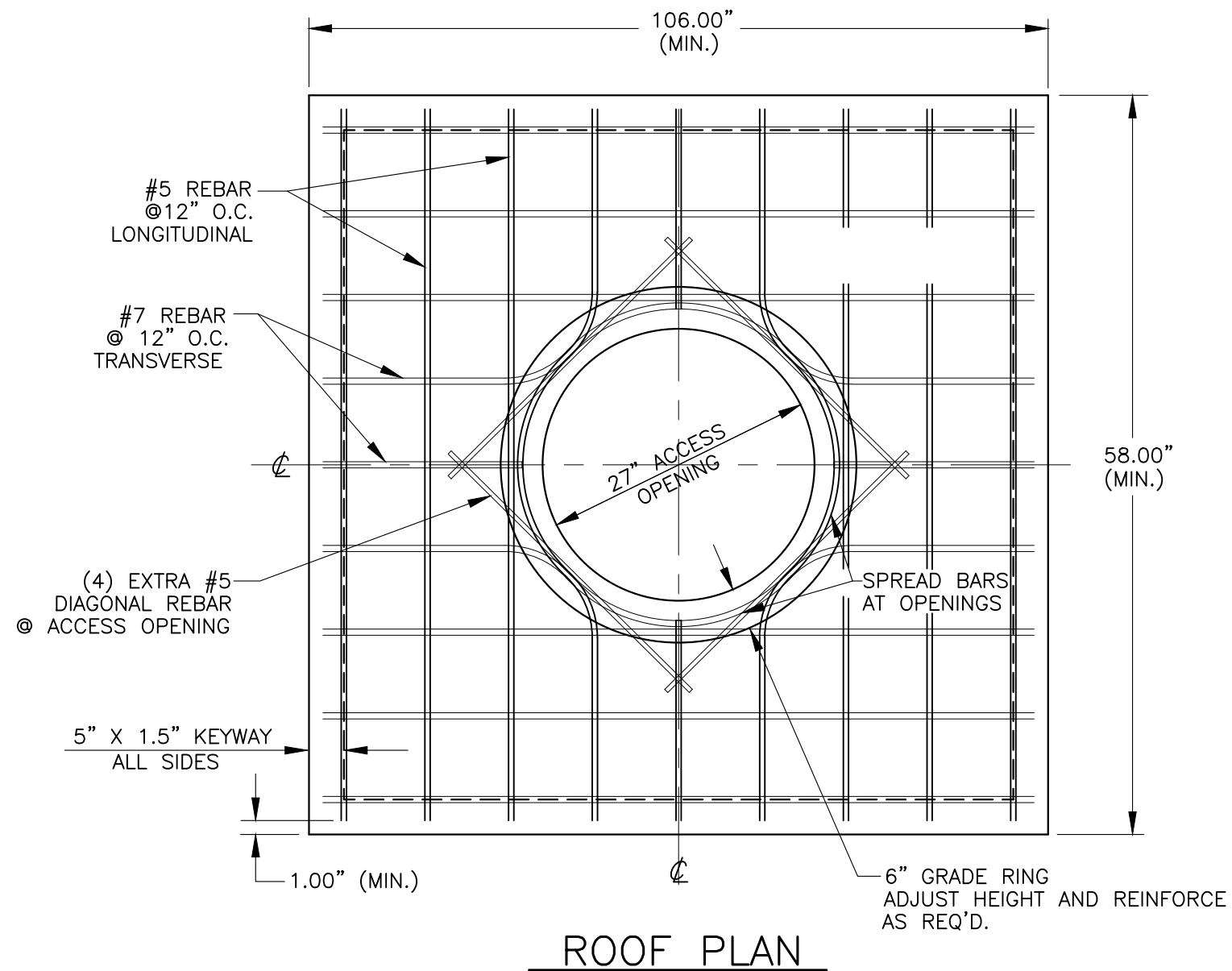
STANDARD MISCELLANEOUS ASSEMBLY DETAILS
STANDARD CAST-IN-PLACE WORKING MANHOLE SPECIFICATIONS AND DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 2 OF 3
ESMA08



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REFERENCES:
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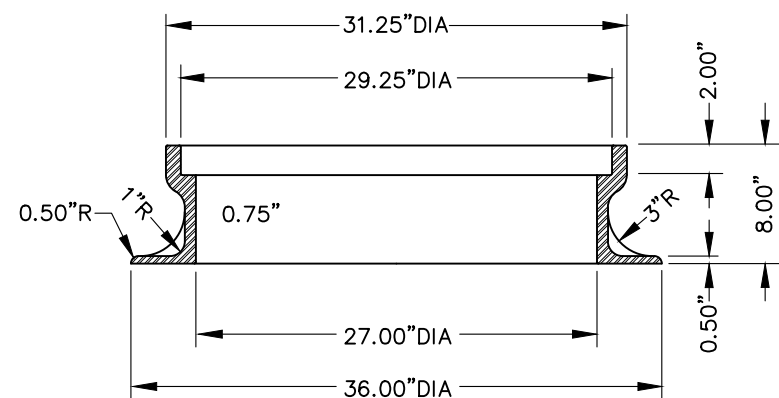
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STANDARD CAST-IN-PLACE WORKING MANHOLE SPECIFICATIONS AND DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



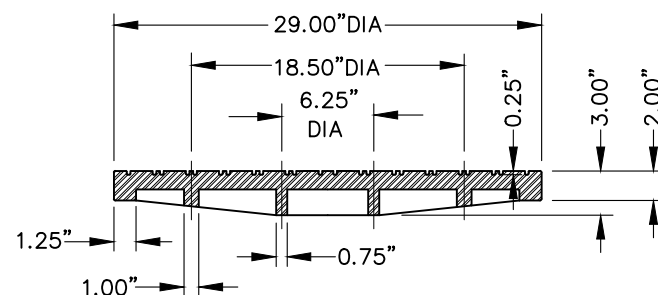
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STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

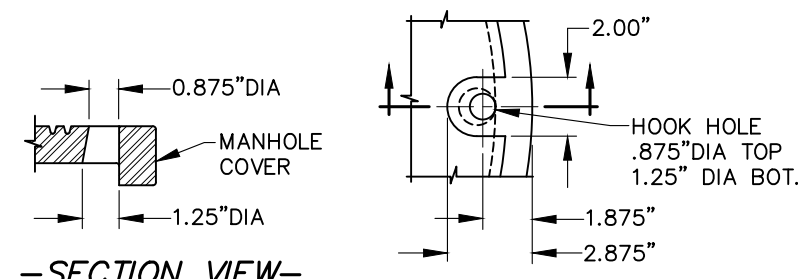
SHEET 3 OF 3
ESMA08



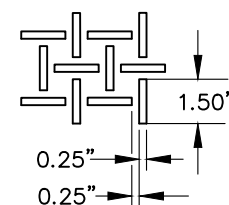
MANHOLE FRAME
SECTION VIEW



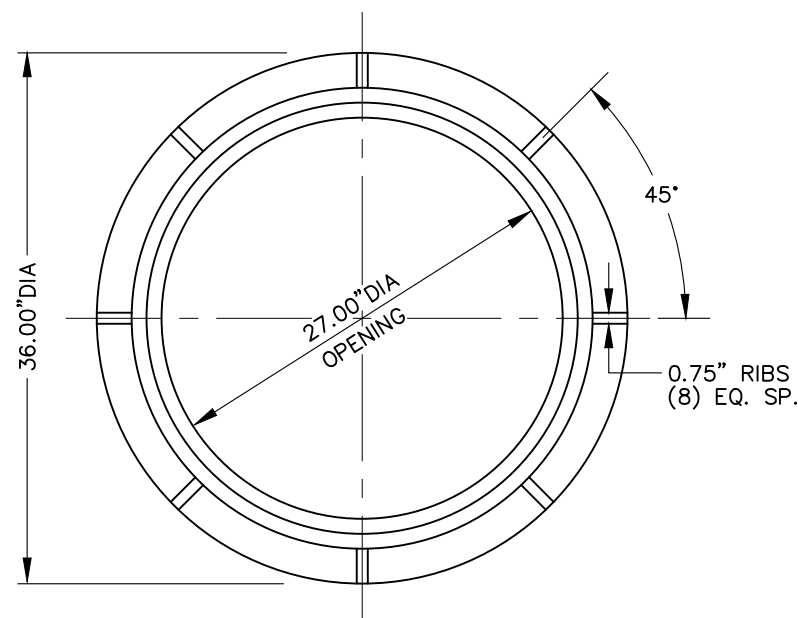
MANHOLE COVER
SECTION VIEW



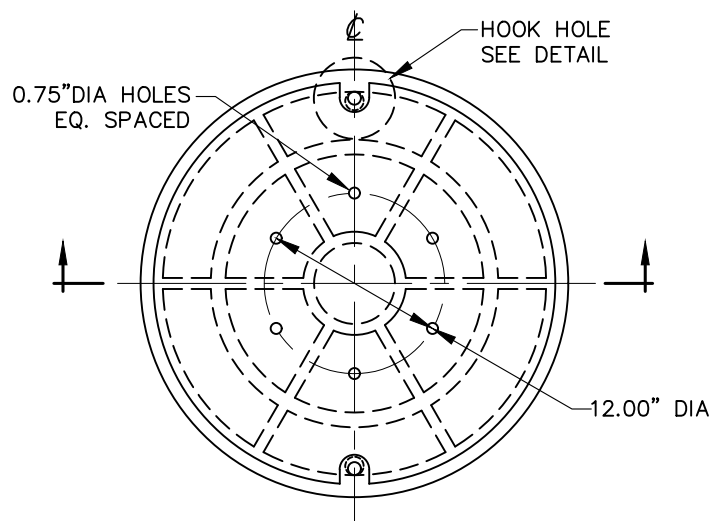
HOOK HOLE DETAILS



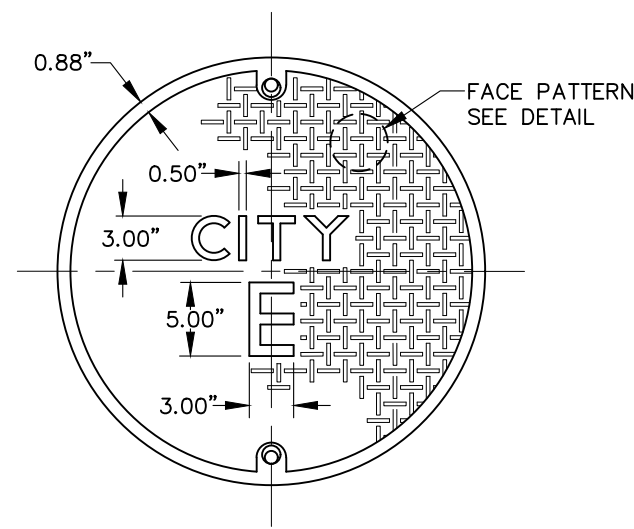
FACE PATTERN DETAIL



MANHOLE FRAME
PLAN VIEW



MANHOLE COVER
PLAN VIEW



MANHOLE COVER
FACE PLAN

GENERAL NOTES:

1. ALL MATERIALS USED IN MANUFACTURING SHALL CONFORM TO ASTM A48-83 CLASS 30.
2. FRAME AND COVER BEARING SURFACES TO BE MACHINED TO ASSURE A CLOSE AND QUIET FIT.
3. COVER DESIGN SHALL CONFORM TO AASHTO HS-20 WHEEL LOAD AND APPLICABLE IMPACTS.
4. STANDARD COVER MARKING IS 3 INCH TALL "CITY" AND 5 INCH TALL "E" AS SHOWN.

MATERIAL LIST

QTY	DESCRIPTION
1	MANHOLE COVER, 29", MARKED "E"
1	MANHOLE FRAME (RING) CASTING, 27" ID

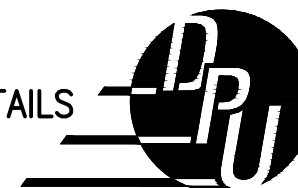
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REFERENCES:
DPU DWG B-823



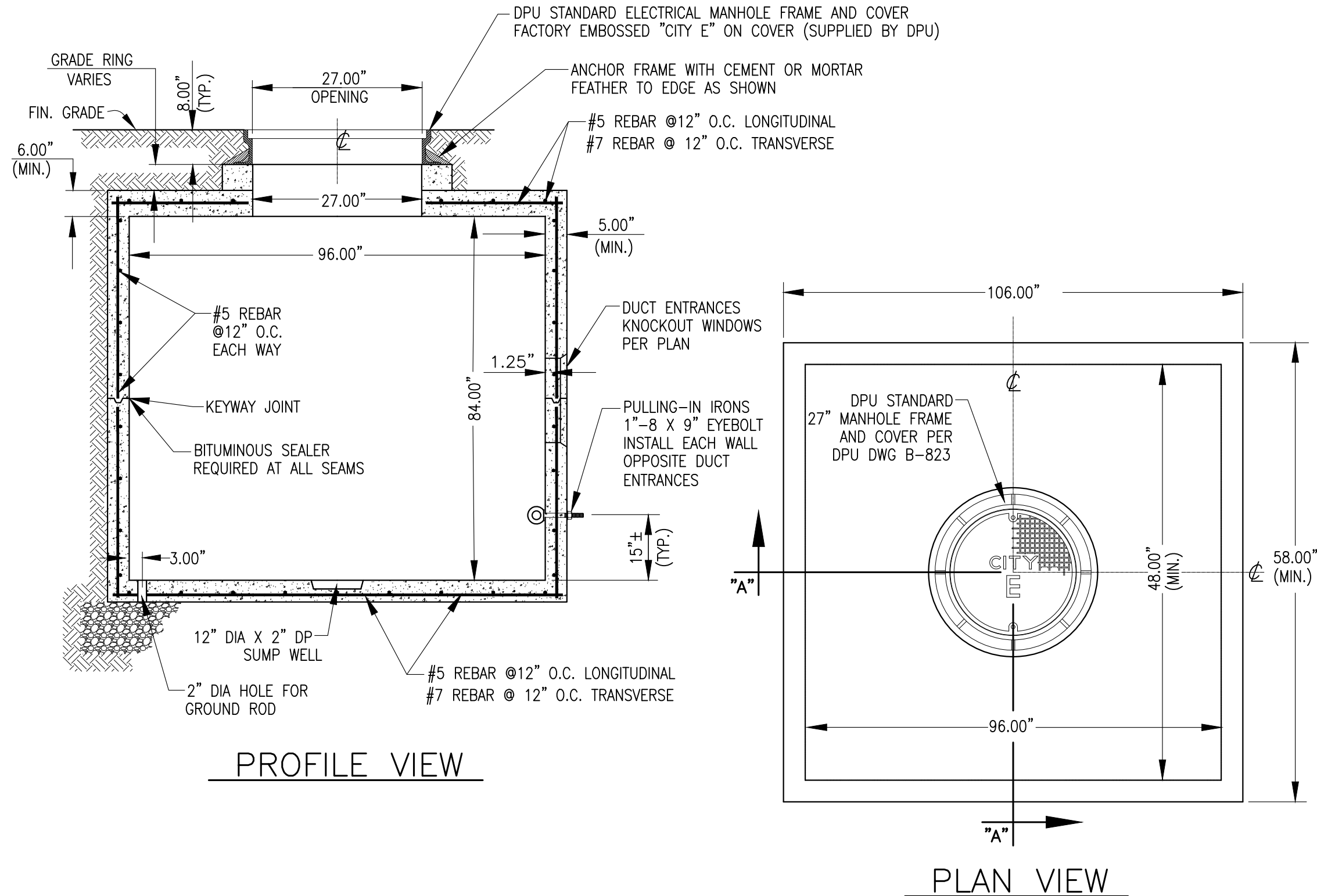
STANDARD MISCELLANEOUS ASSEMBLY DETAILS
STANDARD ELECTRIC MANHOLE FRAME AND COVER SPECIFICATIONS AND DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 1
ESMA09



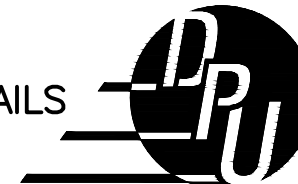
GENERAL NOTES:

1. PRECAST MANHOLES SHALL BE USED WHEN SPECIFICALLY REQUIRED BY PROJECT CONDITIONS. MANHOLES SHALL BE PROVIDED AT ALL DIRECTION CHANGES OF UNDERGROUND ELECTRICAL DUCTS.
2. DESIGN SHALL CONFORM TO ASTM C494 GOVERNING PRE CAST CONCRETE.
3. DESIGN SHALL CONFORM TO AASHTO HS-20, WHEEL LOAD AND APPLICABLE IMPACT, VERTICAL AND LATERAL SOIL PRESSURES, AND REINFORCING COVER.
4. RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS PER CRSI.
5. MANHOLES SHALL HAVE A MINIMUM INSIDE DIMENSIONS OF 8 FEET LONG, 4 FEET WIDE AND 7 FEET HIGH.
6. CONCRETE SHALL BE 5000 PSI AT 28 DAYS.
7. WALLS AND FLOOR SHALL BE A MINIMUM OF 5 INCHES THICK, ROOF SHALL BE A MINIMUM OF 6 INCHES THICK.
8. REBAR SHALL BE ASTM A615 GRD 60.
9. KNOCKOUT WINDOWS SHALL BE PROVIDED AT DUCT ENTRANCES AND EXITS.
10. PULLING-IN IRONS SHALL BE INSTALLED IN WALLS OPPOSITE DUCT ENTRANCES AND ONE INSTALLED IN CENTER OF FLOOR.
11. GROUNDING WIRE SHALL BE BONDED TO THE GROUND ROD BY EXOTHERMIC WELD.
12. STRUCTURAL FIBERGLASS VERTICAL CABLE SUPPORT RACKS AND HORIZONTAL CABLE SUPPORT ARMS SHALL BE INSTALLED PER DESIGN.
13. MANHOLE FRAME AND COVER SHALL BE DPU STANDARD AND PROVIDE A 27 INCH OPENING.
14. MANHOLE COVER SHALL BE EMBOSSED WITH "CITY E" AS SHOWN.
15. FOUNDATION SHALL BE A MINIMUM OF 12" OF VDOT 21-A STONE, COMPACTED AND LEVEL, EXTENDING TO THE EXCAVATION LIMITS, BUT NOT LESS THAN 6 INCHES BEYOND THE MANHOLE LIMITS.
16. REBAR TO BE SPREAD AROUND ALL OPENINGS.
17. CONCRETE ENCASEMENT OF THE DUCTS SHALL EXTEND TO THE INTERIOR PLANE OF THE MANHOLE WALL.
18. CONDUITS ENTERING THE MANHOLE SHALL BE PROVIDED WITH ENDBELL FITTINGS.

REVIEWED & APPROVED
ENGINEERING: _____ SIGNED COPY ON FILE
REFERENCES:



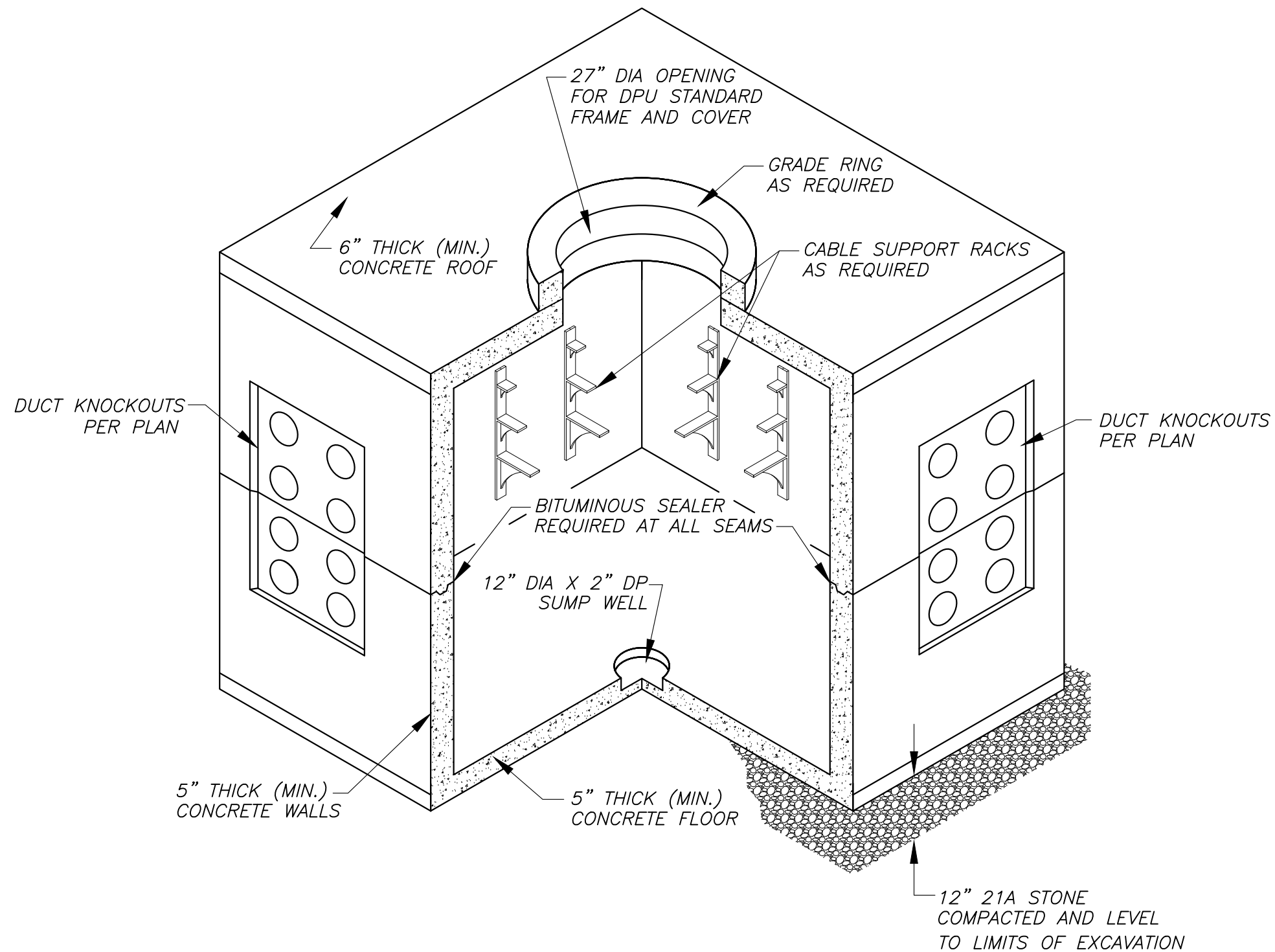
STANDARD MISCELLANEOUS ASSEMBLY DETAILS PRE-CAST ELECTRICAL MANHOLE MINIMUM SPECIFICATIONS & DETAILS FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 3
ESMA10



SECTION "A-A"

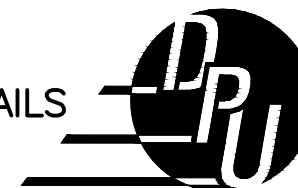
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ENGINEERING: SIGNED COPY ON FILE

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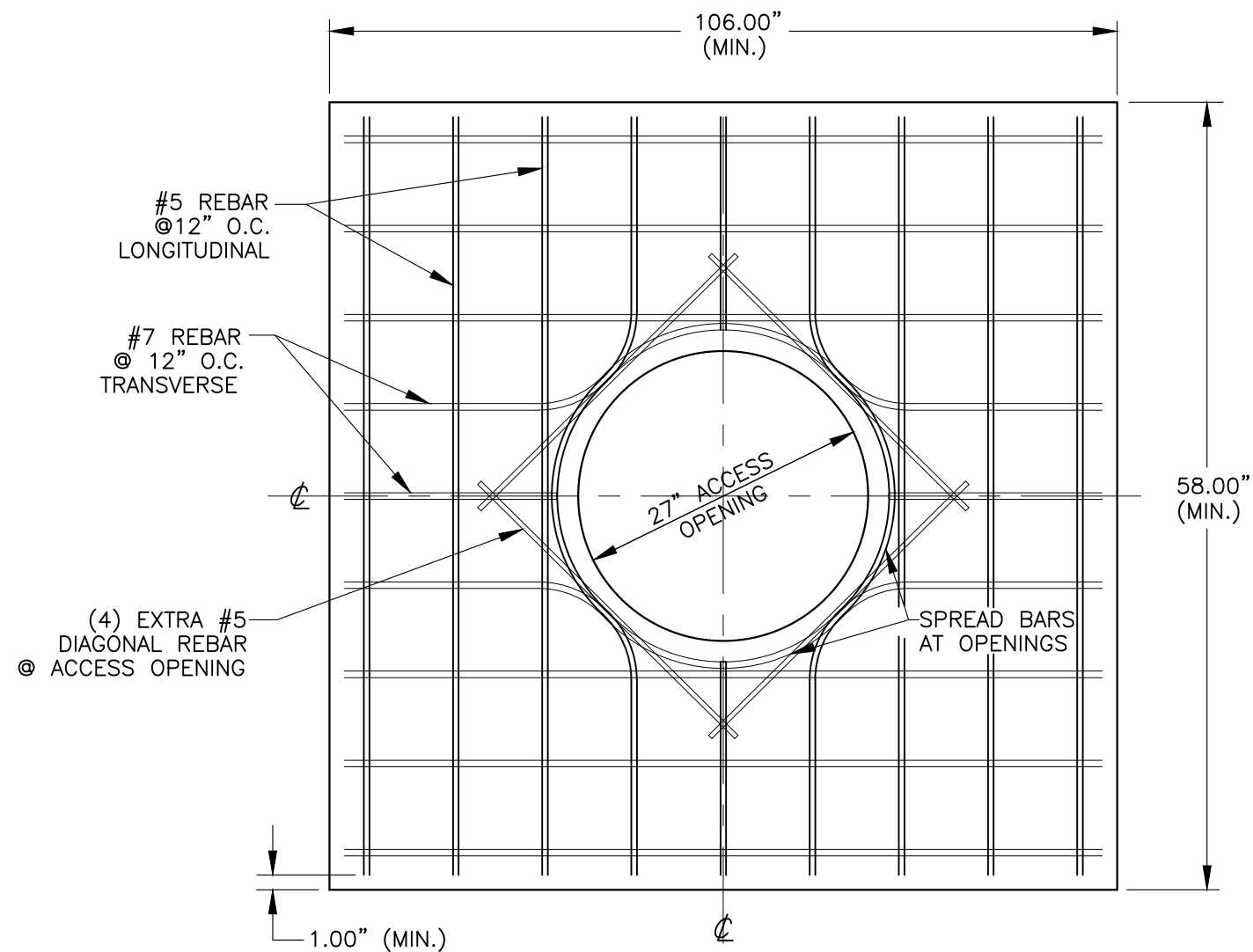
STANDARD MISCELLANEOUS ASSEMBLY DETAILS
PRE-CAST ELECTRICAL MANHOLE MINIMUM SPECIFICATIONS & DETAILS
 FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



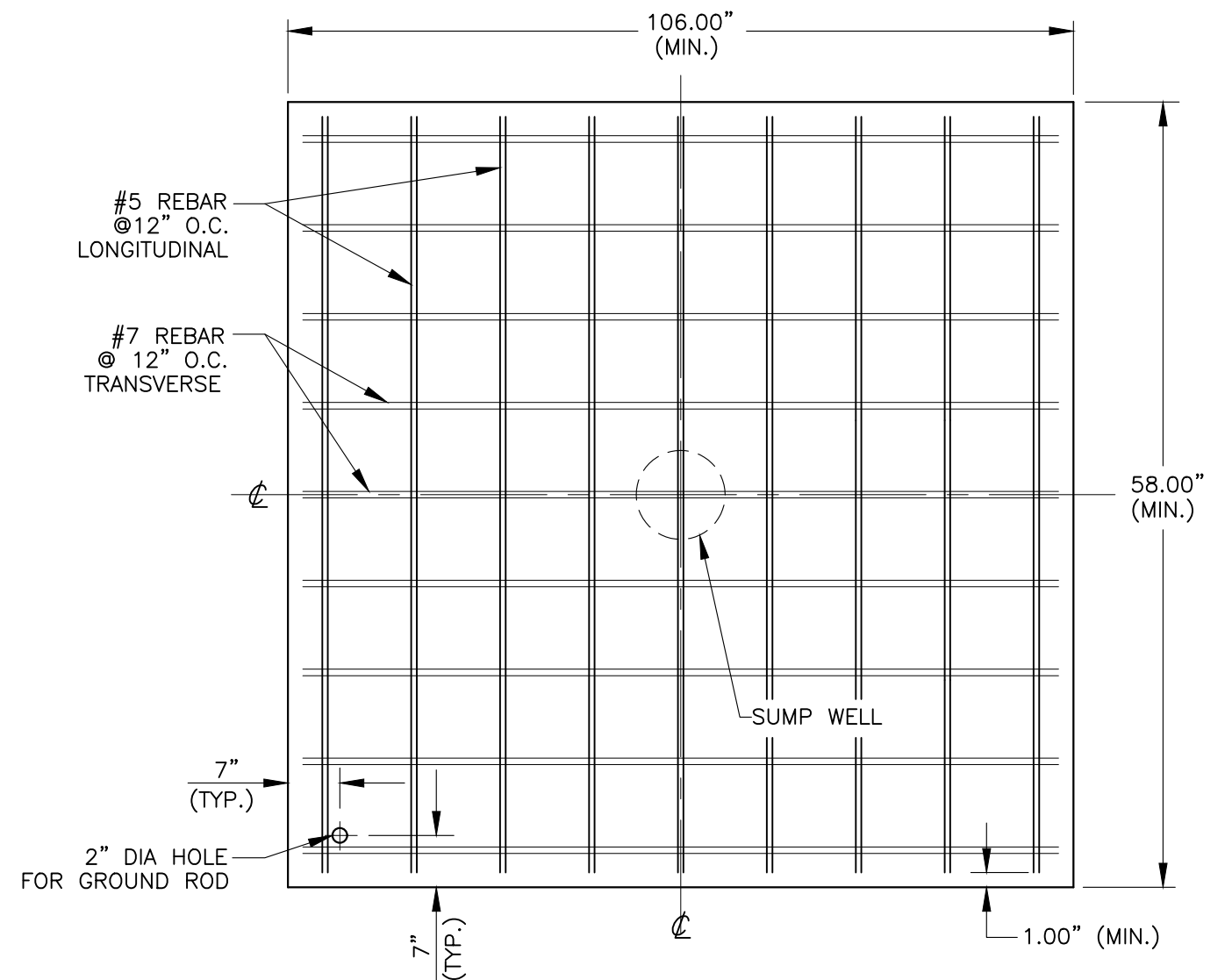
CITY OF RICHMOND PUBLIC UTILITIES
 STREET LIGHT STANDARDS

REVISION 0
 REVISION DATE
 01/2022

SHEET 2 OF 3
ESMA10



ROOF PLAN



FLOOR PLAN

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:



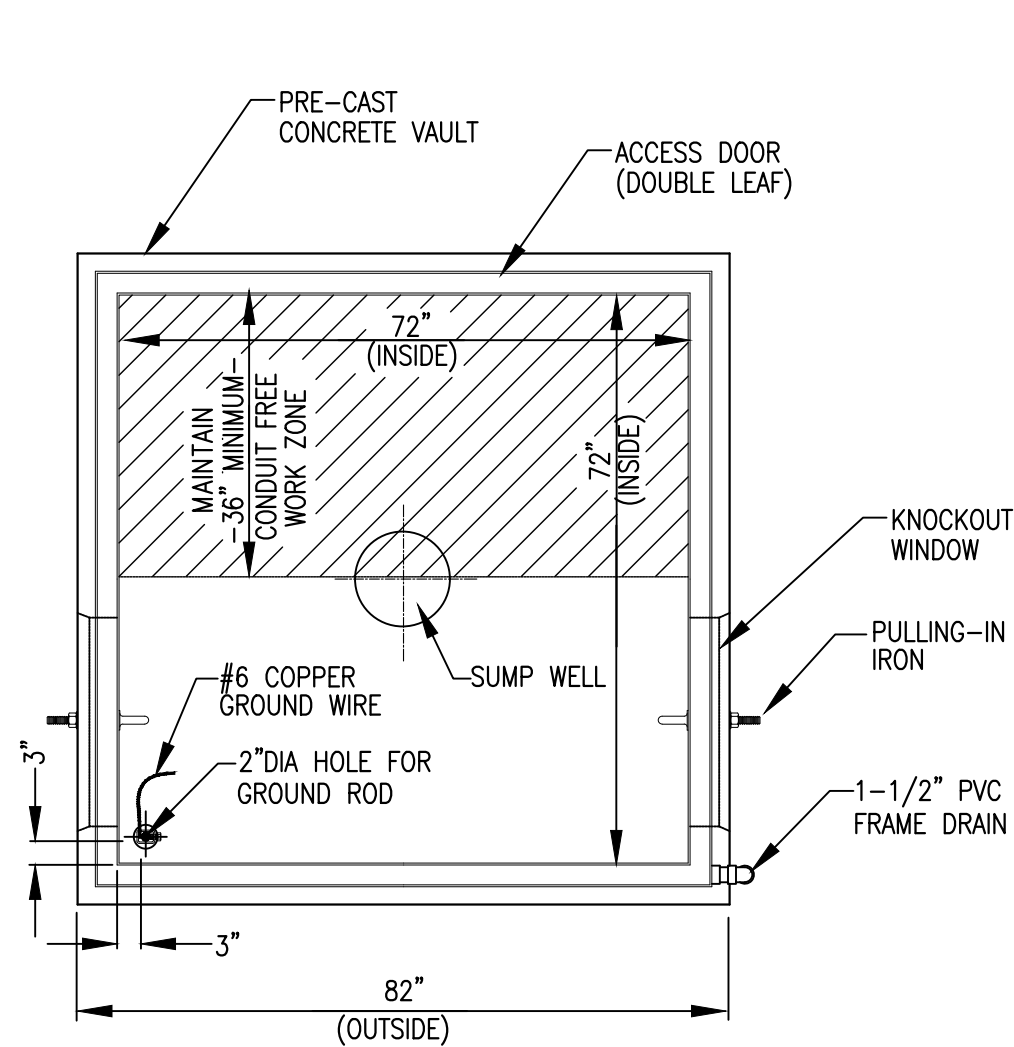
STANDARD MISCELLANEOUS ASSEMBLY DETAILS
PRE-CAST ELECTRICAL MANHOLE MINIMUM SPECIFICATIONS & DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



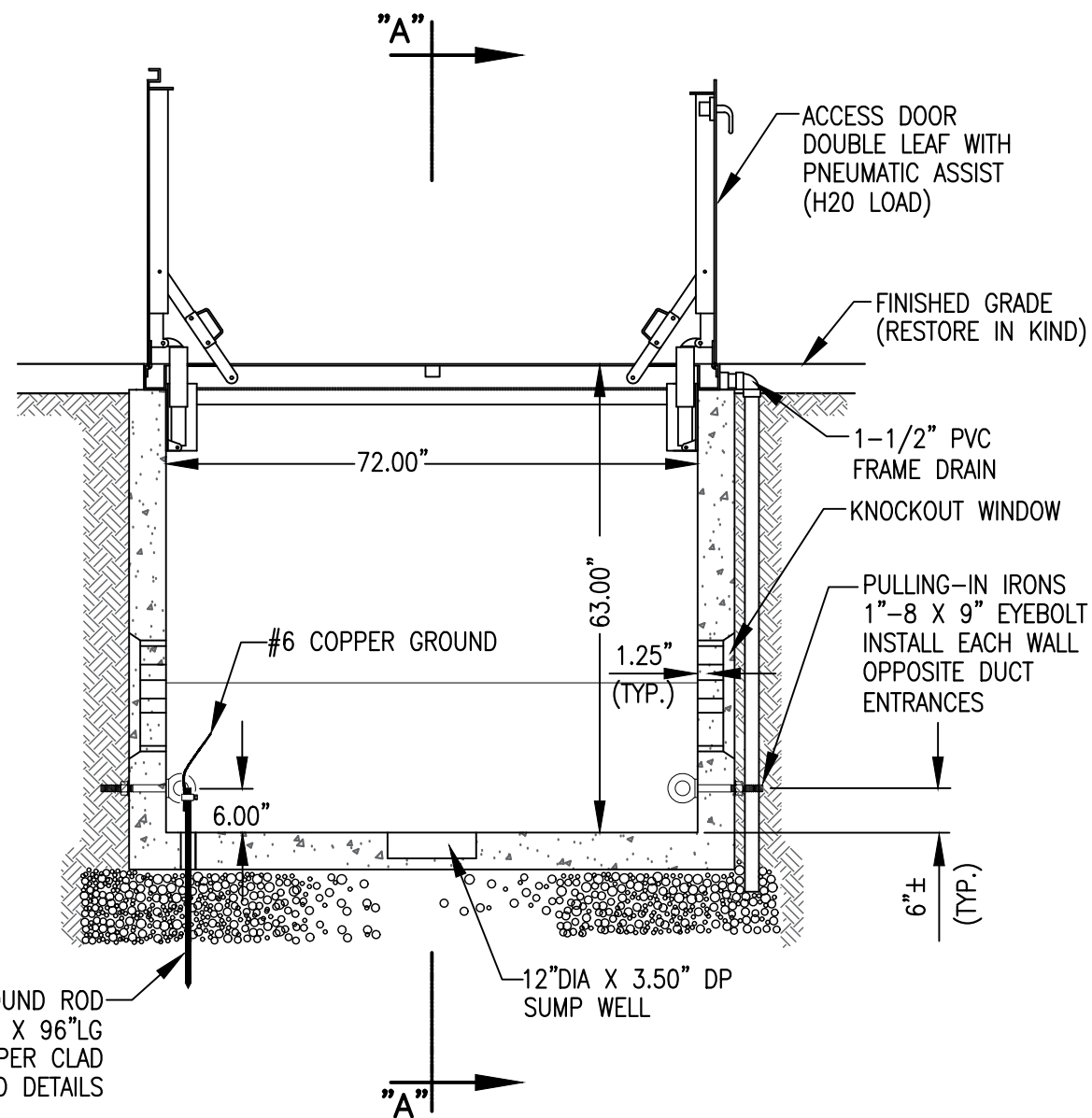
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 3 OF 3
ESMA10



PLAN VIEW



PROFILE VIEW

GENERAL NOTES:

1. DESIGN SHALL CONFORM TO ASTM C494 GOVERNING PRE CAST CONCRETE.
2. RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS PER CRSI.
3. VAULTS SHALL HAVE MINIMUM INSIDE DIMENSIONS OF 6 FEET LONG, 6 FEET WIDE AND 5 FEET HIGH.
4. CONCRETE SHALL BE 5000 PSI AT 28 DAYS.
5. WALLS AND FLOOR SHALL BE A MINIMUM OF 5 INCHES THICK.
6. REBAR SHALL BE ASTMA615 GRD 60.
7. KNOCKOUT WINDOWS SHALL BE PROVIDED FOR DUCT OR CONDUIT ENTRANCES AND EXITS, AS SHOWN.
8. PULLING-IN IRONS SHALL BE INSTALLED IN WALLS OPPOSITE DUCT ENTRANCES.
9. GROUNDING WIRE SHALL BE ATTACHED TO THE GROUND ROD BY A COMPRESSION TYPE BOLT CLAMP.
10. STRUCTURAL FIBERGLASS VERTICAL CABLE SUPPORT RACKS AND HORIZONTAL CABLE SUPPORT ARMS SHALL BE INSTALLED AS REQUIRED BY DESIGN OR CONDITIONS.
12. ACCESS DOOR AND FRAME SHALL BE DOUBLE LEAF, RATED AT 300 LBS PER SQ. FT. DESIGNED FOR H-20 LOADING.
13. FOUNDATION SHALL BE A MINIMUM OF 12" OF VDOT #57 STONE, LEVELED, EXTENDING TO THE EXCAVATION LIMITS, BUT NOT LESS THAN 6 INCHES BEYOND THE LIMITS OF THE VAULT BOX.
14. CONDUITS ENTERING THE VAULT SHALL BE PROVIDED WITH ENDBELL FITTINGS.

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:



STANDARD MISCELLANEOUS ASSEMBLY DETAILS
PRE-CAST ELECTRICAL VAULT SPECIFICATIONS AND INSTALLATION DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



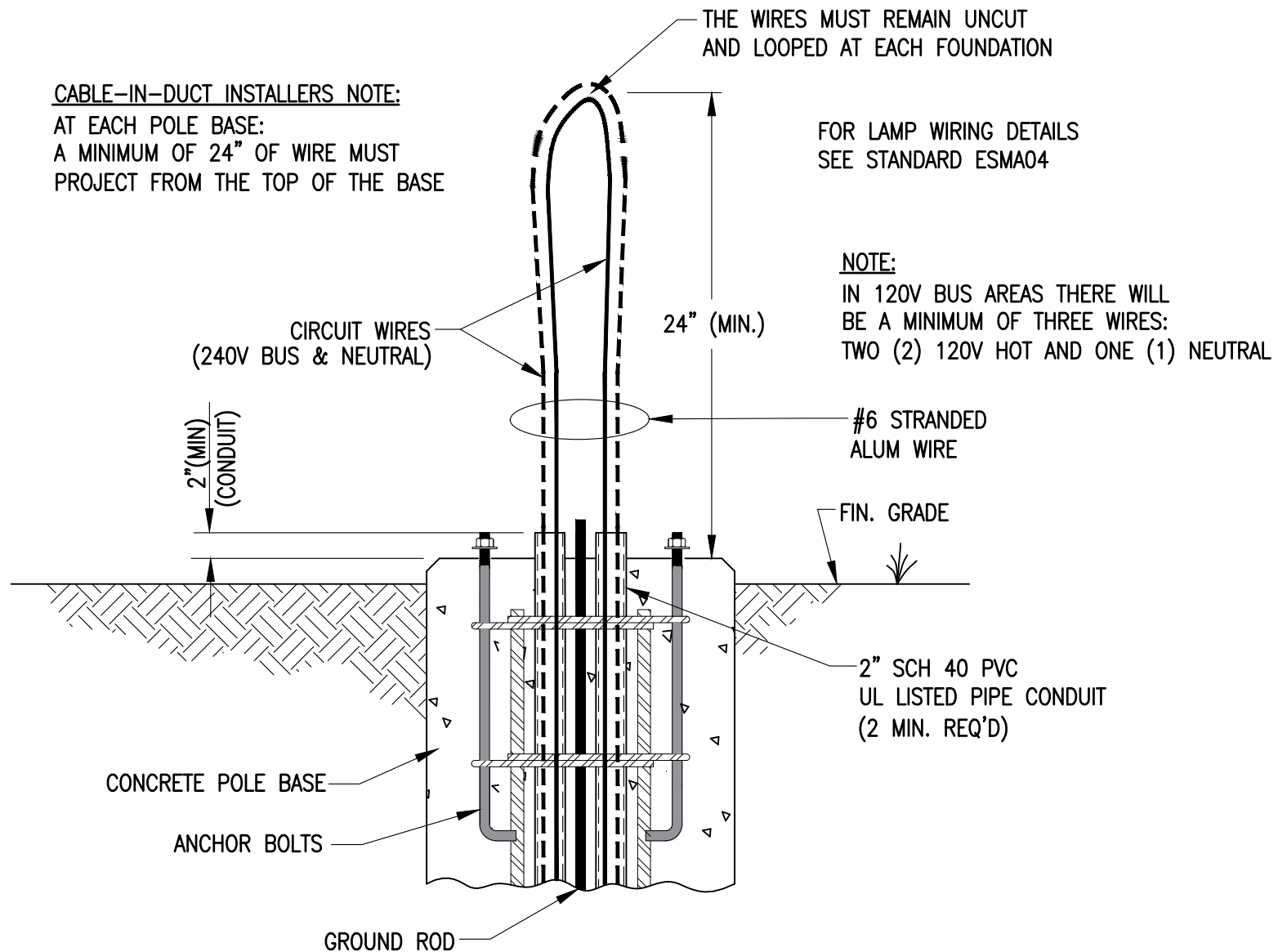
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 2
ESMA11



SHEET 2 OF 2
ESMA11



SLACK WIRE DETAIL FOR POLE BASES

GENERAL NOTES:

1. THE UNDERGROUND CABLE-IN-DUCT ASSEMBLY SHALL PROJECT AT LEAST TWO (2) FEET ABOVE THE TOP OF EACH LIGHT BASE.
2. THE UNDERGROUND CABLE-IN-DUCT MUST BE LEFT UN-CUT, AND THE LOOP MUST PROJECT AT LEAST TWO (2) FEET ABOVE THE TOP OF THE LIGHT BASE FOUNDATION.
3. UNDER NO CIRCUMSTANCES SHALL THE CABLE BE CUT OR BE ALLOWED TO BECOME SUBMERGED IN WATER. OBSERVATION OF EITHER CONDITION SHALL CONSTITUTE SUFFICIENT GROUNDS FOR REJECTION OF THE ENTIRE LENGTH OF CABLE.

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:
NONE



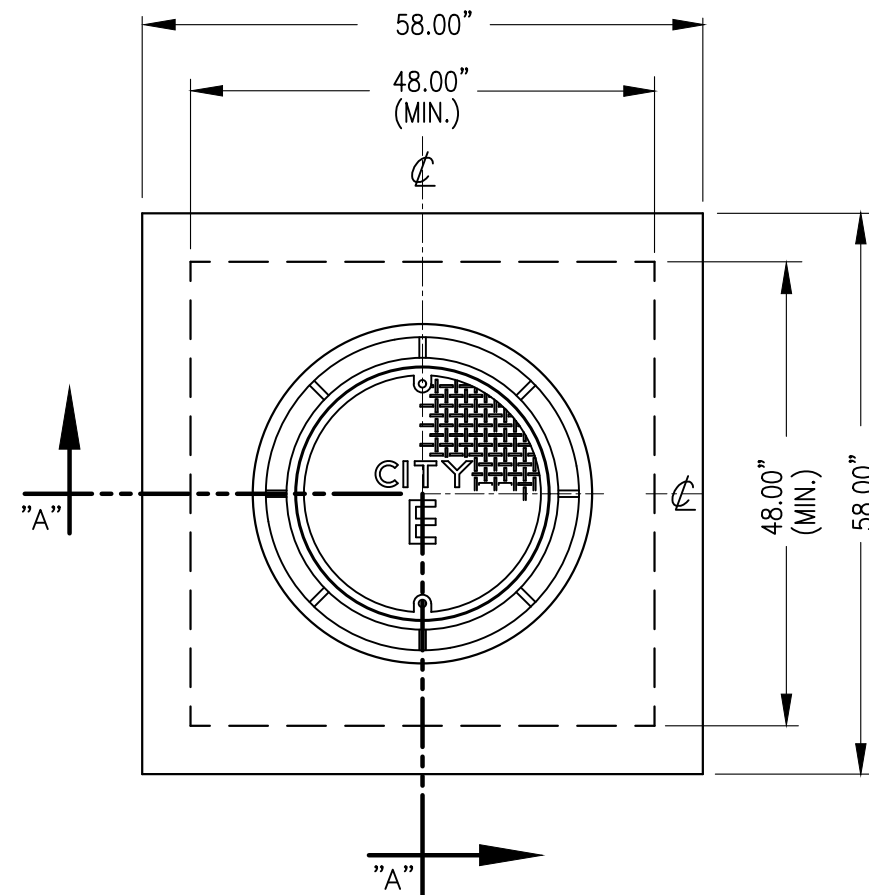
STANDARD MISCELLANEOUS ASSEMBLY DETAILS SLACK BUS WIRE REQUIREMENTS FOR LIGHT POLE BASE FOUNDATIONS



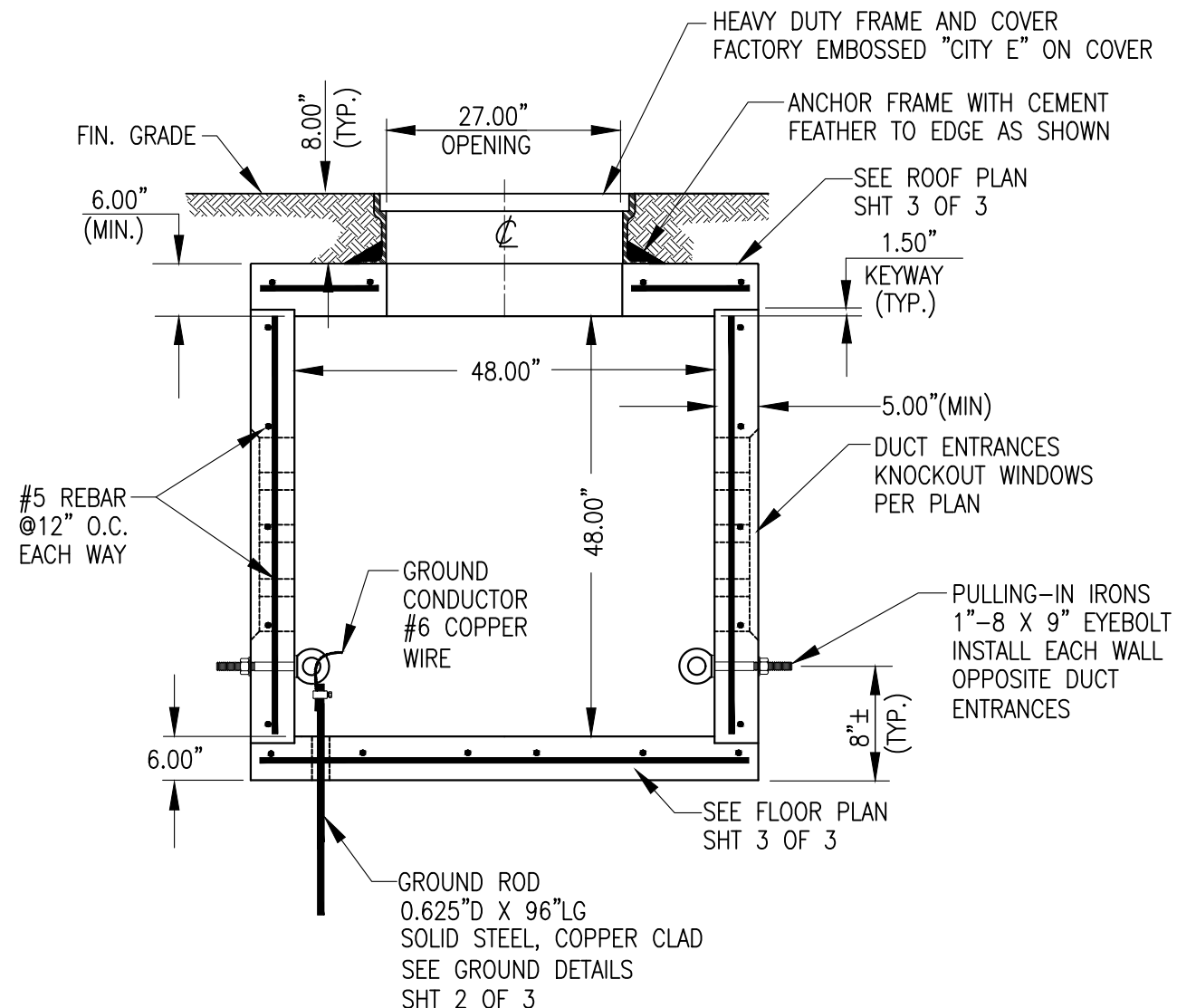
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 1
ESMA12



PLAN VIEW



PROFILE VIEW

GENERAL NOTES:

1. MANHOLES SHALL BE USED WHEN SPECIFICALLY REQUIRED BY PROJECT REQUIREMENTS. MANHOLES SHALL BE PROVIDED AT ALL DIRECTION CHANGES OF UNDERGROUND ELECTRICAL DUCTS.
2. DESIGN SHALL CONFORM TO ASTM C494 GOVERNING CAST-IN-PLACE CONCRETE.
3. DESIGN SHALL CONFORM TO AASHTO HS-20, WHEEL LOAD AND APPLICABLE IMPACT, VERTICAL AND LATERAL SOIL PRESSURES, AND REINFORCING COVER.
4. RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS PER CRSI (CONCRETE REINFORCING STEEL INSTITUTE).
5. CONCRETE SHALL BE 5000 PSI AT 28 DAYS.
6. WALLS AND FLOOR SHALL BE A MINIMUM OF 5 INCHES THICK, ROOF SHALL BE A MINIMUM OF 6 INCHES THICK.
7. REBAR SHALL BE ASTM A615 GRD 60.
8. KNOCKOUT WINDOWS SHALL BE PROVIDED AT DUCT ENTRANCES AND EXITS.
9. PULLING-IN IRONS SHALL BE INSTALLED IN WALLS OPPOSITE DUCT ENTRANCES AND ONE INSTALLED IN CENTER OF FLOOR.
10. GROUNDING WIRE SHALL BE BOLTED TO THE GROUND ROD BY COMPRESSION TYPE CLAMP.
11. STRUCTURAL FIBERGLASS VERTICAL CABLE SUPPORT RACKS AND HORIZONTAL CABLE SUPPORT ARMS SHALL BE INSTALLED PER DESIGN.
12. MANHOLE FRAME AND COVER SHALL BE CAST IRON AND PROVIDE A 27 INCH OPENING, PER STANDARD ESMA09.
13. MANHOLE COVER SHALL BE EMBOSSED WITH THE WORD "CITY E" AS SHOWN.

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:
ESMA09, ASTM C494, AASHTO HS-20, NESC



STANDARD MISCELLANEOUS ASSEMBLY DETAILS CAST-IN-PLACE 48"x48"x48" PULLING MANHOLE FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



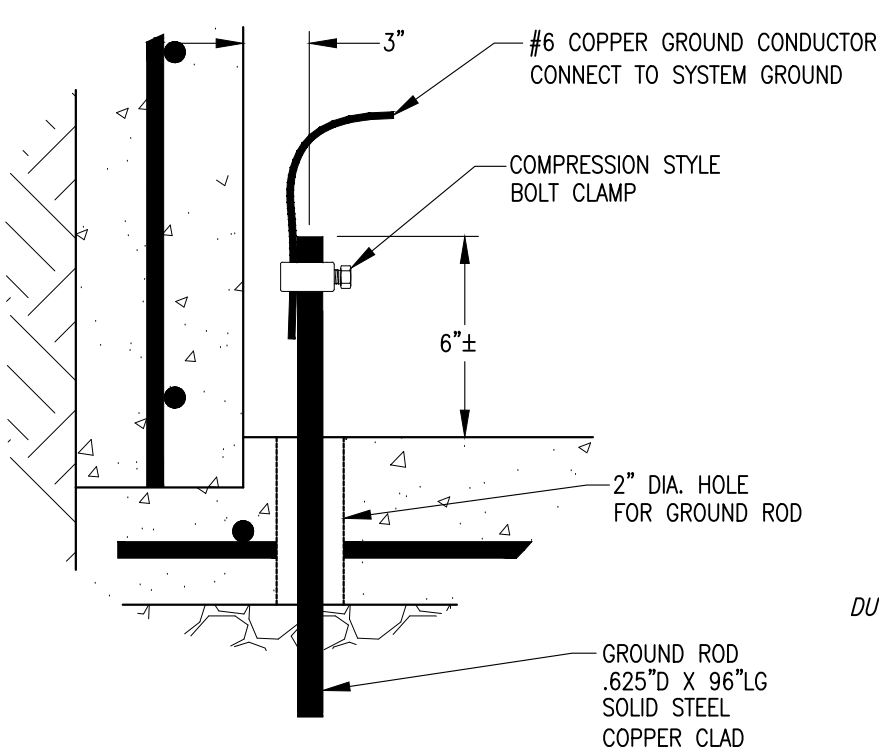
CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

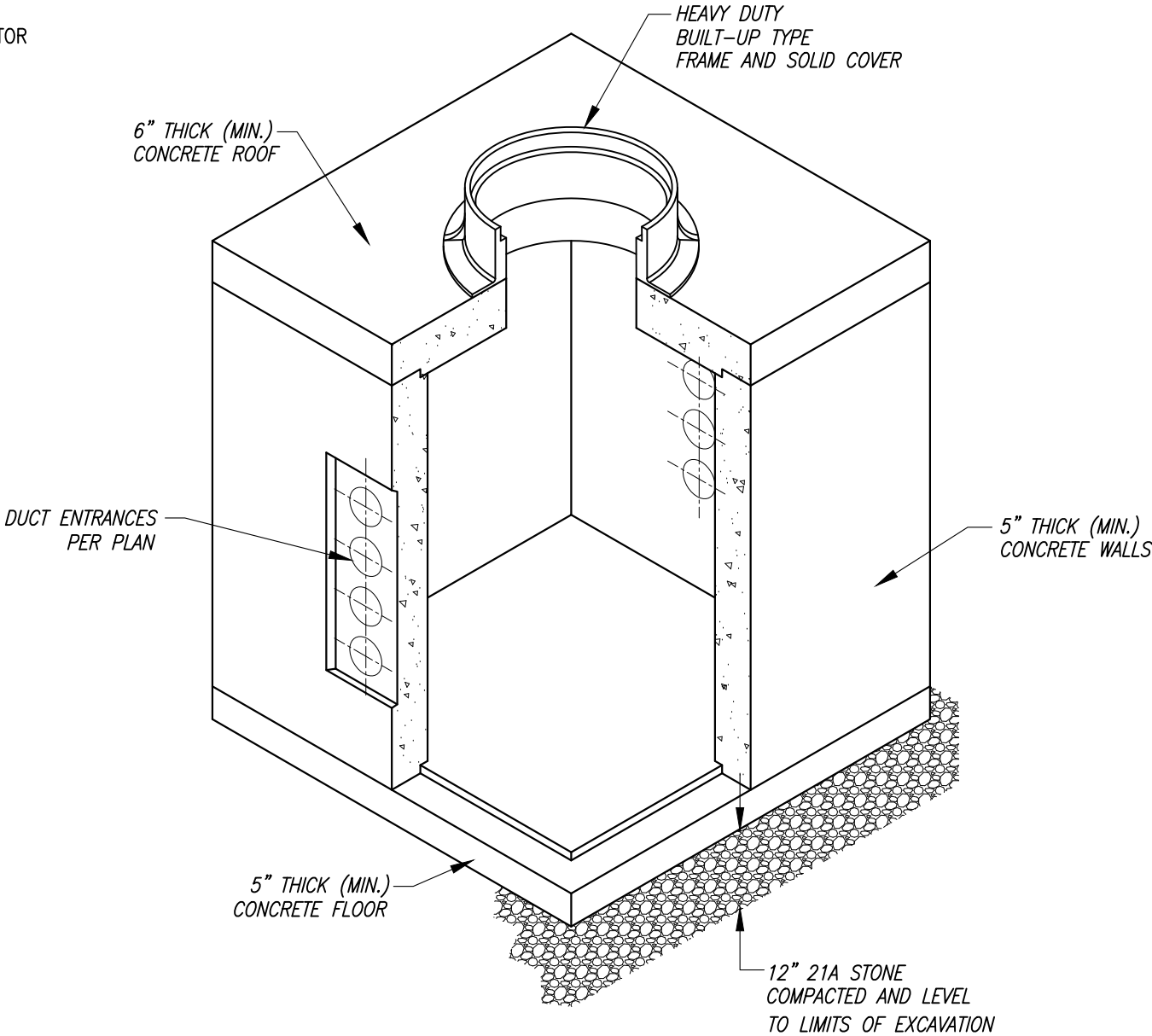
SHEET 1 OF 3
ESMA13

CONSTRUCTION NOTES:

- 1. FOUNDATION SHALL BE A MINIMUM OF 12" OF VDOT 21-A STONE, COMPACTED TO 95% AND LEVEL, EXTENDING TO THE EXCAVATION LIMITS, BUT NOT LESS THAN 6 INCHES BEYOND THE MANHOLE LIMITS.
- 2. REBAR TO BE SPREAD AROUND ALL OPENINGS.
- 3. MECHANICAL VIBRATION REQUIRED DURING THE PLACEMENT OF THE CONCRETE FLOOR, WALLS, AND ROOF, TO ELIMINATE ALL VOIDS AND AIR POCKETS.
- 4. CONCRETE ENCASEMENT OF THE DUCTS SHALL EXTEND TO THE INTERIOR PLANE OF THE MANHOLE WALL.
- 5. CONDUITS ENTERING THE MANHOLE SHALL BE PROVIDED WITH ENDBELL FITTINGS.
- 6. THE MANHOLE FRAME AND COVER SHALL BE INSTALLED FLUSH WITH THE FINAL FINISHED GRADE.
- 6. BACKFILL SHALL NOT BEGIN UNTIL THE CONCRETE HAS REACHED 75% OF ITS 28-DAY COMPRESSIVE STRENGTH.



GROUND DETAILS



SECTION "A-A"

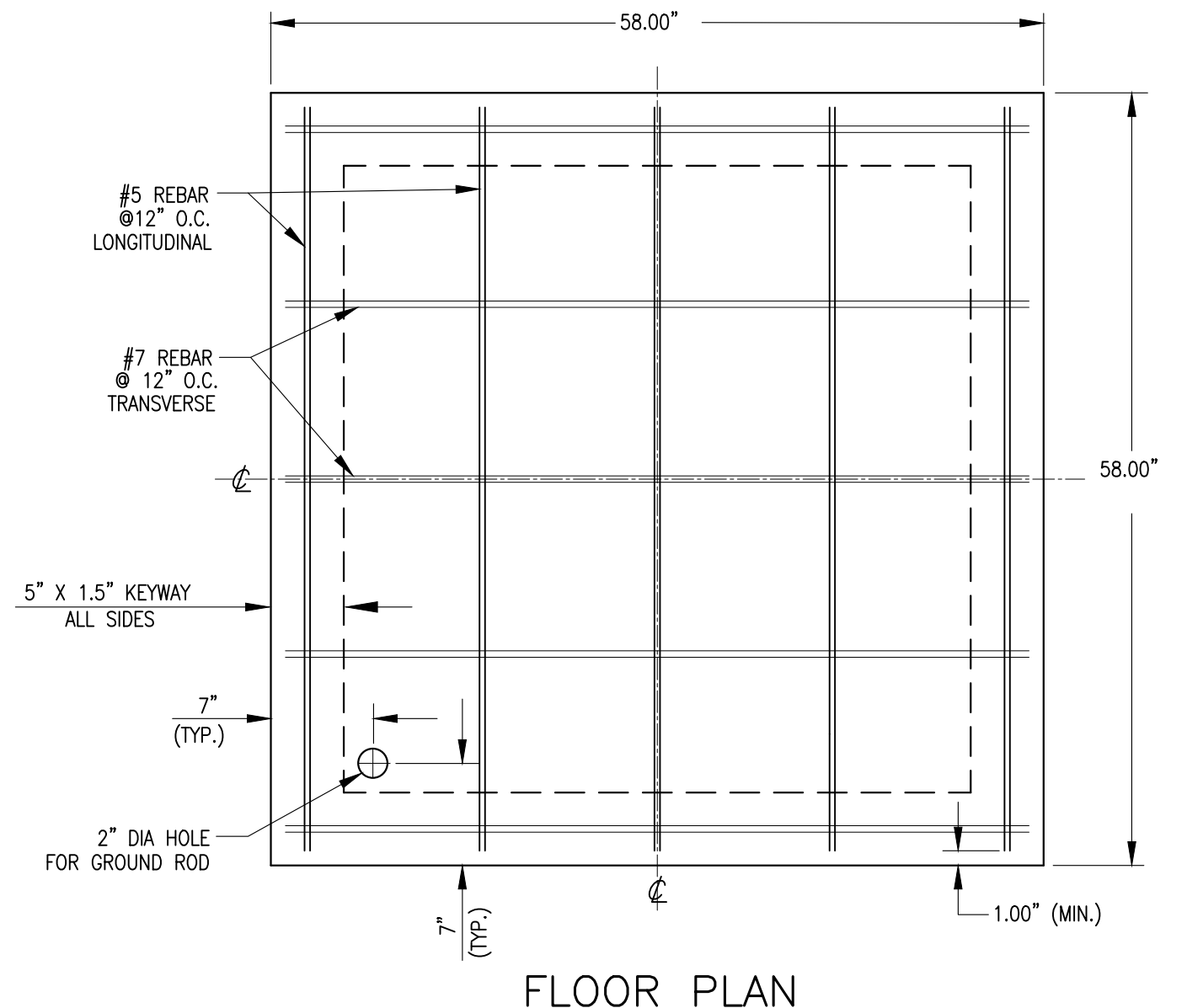
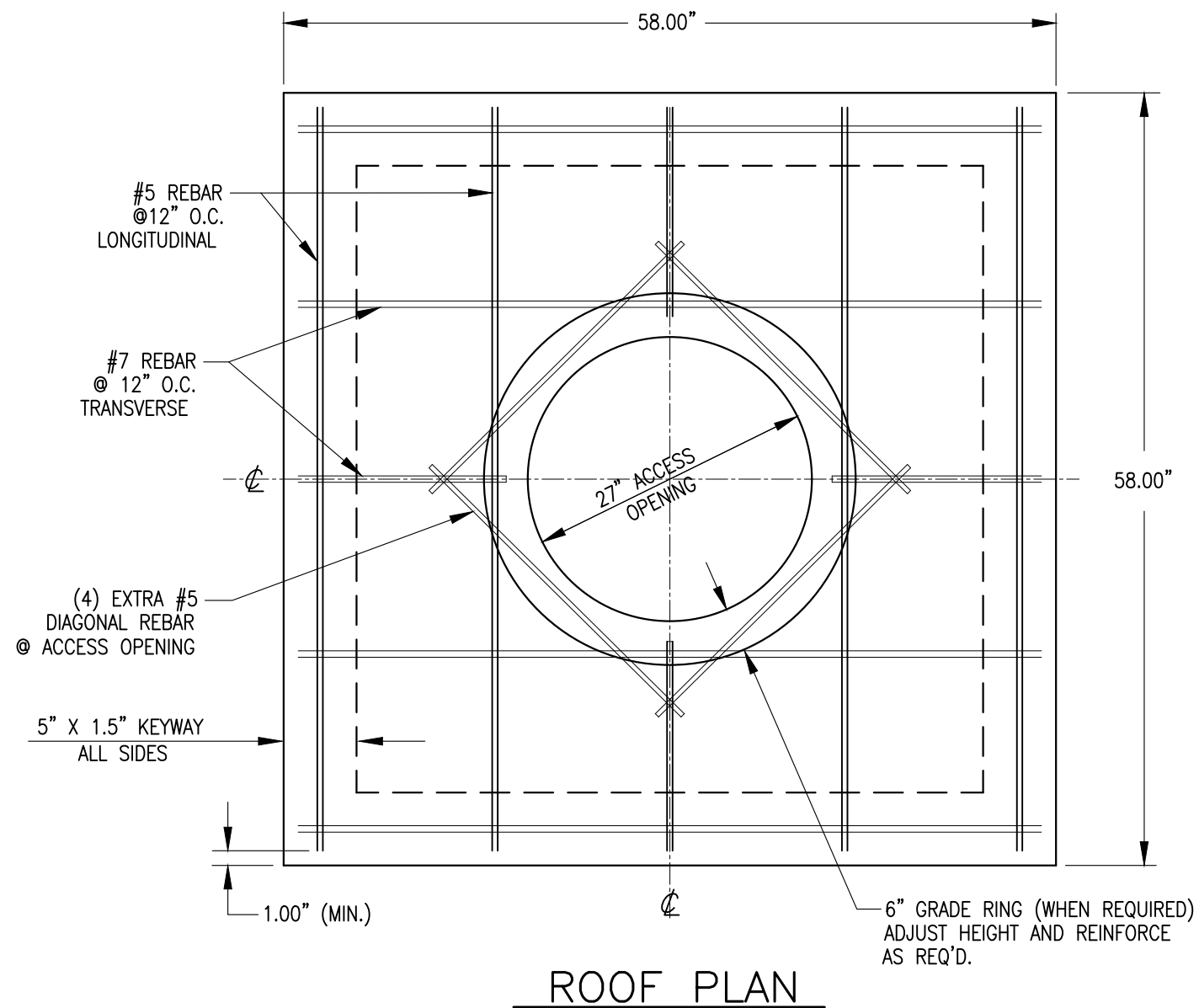
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ENGINEERING: _____ SIGNED COPY ON FILE
REFERENCES: _____
N/A



STANDARD MISCELLANEOUS ASSEMBLY DETAILS
CAST-IN-PLACE 4'x4'x4' PULLING MANHOLE SPECIFICATIONS AND DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS
REVISION 0
REVISION DATE 01/2022
SHEET 2 OF 3
ESMA13



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REFERENCES:
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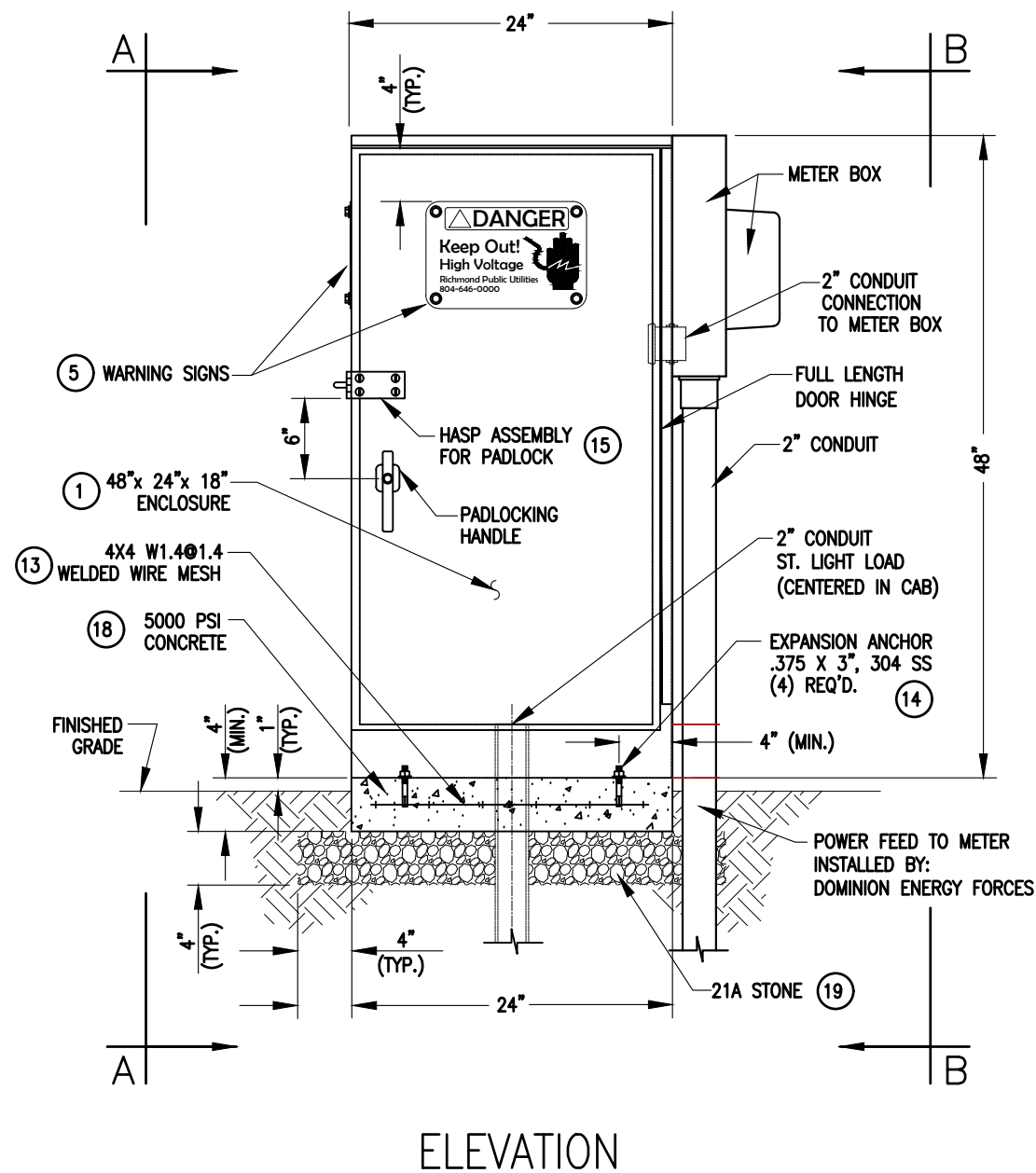
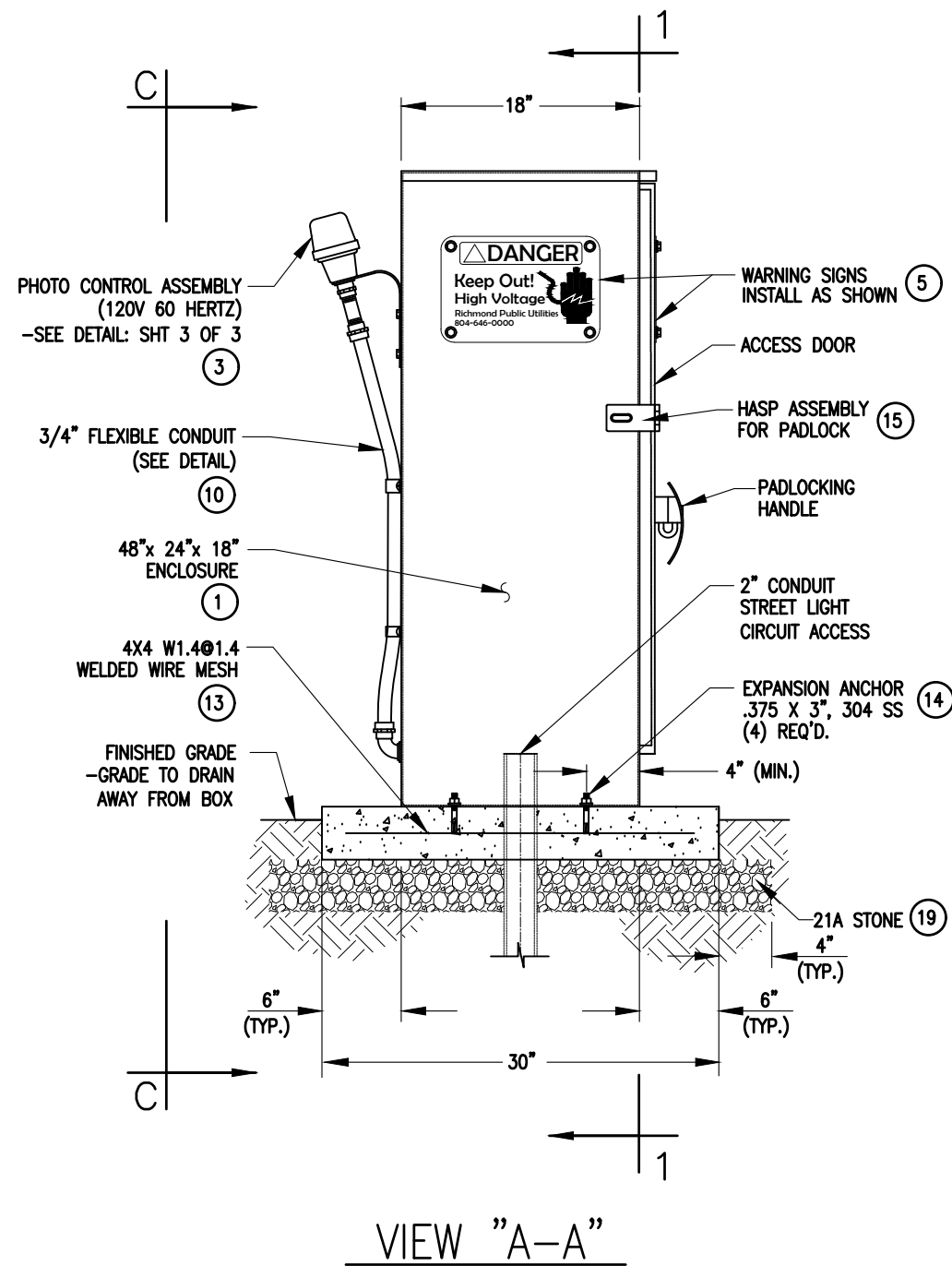
STANDARD MISCELLANEOUS ASSEMBLY DETAILS
CAST-IN-PLACE 4'x4'x4' PULLING MANHOLE SPECIFICATIONS AND DETAILS
FOR UNDERGROUND STREET LIGHT POWER DISTRIBUTION



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 3 OF 3
ESMA13



BILL OF MATERIALS

ITEM	QTY	DESCRIPTION
1	1 EA	ENCLOSURE, 24"W x 18"DP x 48"H, NEMA 3R, WEATHERPROOF, GALV. STEEL, AUSTIN ELECTRICAL ENCLOSURES OR EQUAL.
2	1 EA	RELAY ASSEMBLY, RATED 100A 120V 60HZ, 120V 60HZ RELAY COIL, DUAL ELEMENT LOAD FUSE, CAST ALUMINUM WEATHERPROOF CASE, WITH MOUNT-ING BRACKET, TRINETICS MR-YG SPEC 6314 OR EQUAL.
3	1 EA	PHOTO CONTROL UNIT, 120VAC 60HZ, UL RATED WITH .5FC MINIMUM ON; 15FC MINIMUM OFF, INTERMATIC LC4521C8 SERIES LOCKING TYPE OR EQUAL.
4	1 EA	RECEPTACLE, NEMA LOCKING-TYPE, FOR TWIST LOCK PHOTO CONTROLLER, 3-PRONG SOCKET, WITH BRACKET MOUNT, INTERMATIC K122 SERIES OR EQUAL.
5	2 EA	WARNING SIGN, HIGH VOLTAGE (W/ MOUNTING HARDWARE).
6	1 EA	CONNECTOR, 3/4" x 3/4", THD x THD, NPT
7	1 EA	NIPPLE, 3/4", THD x THD, GALV.
8	1 EA	COMP. CONDUIT CONNECTOR, 3/4" x 3/4" NPT
9	1 EA	ELL, 3/4", COMPRESSION CONNECTOR.
10	2 FT	CONDUIT, 3/4", FLEX, PVC COATED.
11	1 EA	CONNECTOR, 2" CONDUIT, GALV. STEEL.
12	1 EA	N/A
13	2 SQ FT	WELDED WIRE MESH, 4x4 W1.4@1.4, 20" X 12".
14	4 EA	EXPANSION ANCHOR, .375" X 3", 304 SS WITH OVERSIZE WASHER.
15	1 EA	PADLOCK HASP, HEAVY DUTY.
16	2 EA	CABLE CLAMP, 3/4", GALV
17	4 EA	SHEET METAL SCREW, #14 X 3/4", STAINLESS, HEX HD, WITH BONDED SEALING WASHER
18	1 CU FT	CONCRETE, 5000 PSI.
19	2 CU FT	STONE, VDOT 21A, OR EQUAL.

REVIEWED & APPROVED

ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
N/A



STANDARD MISCELLANEOUS ASSEMBLY DETAILS

48 INCH METER BOX ASSEMBLY DETAILS

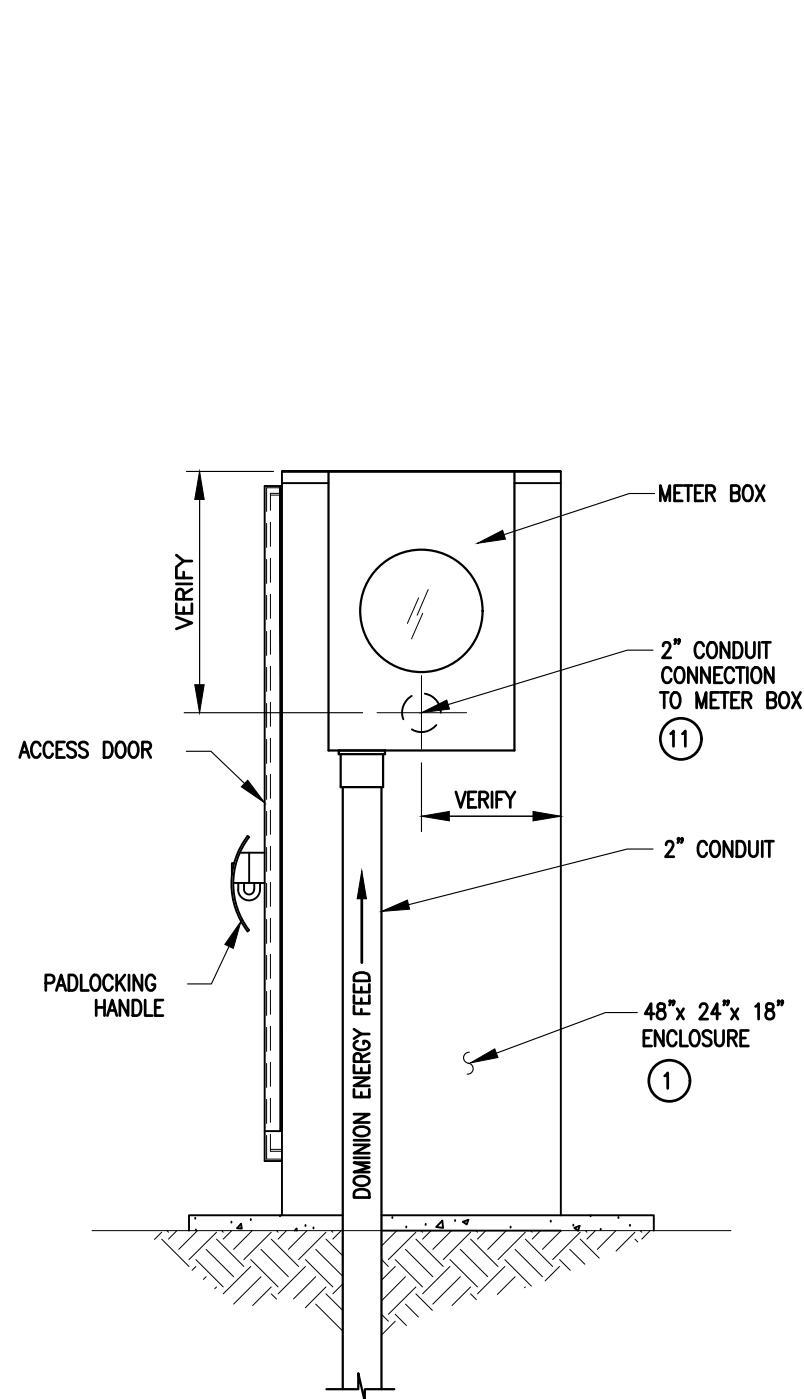
FOR 24" X 18" X 48" WEATHERPROOF ENCLOSURE
(DOMINION ENERGY METER CONNECT AREAS ONLY)



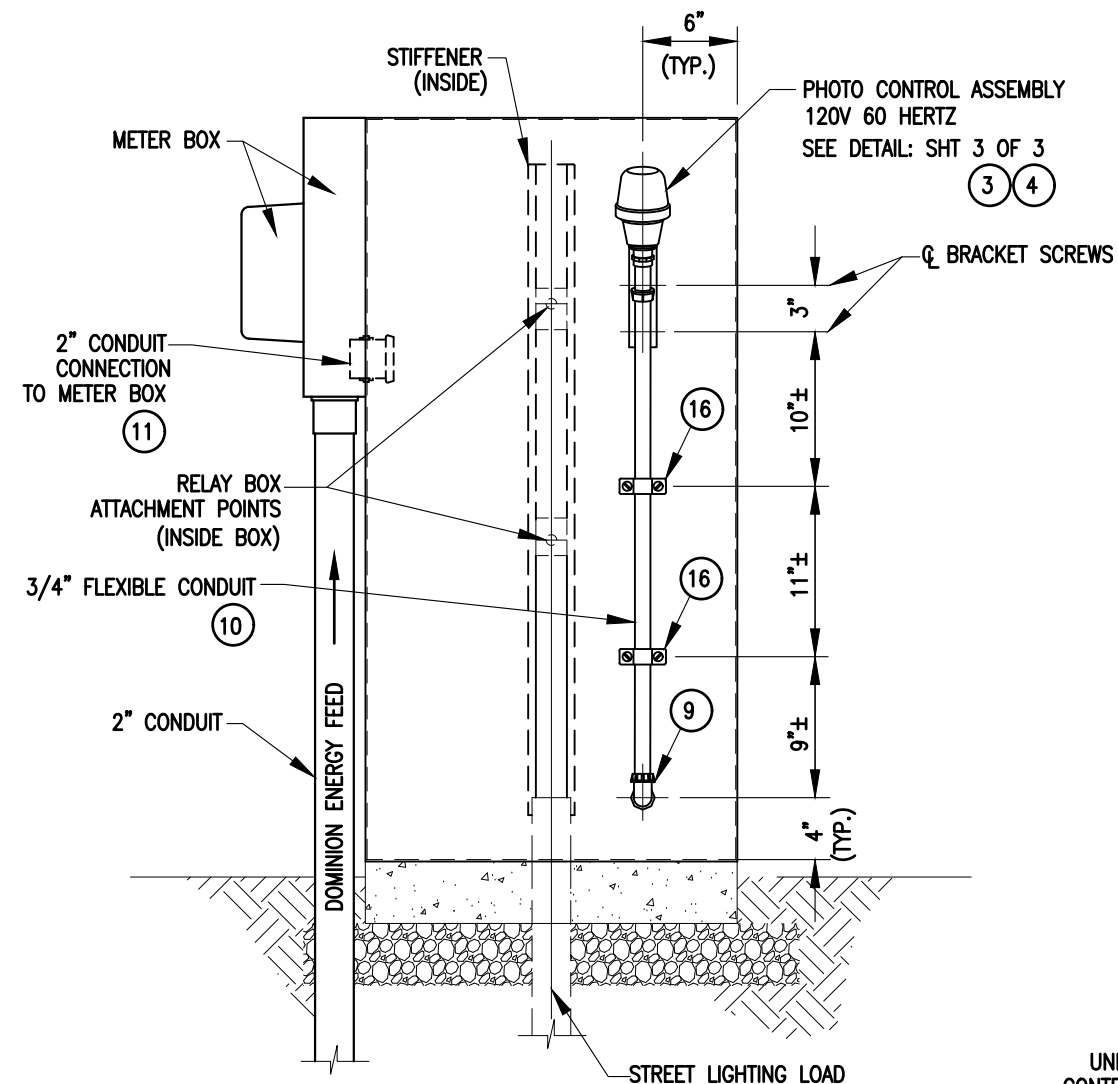
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STREET LIGHT STANDARDS

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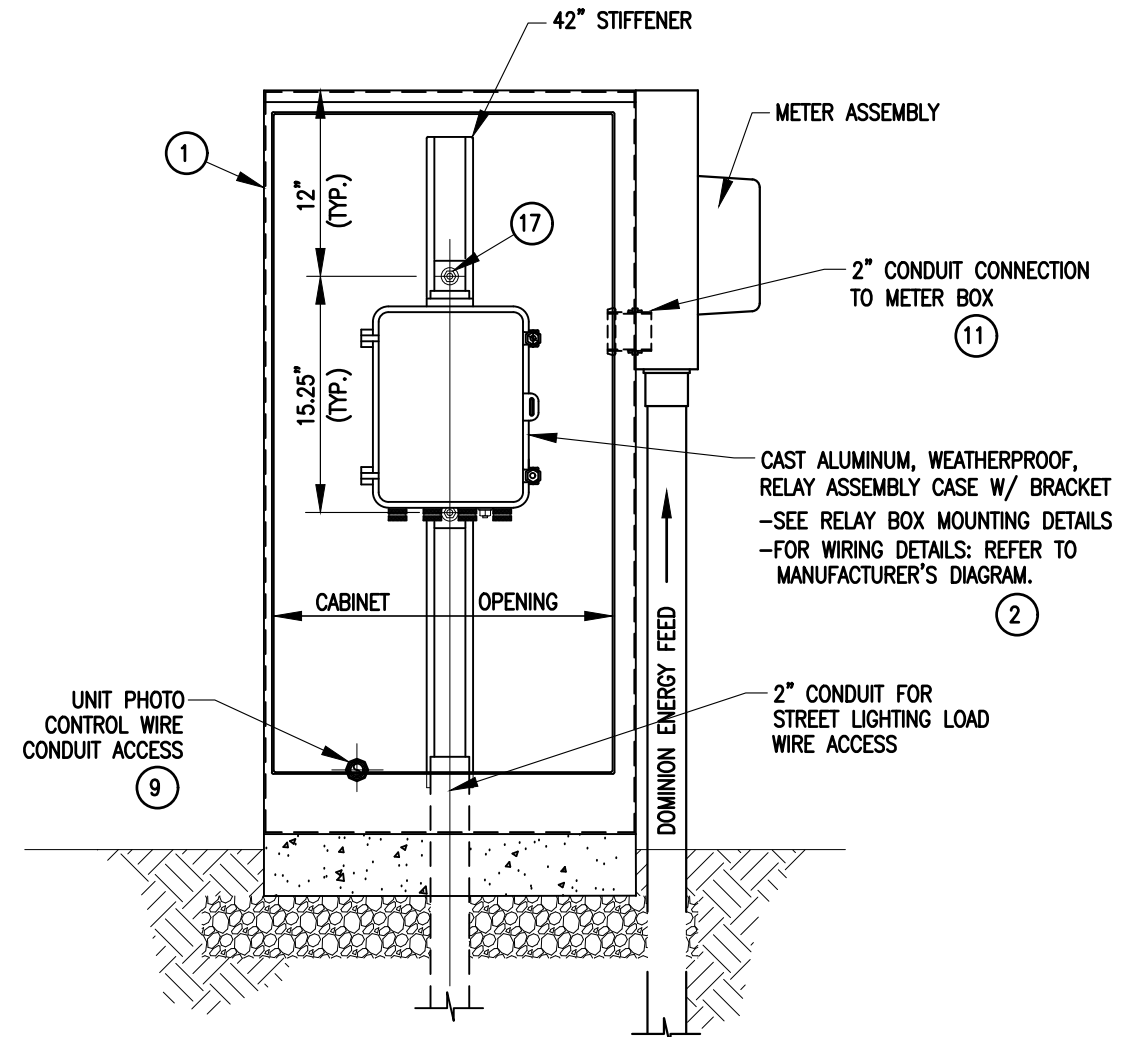
SHEET 1 OF 3
ESMA14



VIEW "B-B"



VIEW "C-C"



SECTION "1-1"

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ENGINEERING: _____ SIGNED COPY ON FILE _____

REFERENCES:
N/A



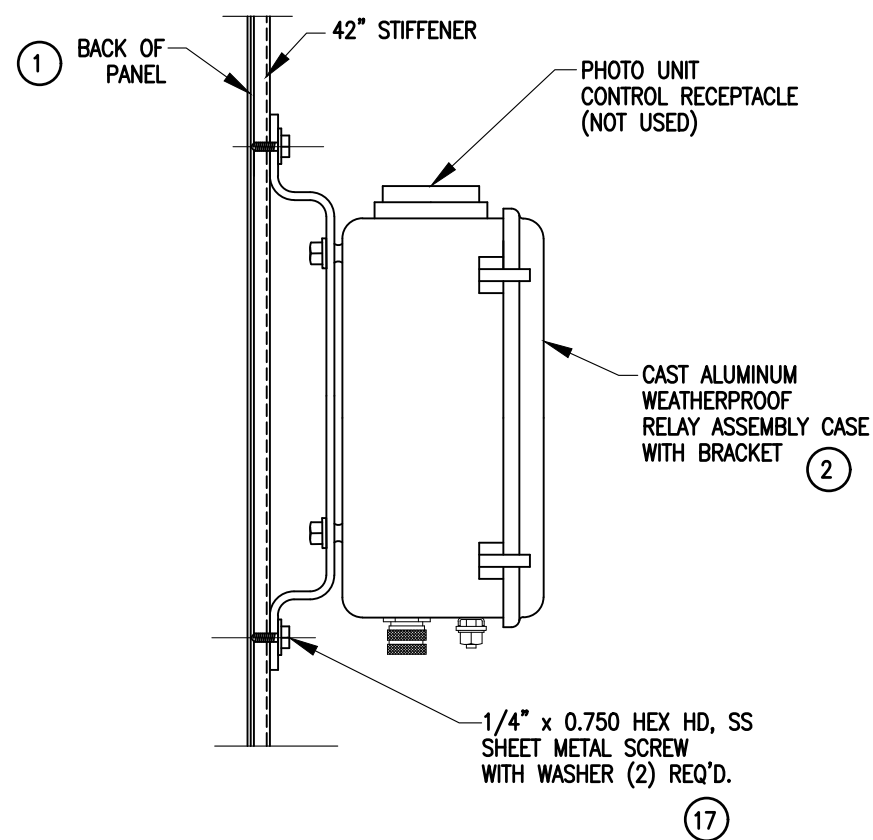
STANDARD MISCELLANEOUS ASSEMBLY DETAILS **48 INCH METER BOX ASSEMBLY DETAILS** FOR 24" X 18" X 48" WEATHERPROOF ENCLOSURE (DOMINION ENERGY METER CONNECT AREAS ONLY)



CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 2 OF 3
ESMA14



RELAY BOX MOUNTING DETAILS

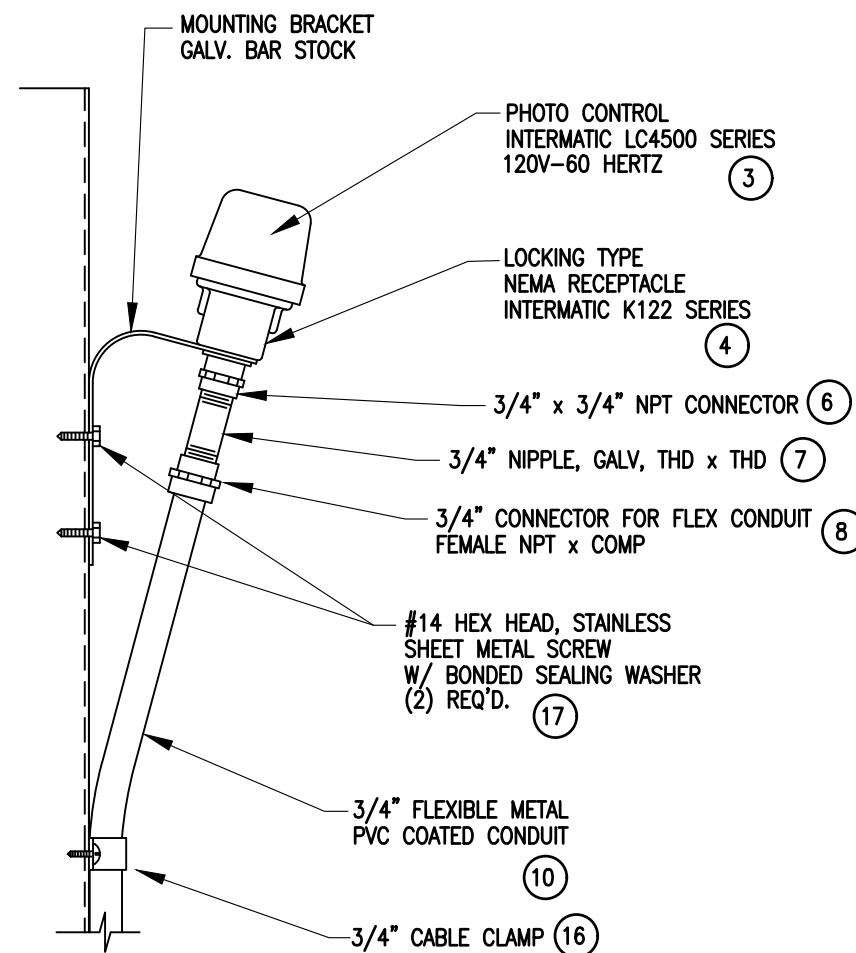
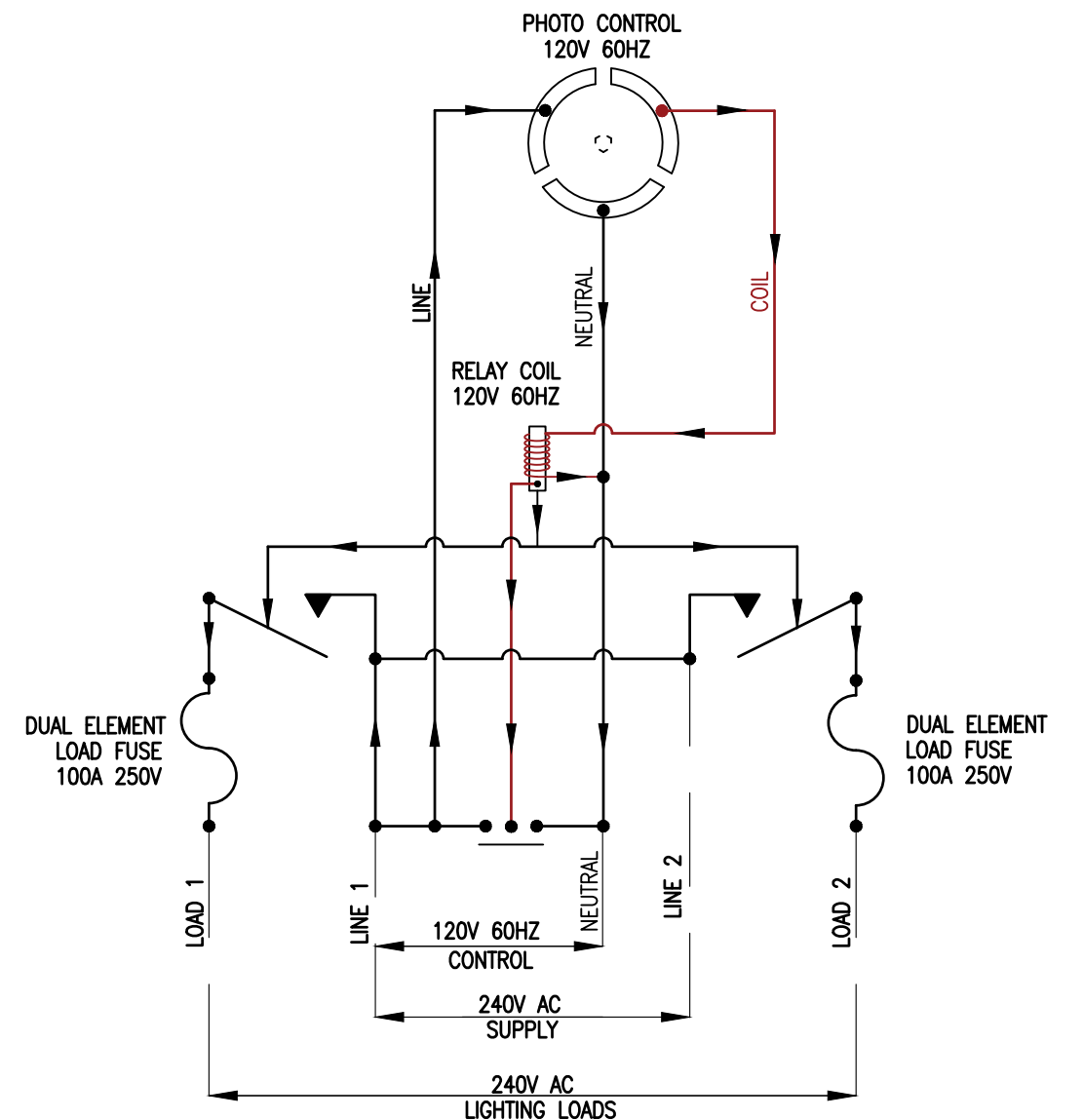


PHOTO UNIT CONTROL DETAIL



TYPICAL RELAY WIRING DIAGRAM

REFER TO RELAY MANUFACTURER'S PRODUCT WIRING DIAGRAM

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:



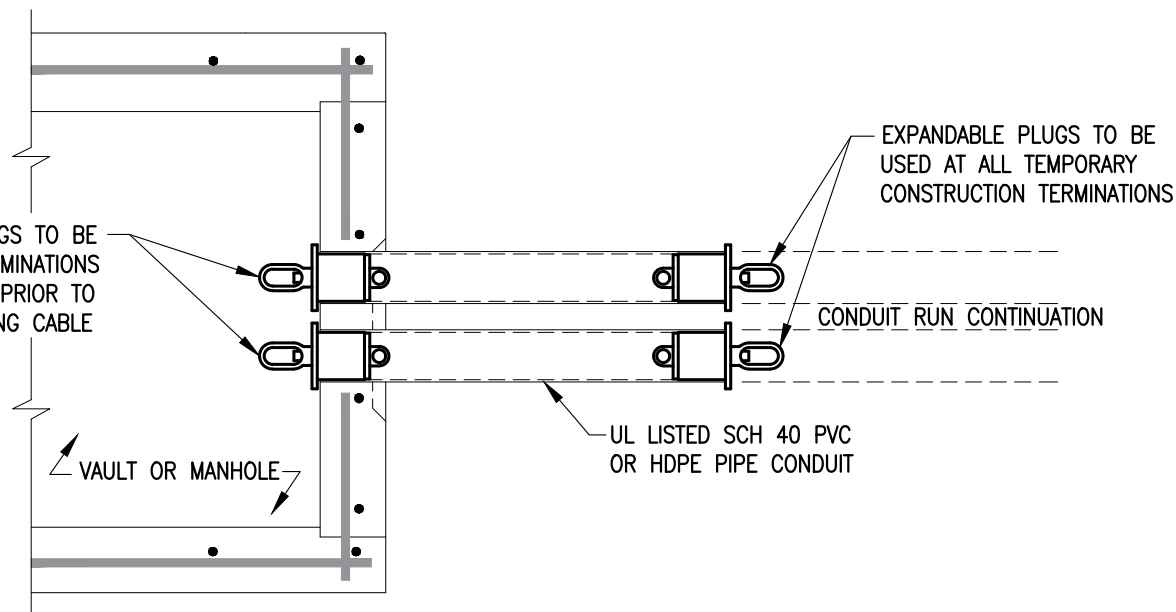
STANDARD MISCELLANEOUS ASSEMBLY DETAILS 48 INCH METER BOX ASSEMBLY DETAILS FOR 24" X 18" X 48" WEATHERPROOF ENCLOSURE (DOMINION ENERGY METER CONNECT AREAS ONLY)



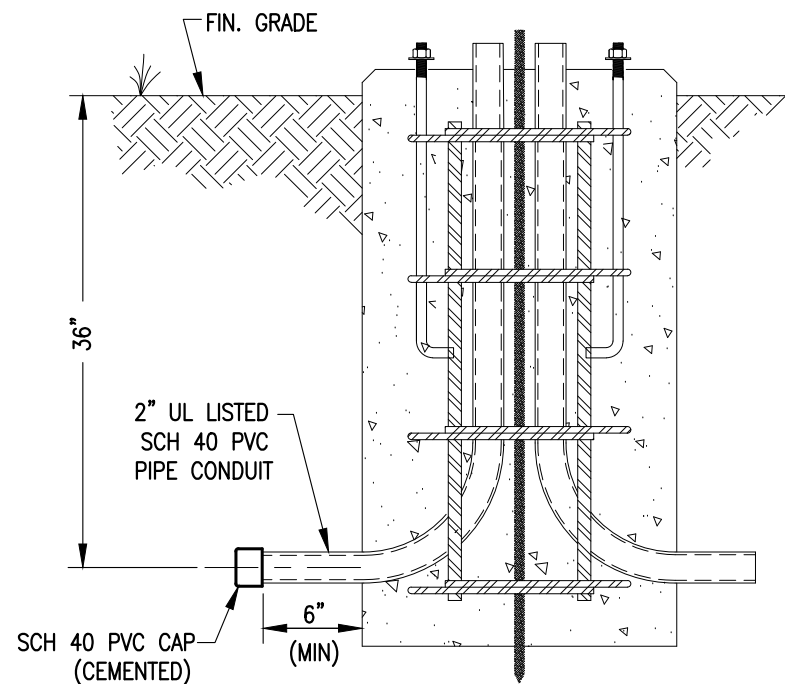
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STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
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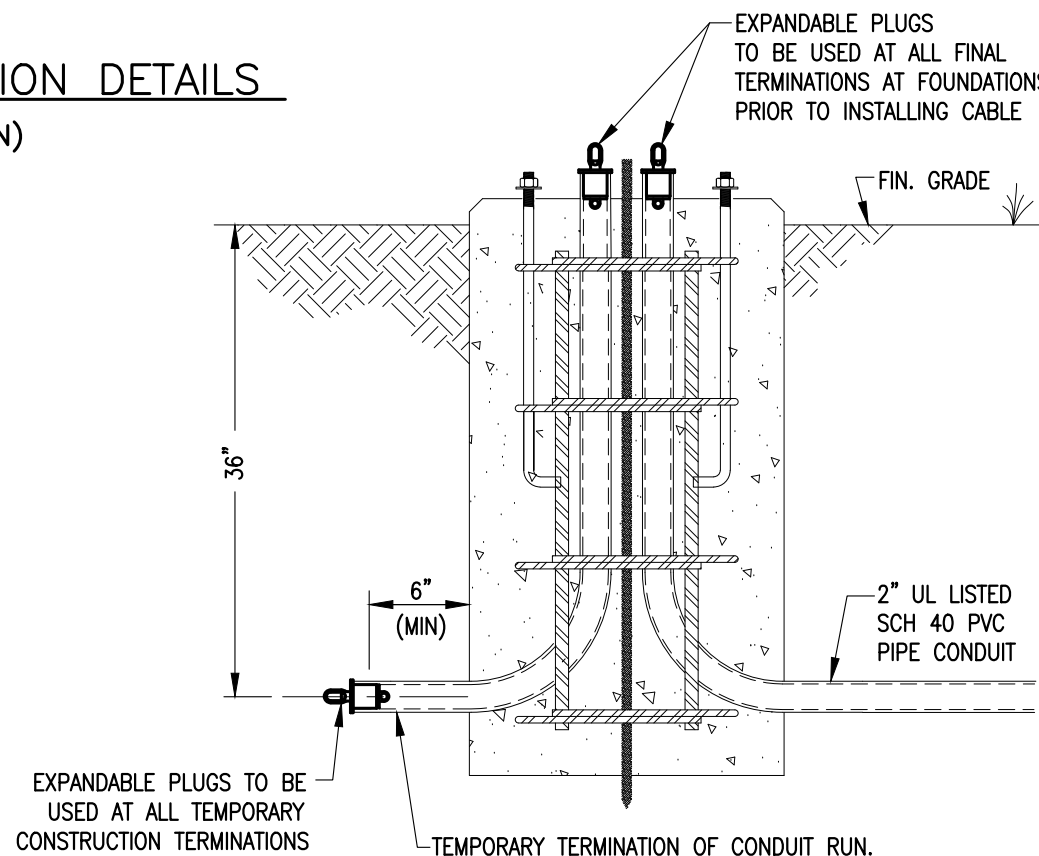
SHEET 3 OF 3
ESMA14



TEMPORARY CONDUIT TERMINATION DETAILS
(PRIOR TO CABLE INSTALLATION)



TERMINAL LIGHT POST FOUNDATION
CONDUIT DETAILS



TYPICAL LIGHT POST FOUNDATION
TEMPORARY CONDUIT TERMINATION DETAILS
(PRIOR TO CABLE INSTALLATION)

GENERAL NOTES:

1. CONDUIT ELBOWS SHALL HAVE FACTORY 90° BENDS. THE BEND RADIUS SHALL BE IN ACCORDANCE WITH THE NEC SPECIFICATIONS FOR RIGID CONDUITS.
(2"= 9.5"R MIN, 4"= 16.0"R MIN, 6"= 30.0"R MIN)
2. FOR EACH CONDUIT RUN, IN WHICH CABLE HAS NOT BEEN INSTALLED THE TERMINAL ENDS OF THE CONDUIT SHALL BE PLUGGED WITH A WATERTIGHT EXPANDABLE CONDUIT PLUG TO PREVENT WATER AND SOIL INTRUSION.
3. DURING CONSTRUCTION, TEMPORARY CONDUIT TERMINATIONS, NOT IN A STRUCTURE, SHALL BE PLUGGED WITH A WATERTIGHT EXPANDABLE CONDUIT PLUG TO PREVENT WATER AND SOIL INTRUSION.
4. WHEN CONNECTIONS ARE MADE TO TEMPORARY PLUGGED CONDUITS, THE CONTRACTOR SHALL FIRST VERIFY THAT NO WATER OR FOREIGN MATERIALS HAVE ENTERED THE CONDUIT AND THAT IT IS FULLY CLEAR AND USEABLE FOR ITS ENTIRE LENGTH BEFORE PROCEEDING.
5. WHEN EXISTING CONDUITS ARE FOUND TO BE INFILTRATED WITH WATER OR FOREIGN MATERIAL, THE CONTRACTOR SHALL NOT PROCEED UNTIL DIRECTED BY THE INSPECTOR.
6. ALL REPAIRS OR REMEDIES SHALL BE DONE AS DIRECTED BY THE INSPECTOR AND IN ACCORDANCE WITH DPU STANDARDS. ALL ASSOCIATED COSTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.
7. ALL TERMINAL LIGHT POST FOUNDATIONS SHALL HAVE AN "EMPTY" OUTGOING CONDUIT RUN CAPPED, BELOW GRADE, WITH A UL LISTED, SCH 40 PVC END CAP, CEMENTED IN PLACE.

REVIEWED & APPROVED

ENGINEERING: SIGNED COPY ON FILE

REFERENCES:



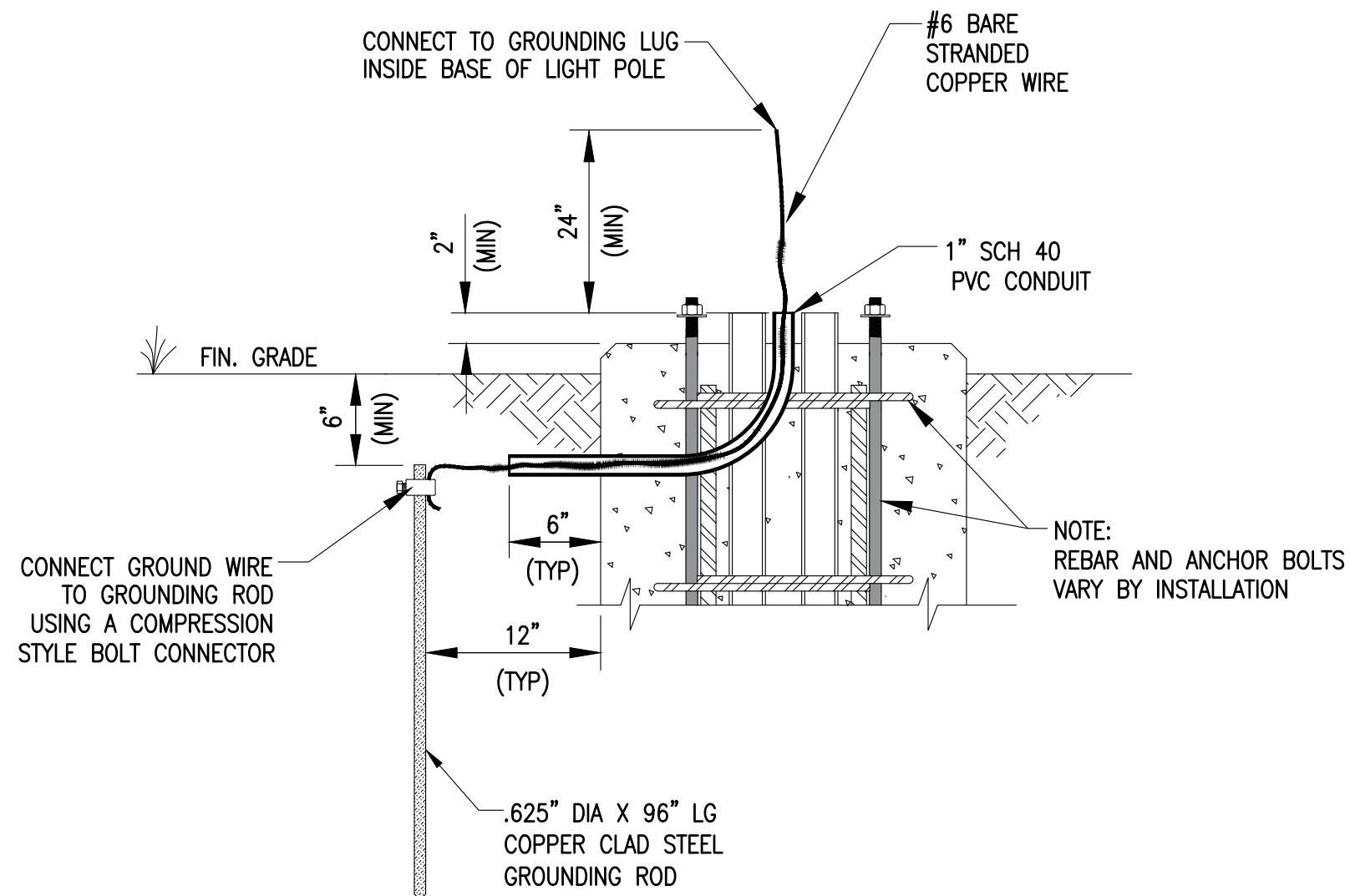
MISCELLANEOUS ASSEMBLY DETAILS
CONDUIT TERMINATIONS
TEMPORARY (DURING CONSTRUCTION) AND TERMINAL



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STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 1
ESMA15



ALTERNATE GROUNDING METHOD DETAILS

FOR INTERNAL USE ONLY

GENERAL NOTES:

1. SOLID STEEL COPPER CLAD GROUND RODS SHALL BE 0.625" DIAMETER X 96" LONG.
2. RODS ARE TO BE DRIVEN INTO UNDISTURBED, PERMANENTLY MOIST EARTH, AND SHALL BE A MINIMUM OF 93" DEEP IN THE COMBINED FOUNDATION CONCRETE AND UNDISTURBED EARTH.
3. ALL GROUNDING BOLTS, CLAMPS, NUTS, AND WASHERS SHALL BE HIGH COPPER ALLOY OR BRONZE MATERIAL.
4. INSTALLATION SHALL BE WITNESSED BY THE INSPECTOR OR BY THE ENGINEER.
8. THE ALTERNATE GROUND INSTALLATION METHOD MAY BE USED ONLY WITH APPROVAL OF THE DEPT. OF PUBLIC UTILITY'S STREET LIGHTING ENGINEER, AND ONLY IF THE GROUNDING CANNOT BE INSTALLED WITHIN THE FOUNDATION AS SHOWN ON THE DEPT. OF PUBLIC UTILITIES GROUNDING METHOD AS SHOWN ON THE STANDARD ESMA01.

APPROVED FOR USE:

ENGINEER (PRINT NAME) _____

DATE _____

PROJECT _____

REVIEWED & APPROVED

ENGINEERING: _____ SIGNED COPY ON FILE

REFERENCES:
VDOT 2016 ROAD AND BRIDGE STANDARDS



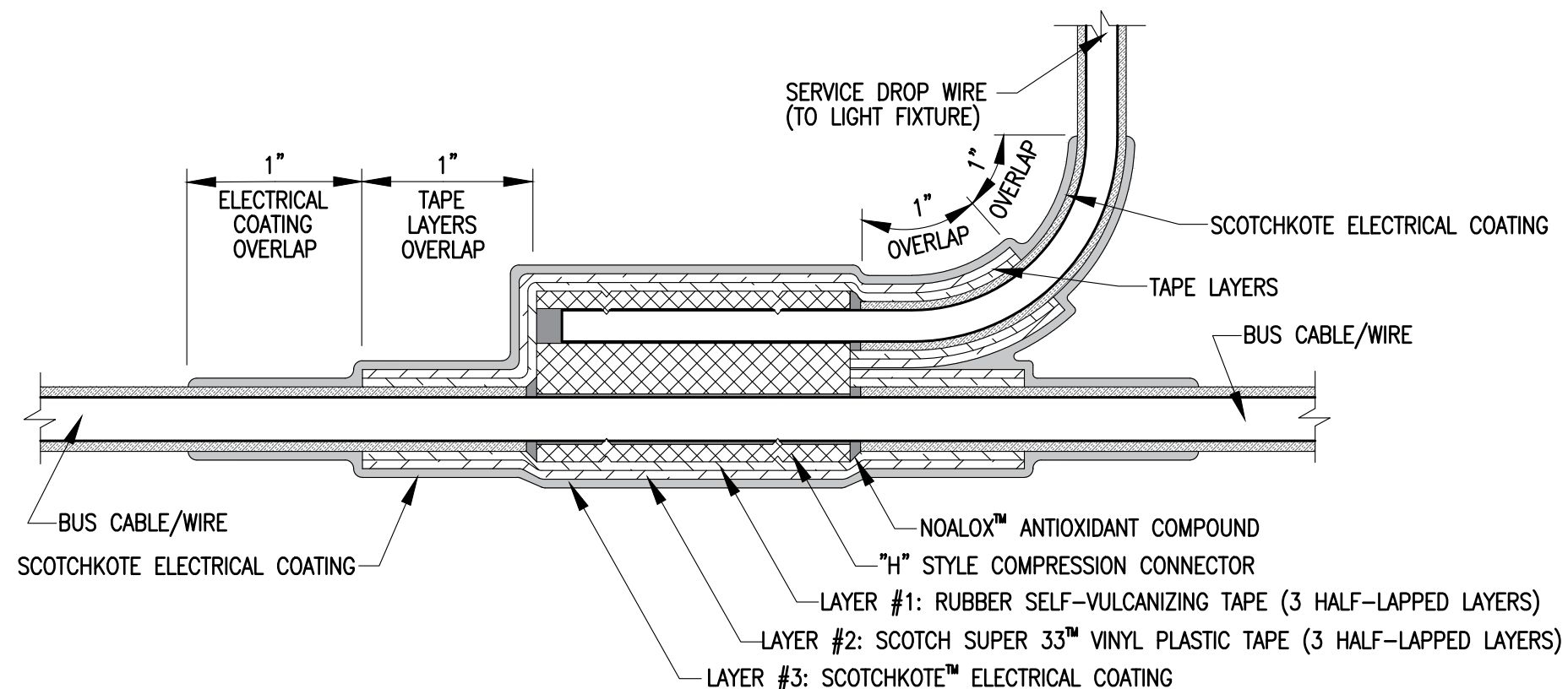
STANDARD MISCELLANEOUS ASSEMBLY DETAILS ALTERNATE POLE GROUNDING METHOD FOR LIGHT POLES WITH CONCRETE FOUNDATIONS



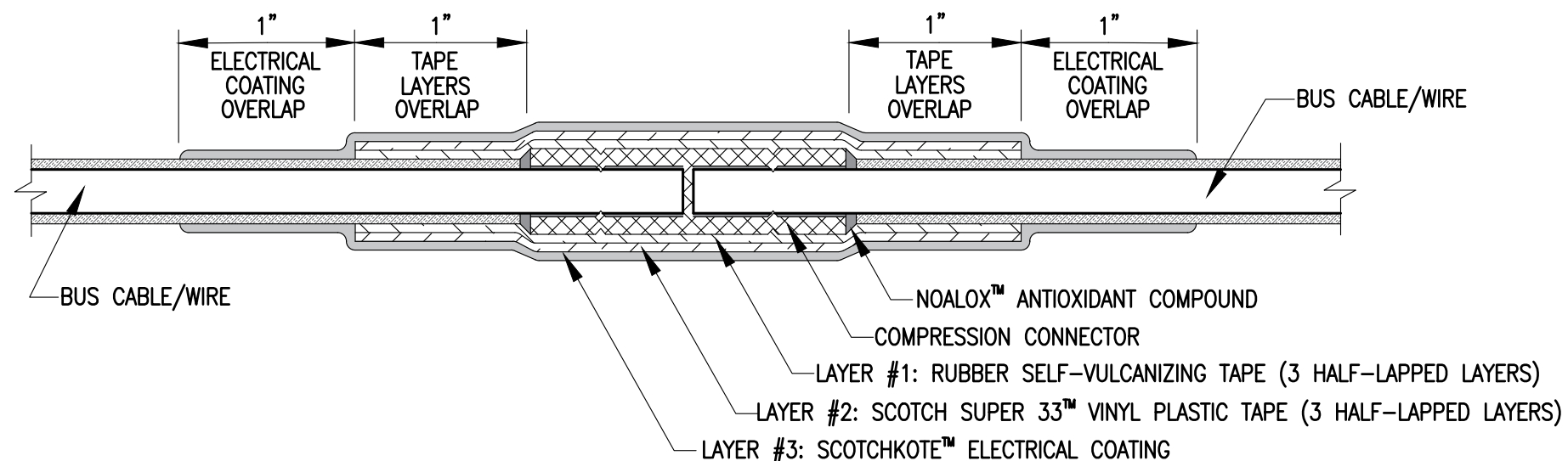
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STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 1
ESMA16



TYPICAL "H" TYPE COMPRESSION SPLICE



TYPICAL COMPRESSION BUTT SPLICE

GENERAL NOTES:

1. ELECTRICAL SPLICES AND CONNECTIONS SHALL BE ELECTRICALLY SECURE AND MADE WITH PRESSURE OR COMPRESSION FITTINGS AS MANUFACTURED BY THOMAS & BETTS, BURNDY, 3M, OR AN APPROVED EQUAL.
2. SPLIT BOLT CONNECTORS ARE NOT PERMITTED WHEN CONNECTING TO THE WIRE BUS.
3. TAPS AND SPLICES SHALL BE PROTECTED IN THE FOLLOWING MANNER:
 - (A) ALL WIRE CONNECTIONS SHALL BE COATED WITH AN ANTIOXIDANT COMPOUND SUCH AS NOALOX™ OR APPROVED EQUAL. ALL VOIDS FILLED AND SHARP EDGES COVERED.
 - (B) LAYER #1 SHALL BE THREE (3) 1/2 LAPPED LAYERS OF SELF-VULCANIZING RUBBER ELECTRICAL TAPE, DIELECTRIC STRENGTH, 300 VOLTS PER MIL.
 - (C) LAYER #2 SHALL BE THREE (3) 1/2 LAPPED LAYERS OF VINYL PLASTIC ELECTRICAL TAPE, SCOTCH BRAND SUPER 33+™ OR EQUAL.
 - (D) LAYER #3 SHALL BE A DIP IN SKOTCHKOTE™ ELECTRICAL COATING, OR EQUAL, 1" BEYOND THE INSULATING TAPE LAYERS.
 - (E) THE CONSTRUCTED SPLICE SHALL BE ALLOWED TO AIR DRY COMPLETELY BEFORE PUTTING IN TO SERVICE OR INTO A STREET LIGHT POLE.

REVIEWED & APPROVED

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REFERENCES:
X



STANDARD MISCELLANEOUS ASSEMBLY DETAILS

SPLICE POINT DETAIL

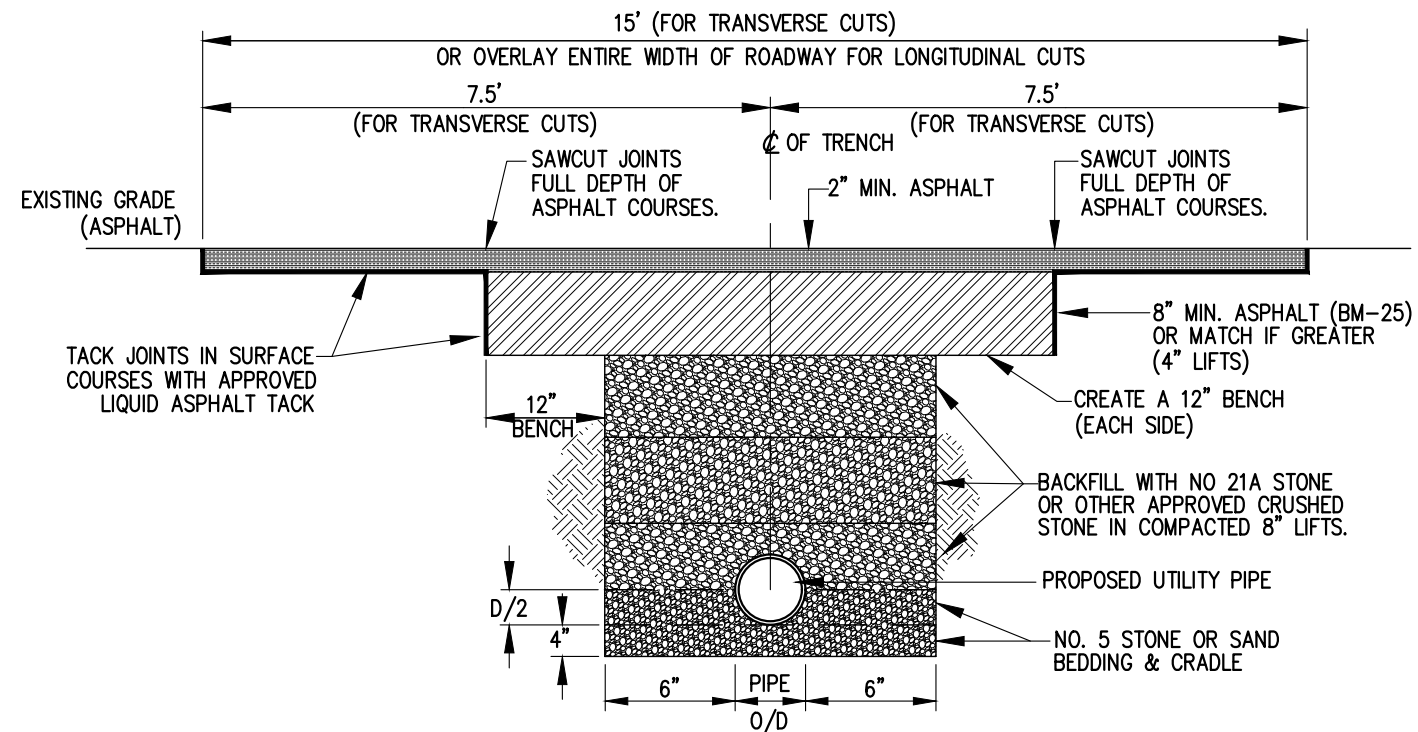
FOR BUS (PRIMARY & SECONDARY) AND SERVICE DROP SPLICES



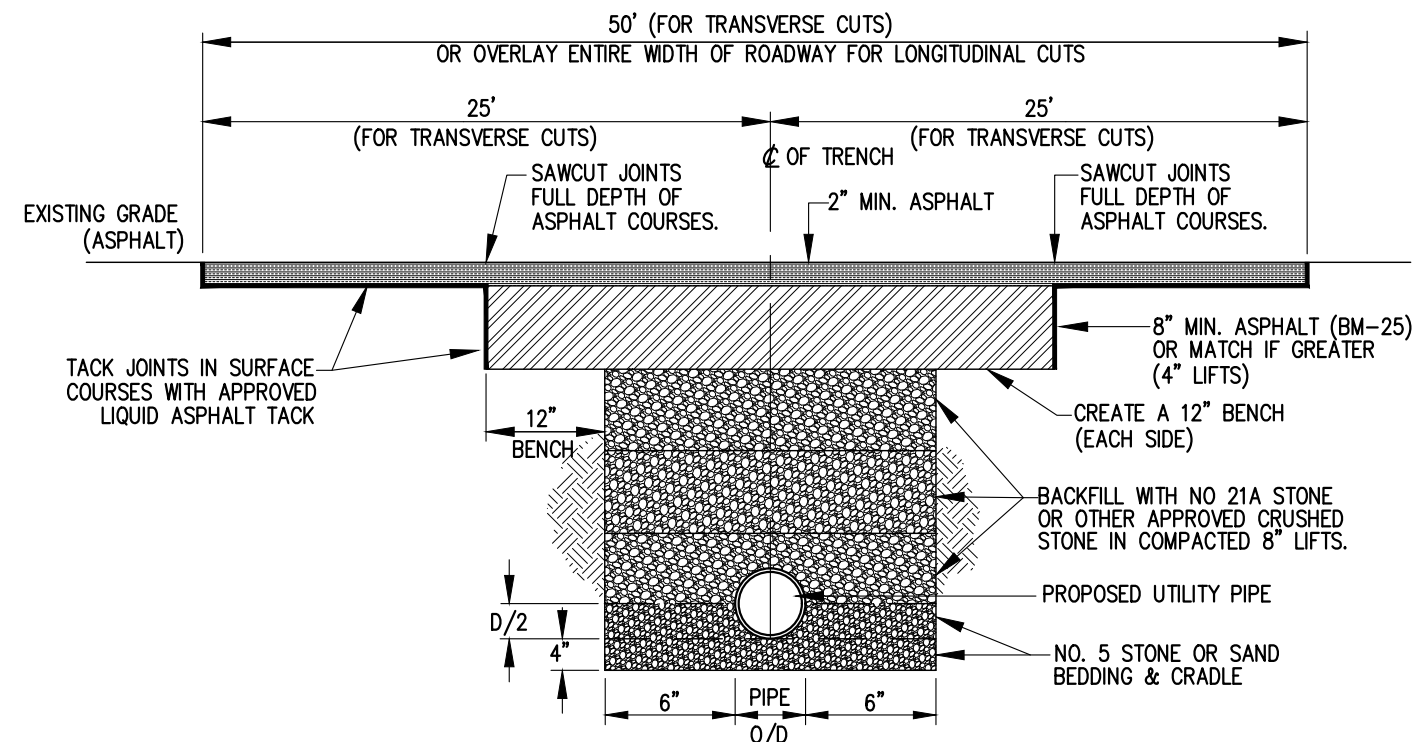
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STREET LIGHT STANDARDS

REVISION 0
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01/2022

SHEET 1 OF 1
ESMA17



CITY OF RICHMOND DPW – EXCAVATION & RESTORATION
FOR LOCAL & COLLECTOR ROADS

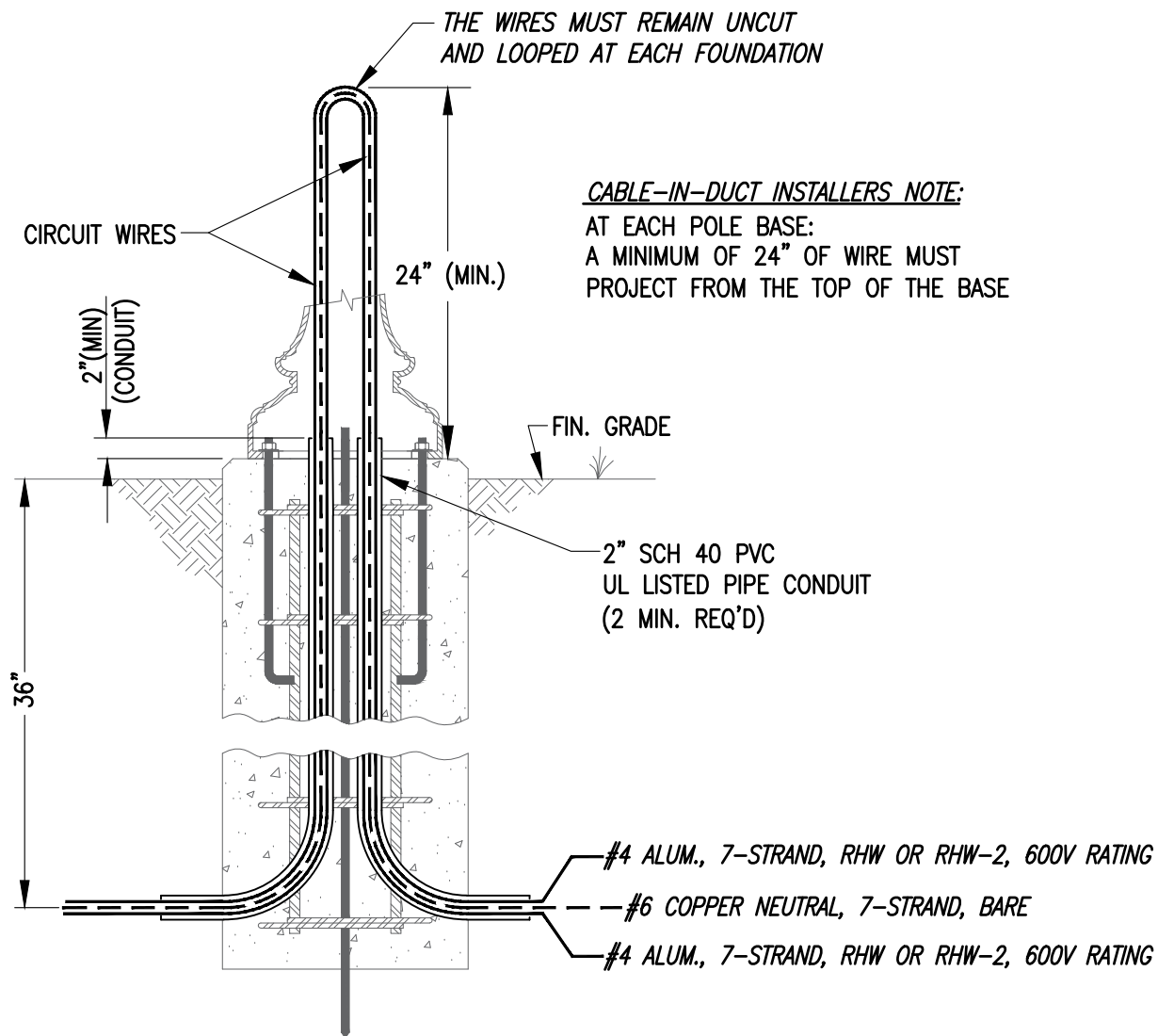


CITY OF RICHMOND DPW – EXCAVATION & RESTORATION
FOR ARTERIAL ROADS

GENERAL NOTES:

1. ALL FILL BENEATH TRAVELED ROAD SURFACES IS CONSIDERED "CONTROLLED FILL", THAT WHICH IS INTENDED AS A BEARING FOR A STRUCTURAL LOAD AND CONSEQUENTLY MUST BE PLACED IN LAYERS, PROPERLY COMPACTED, AND TESTED TO ENSURE THAT IT MEETS SPECIFIC COMPACTION STANDARDS, AS DETERMINED BY LABORATORY TESTS ON A SERIES OF SAMPLES FROM THE FILL MATERIAL.
2. BACKFILL MATERIAL SHALL BE COMPACTED TO A MINIMUM OF 95% OF THE THEORETICAL MAXIMUM DENSITY AT OPTIMUM MOISTURE CONTENT, AS DETERMINED BY VDOT TESTING PROCEDURE VTM-1.
3. MECHANICAL TAMPING SHALL BE USED THROUGHOUT THE DEPTH OF THE TRENCH IN MINIMUM OF 6", NOT TO EXCEED 8", LAYERS (LOOSE) TO ENSURE THAT ADEQUATE SUPPORT IS PROVIDED FOR THE SUB-BASE LAYERS.
4. FILL TO BE RODDED AND TAMPED UNDER HAUNCHES OF THE PIPE.





NOTE:
INSULATION MUST BE AN ABRASION, MOISTURE, HEAT, AND SUNLIGHT RESISTANT, BLACK CROSS-LINKED POLYETHYLENE.

GENERAL NOTES:

1. EACH LIGHT BASE WILL HAVE A MINIMUM OF TWO (2) #4 ALUMINUM, 7-STRAND, RHW OR RHW-2, 600V RATED, BUS WIRES AND ONE (1) #6 BARE SOFT COPPER, 7-STRAND, NEUTRAL WIRE AS SHOWN IN THE DETAIL.
2. THE UNDERGROUND CABLE-IN-DUCT ASSEMBLY MUST BE LOOPED AS SHOWN AT EACH LIGHT BASE. THE LOOP SHALL PROJECT AT LEAST TWO (2) FEET ABOVE THE TOP OF EACH LIGHT BASE.
3. THE UNDERGROUND CABLE-IN-DUCT LOOP, AT EACH BASE, MUST REMAIN UN-CUT.
4. UNDER NO CIRCUMSTANCES SHALL THE CABLE BE CUT OR BE ALLOWED TO BECOME SUBMERGED IN WATER. OBSERVATION OF EITHER CONDITION, BY THE INSPECTOR, SHALL CONSTITUTE SUFFICIENT GROUNDS FOR REJECTION OF THE ENTIRE LENGTH OF CABLE.



MISCELLANEOUS DETAILS AND ASSEMBLIES

WIRE/CABLE MINIMUM REQUIREMENTS FOR ORNAMENTAL LIGHTING INSTALLATIONS

CITY OF RICHMOND PUBLIC UTILITIES
STREET LIGHT STANDARDS

REVISION 0
REVISION DATE
01/2022

SHEET 1 OF 1
ESMA19