KNIGHT™ BOLLARD

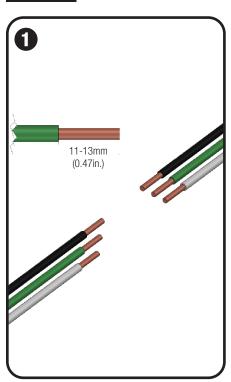
SECURITY BOLLARD WIRING & INSTALLATION INSTRUCTIONS

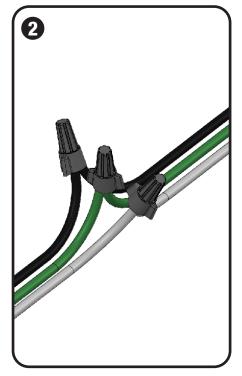
MATERIALS INCLUDED

TOOLS NEEDED

5/32" hex bit

STEP BY STEP WIRING INSTRUCTIONS FOR ALL ILLUMINATED KNIGHT BOLLARDS WITH EMBEDDED SECURITY CORES





NOTES:

- Installation should be performed only by qualified individuals.
- Wire used should be 22-14 AWG copper conductors.
- Caution: Installation of a surge protector as part of each unit's wiring is recommended.
 Light fixture rated for 120-277 VAC power.

Locate and prepare wires

- Before proceeding with wiring of luminary, check to ensure that all applicable site wiring and safety codes have been followed.
- Locate wires at base of light fixture.
- Ensure power supply is shut off and circuit being used is isolated.
- Prepare wiring from site junction box and bollard by stripping and removing 11-13mm (.47") of insulation.

Connect wires

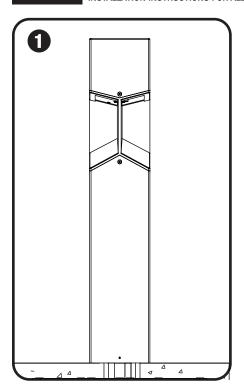
- Insert ground (green), neutral (white), and positive (black) wires into provided wire nuts, being sure to match wire color codes from junction box to bollard.
- Tighten wire nuts until exposed wire ends are below bottom of wire nut.
- Inspect all wiring and connections before.

FORMS+SURFACES®

KNIGHT™ BOLLARD

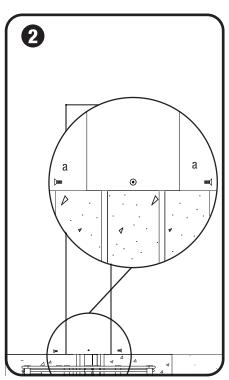
SECURITY BOLLARD WIRING & INSTALLATION INSTRUCTIONS

STEP BY STEP INSTALLATION INSTRUCTIONS FOR ALL KNIGHT BOLLARDS WITH EMBEDDED SECURITY CORES



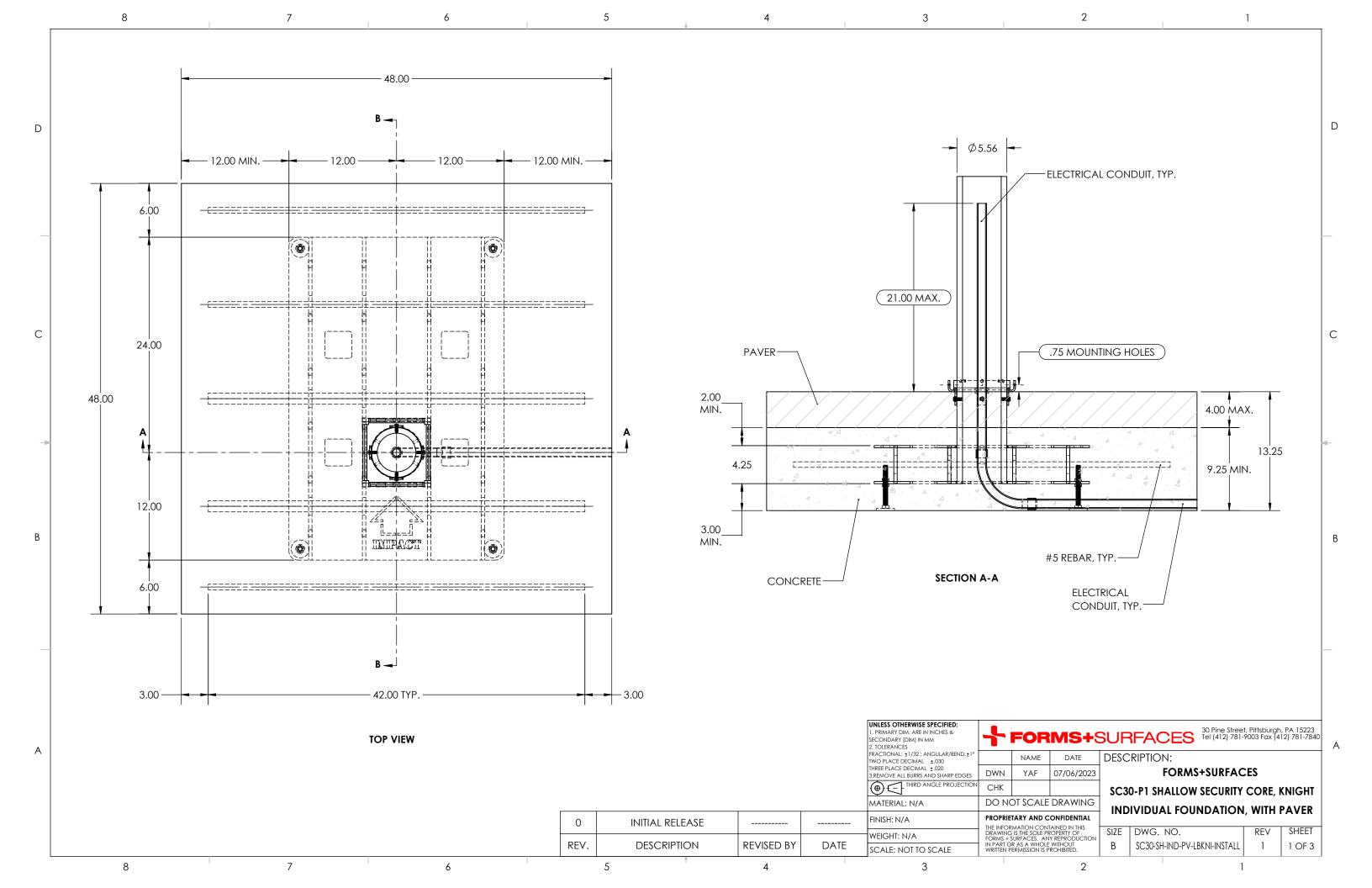
Position bollard over security core

- Inspect security core for moisture. If moisture is present, dry entirely before installing fixture. Do not install fixture unless security core is completely dry.
- Slide bollard over security core so that mounting holes in bollard body align with tapped holes in security core.



Attach bollard to security core

- Thread 1/4"-20 x 3/4" flat head cap bolt (a) into each lower hole in bollard.
- Use 5/32" hex bit or key to tighten all bolts until snug.



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SECTION B-B

NOTES:

FOOTINGS HAVE BEEN DESIGNED TO BEAR ON UNDISTURBED SOIL OR PROPERLY COMPACTED ENGINEERED FILL ASSUMING A NET BEARING CAPACITY OF 2000 PSF.

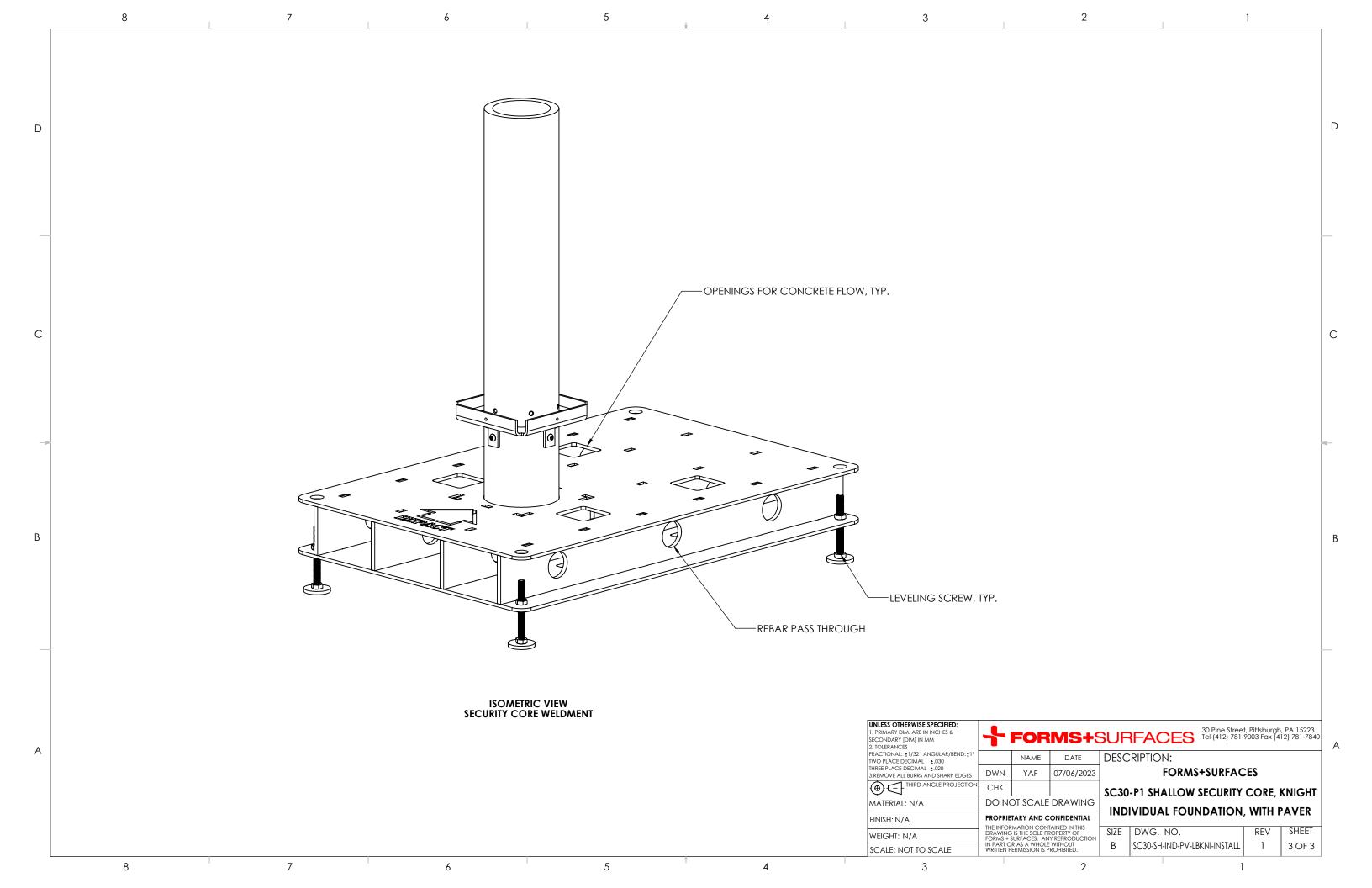
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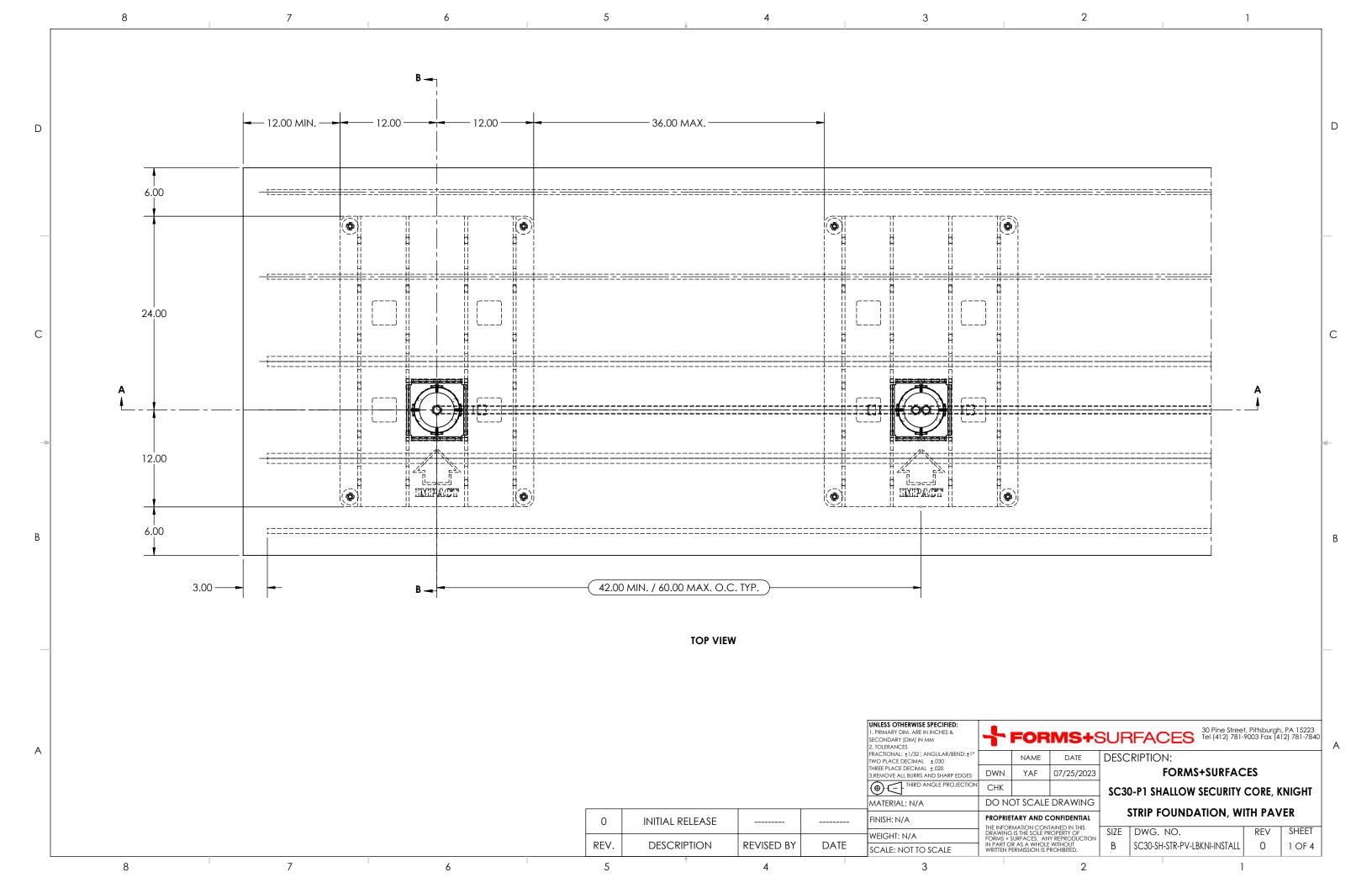
- REINFORCED CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH
 THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
 (ACI 318) AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301)
 OF THE AMERICAN CONCRETE INSTITUTE (EDITIONS AS REQUIRED BY
 GOVERNING CODE).
- 3. CAST-IN-PLACE CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH (F'C) OF 5000 PSI UNO.
- 4. PROVIDE 6% (+/-1.5%) AIR ENTRAINMENT IN CONCRETE EXPOSED TO FREEZE/THAW.
- DEFORMED BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60;
 SEE CHART FOR SIZING.
- 6. REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS, STIRRUPS, OR CHAIRS SHALL BE PROVIDED TO FURNISH SUPPORT FOR SPECIFIED BARS.

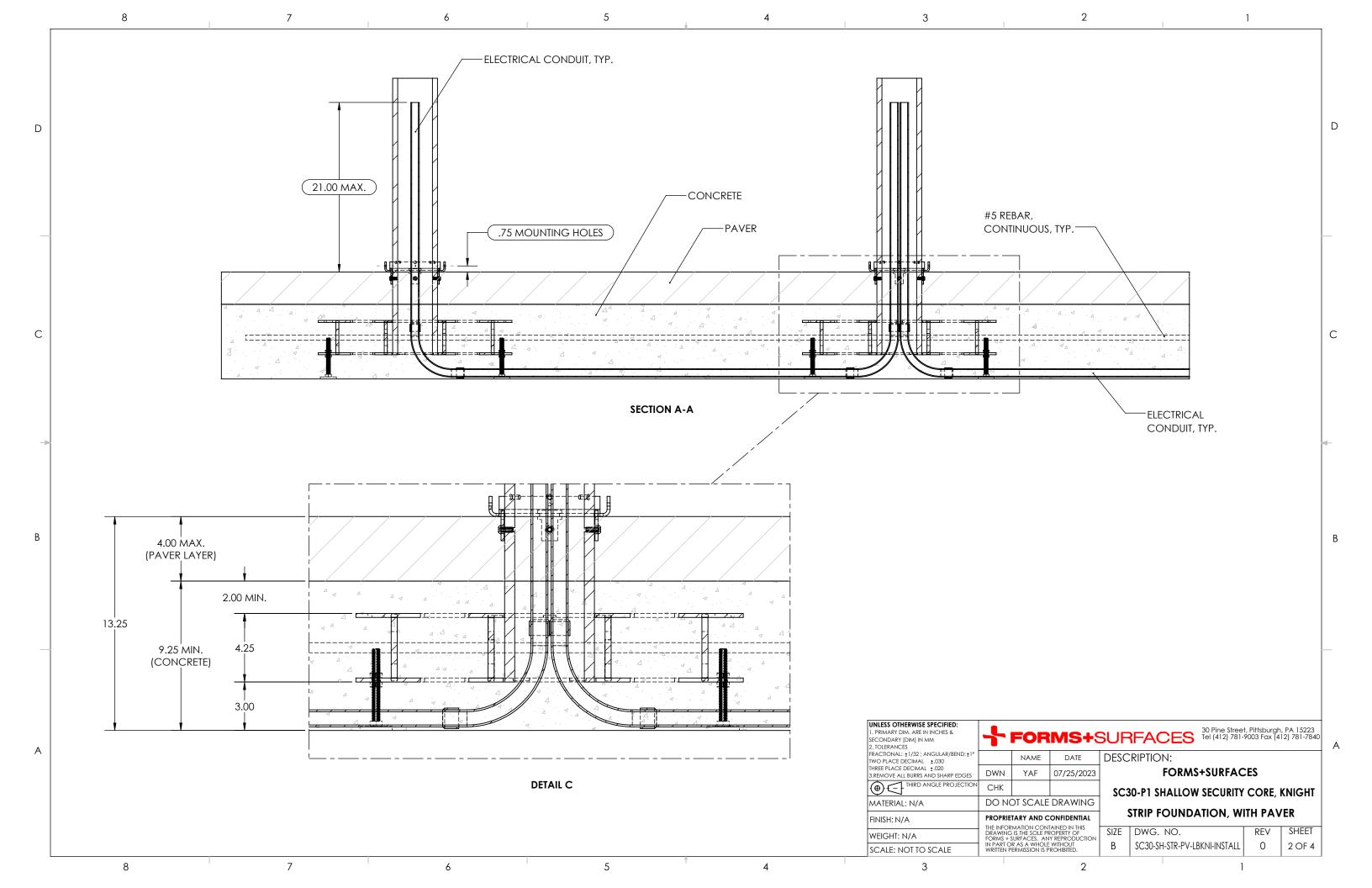
REBAR CHART				
BAR SIZE	DIAMETER			
#5	Ø 0.625			

UNLESS OTHERWISE SPECIFIED: FORMS+SURFACES 30 Pine Street, Pittsburgh, PA 15223 Tel (412) 781-9003 Fax (412) 781-7840 . PRIMARY DIM. ARE IN INCHES & SECONDARY [DIM] IN MM 2. TOLERANCES FRACTIONAL: ±1/32; ANGULAR/BEND:±1
TWO PLACE DECIMAL ±.030 DESCRIPTION: NAME DATE THREE PLACE DECIMAL ±.020 **FORMS+SURFACES** DWN YAF 07/06/2023 THIRD ANGLE PROJECTION SC30-P1 SHALLOW SECURITY CORE, KNIGHT MATERIAL: N/A DO NOT SCALE DRAWING INDIVIDUAL FOUNDATION, WITH PAVER PROPRIETARY AND CONFIDENTIAL FINISH: N/A THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FORMS + SURFACES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT WRITTEN PERMISSION IS PROHIBITED. SHEET SIZE DWG. NO. REV WEIGHT: N/A SC30-SH-IND-PV-LBKNI-INSTALL 2 OF 3 SCALE: NOT TO SCALE

7 6 5 4 3 2







8 7 6 5 4 3 2

PAVER

DOUBLE #5 REBAR,
CONTINUOUS, BOTH
SIDES OF CORE

CONCRETE

#5 REBAR,
CONTINUOUS, TYP.

SECTION B-B

NOTES:

. FOOTINGS HAVE BEEN DESIGNED TO BEAR ON UNDISTURBED SOIL OR PROPERLY COMPACTED ENGINEERED FILL ASSUMING A NET BEARING CAPACITY OF 2000 PSF.

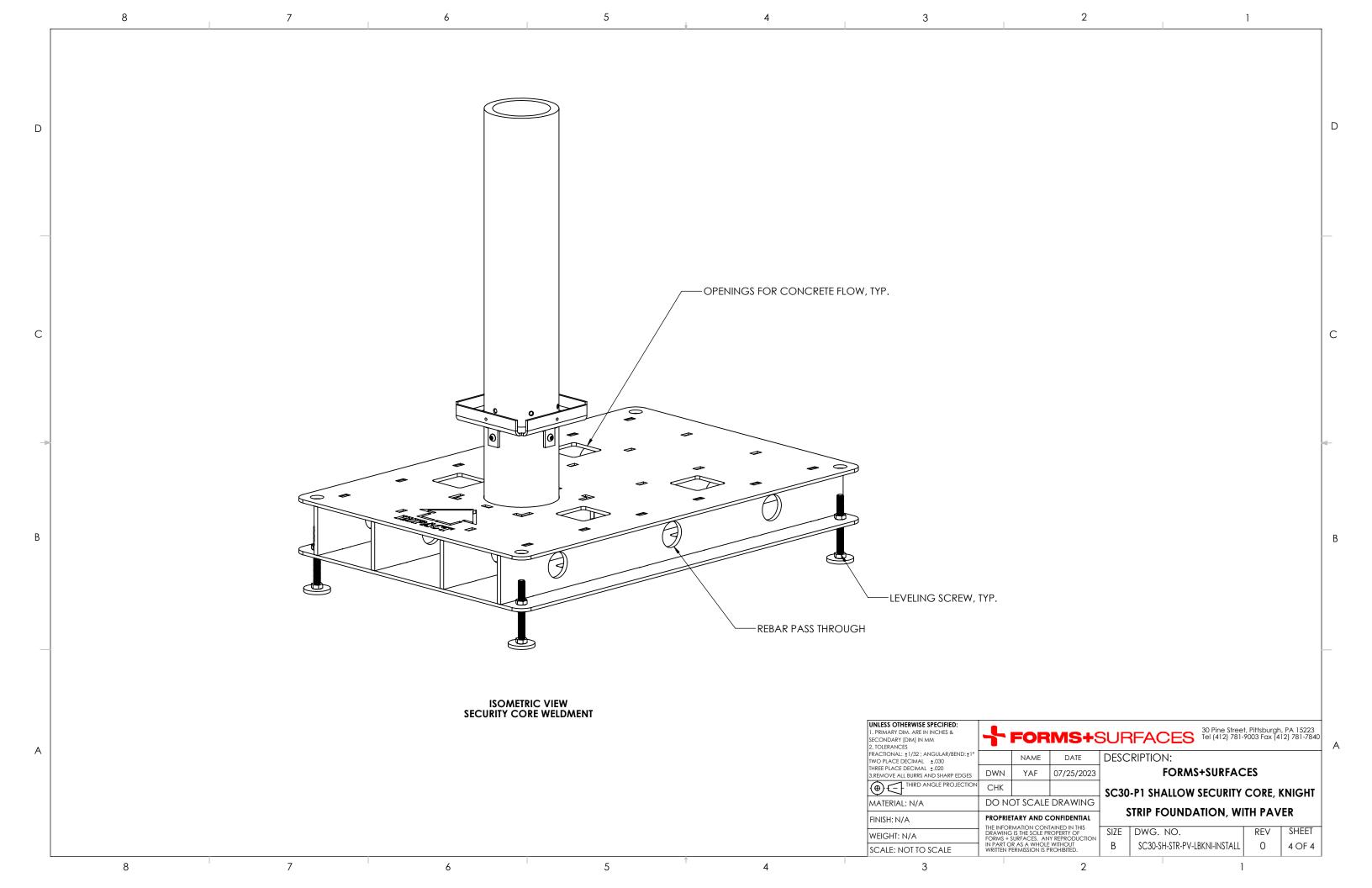
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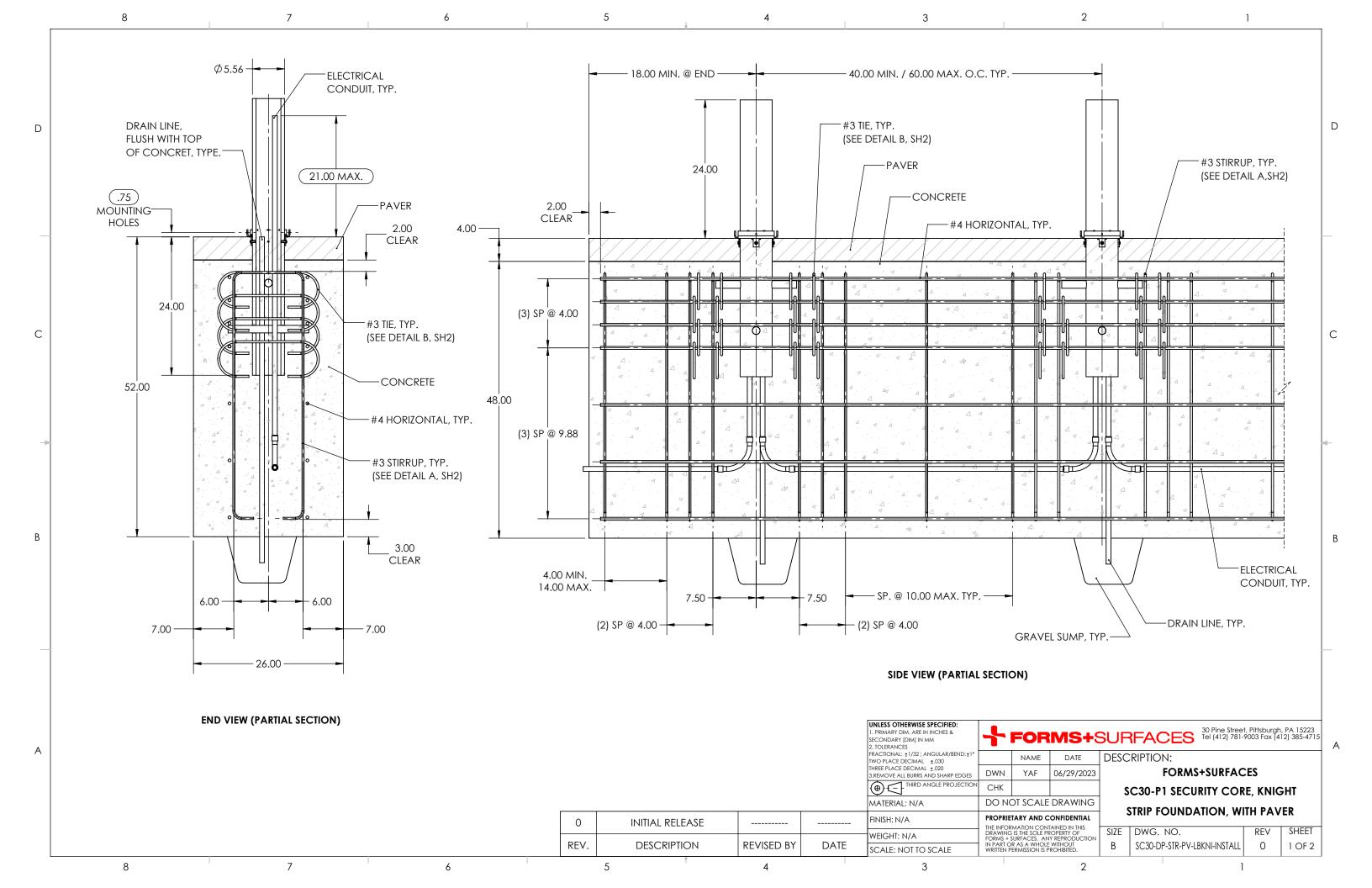
- REINFORCED CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH
 THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE"
 (ACI 318) AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301)
 OF THE AMERICAN CONCRETE INSTITUTE (EDITIONS AS REQUIRED BY
 GOVERNING CODE).
- 3. CAST-IN-PLACE CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH (F'C) OF 5000 PSI UNO.
- 4. PROVIDE 6% (+/-1.5%) AIR ENTRAINMENT IN CONCRETE EXPOSED TO FREEZE/THAW.
- DEFORMED BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60; SEE CHART FOR SIZING.
- REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS, STIRRUPS, OR CHAIRS SHALL BE PROVIDED TO FURNISH SUPPORT FOR SPECIFIED BARS.

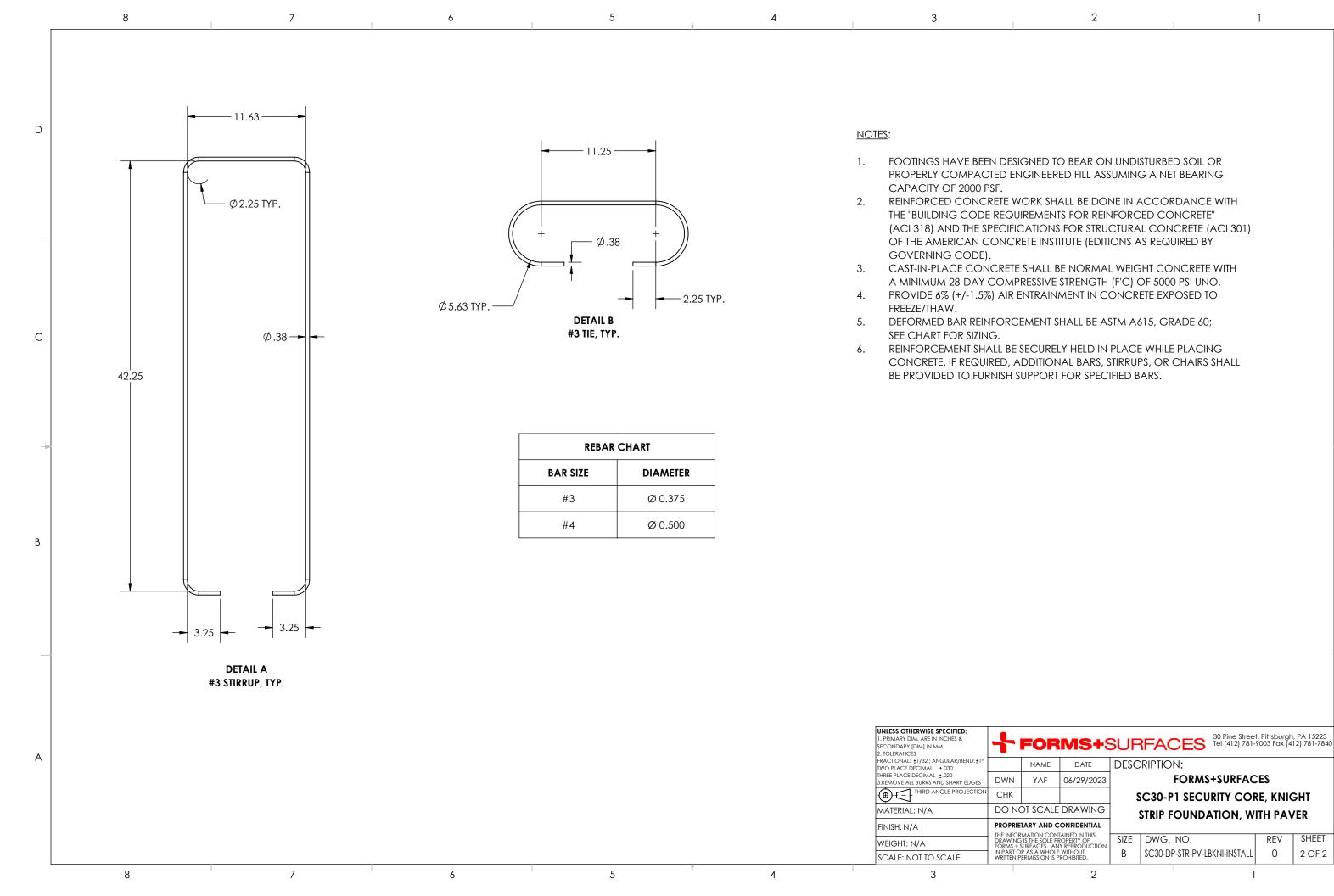
REBAR CHART				
BAR SIZE	DIAMETER			
#5	Ø 0.625			

UNLESS OTHERWISE SPECIFIED: FORMS+SURFACES 30 Pine Street, Pittsburgh, PA 15223 Tel (412) 781-9003 Fax (412) 781-7840 . PRIMARY DIM. ARE IN INCHES & SECONDARY [DIM] IN MM 2. TOLERANCES FRACTIONAL: ±1/32; ANGULAR/BEND:±1
TWO PLACE DECIMAL ±.030 DESCRIPTION: NAME DATE THREE PLACE DECIMAL ±.020 **FORMS+SURFACES** DWN YAF 07/25/2023 THIRD ANGLE PROJECTION SC30-P1 SHALLOW SECURITY CORE, KNIGHT MATERIAL: N/A DO NOT SCALE DRAWING STRIP FOUNDATION, WITH PAVER PROPRIETARY AND CONFIDENTIAL FINISH: N/A THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FORMS + SURFACES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT WRITTEN PERMISSION IS PROHIBITED. SIZE DWG. NO. SHEET WEIGHT: N/A SC30-SH-STR-PV-LBKNI-INSTALL 0 3 OF 4 SCALE: NOT TO SCALE

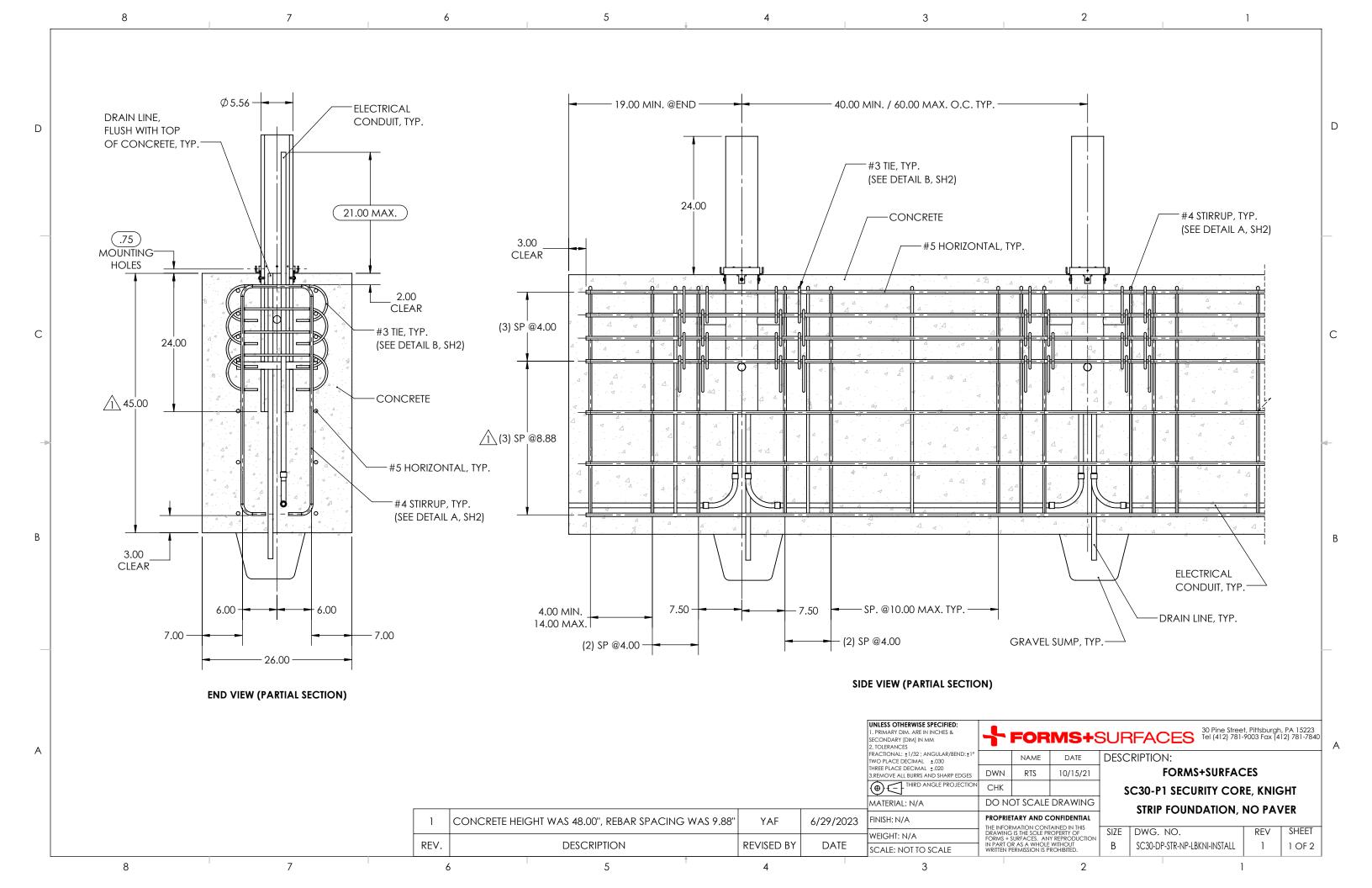
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D NOTES: - 11.50 -- 11.25 -FOOTINGS HAVE BEEN DESIGNED TO BEAR ON UNDISTURBED SOIL OR PROPERLY COMPACTED ENGINEERED FILL ASSUMING A NET BEARING CAPACITY OF 2000 PSF. REINFORCED CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH 2. THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" Ø3.00 TYP. (ACI 318) AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) \emptyset .38 OF THE AMERICAN CONCRETE INSTITUTE (EDITIONS AS REQUIRED BY GOVERNING CODE). CAST-IN-PLACE CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH (F'C) OF 5000 PSI UNO. PROVIDE 6% (+/-1.5%) AIR ENTRAINMENT IN CONCRETE EXPOSED TO 2.25 TYP. Ø 5.63 TYP. FREEZE/THAW. DEFORMED BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60; **DETAIL B** SEE CHART FOR SIZING. #3 TIE, TYP. REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING $\emptyset.50 -$ CONCRETE. IF REQUIRED, ADDITIONAL BARS, STIRRUPS, OR CHAIRS SHALL 39.00 BE PROVIDED TO FURNISH SUPPORT FOR SPECIFIED BARS. **REBAR CHART BAR SIZE** DIAMETER Ø 0.375 #3 #4 Ø 0.500 #5 Ø 0.625 - 3.75 ├ 3.75 **DETAIL A** #4 STIRRUP, TYP. UNLESS OTHERWISE SPECIFIED:

1. PRIMARY DIM. ARE IN INCHES & FORMS+SURFACES 30 Pine Street, Pittsburgh, PA 15223 Tel (412) 781-9003 Fax (412) 781-7840 SECONDARY [DIM] IN MM 2. TOLERANCES FRACTIONAL: ±1/32; ANGULAR/BEND:±1
TWO PLACE DECIMAL ±.030 DESCRIPTION: NAME DATE THREE PLACE DECIMAL ±.020
3.REMOVE ALL BURRS AND SHARP EDGES **FORMS+SURFACES** DWN RTS 10/15/21 THIRD ANGLE PROJECTION CHK SC30-P1 SECURITY CORE, KNIGHT MATERIAL: N/A DO NOT SCALE DRAWING STRIP FOUNDATION, NO PAVER PROPRIETARY AND CONFIDENTIAL FINISH: N/A THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FORMS + SURFACES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT WRITTEN PERMISSION IS PROHIBITED. SIZE DWG. NO. WEIGHT: N/A SC30-DP-STR-NP-LBKNI-INSTALL SCALE: NOT TO SCALE

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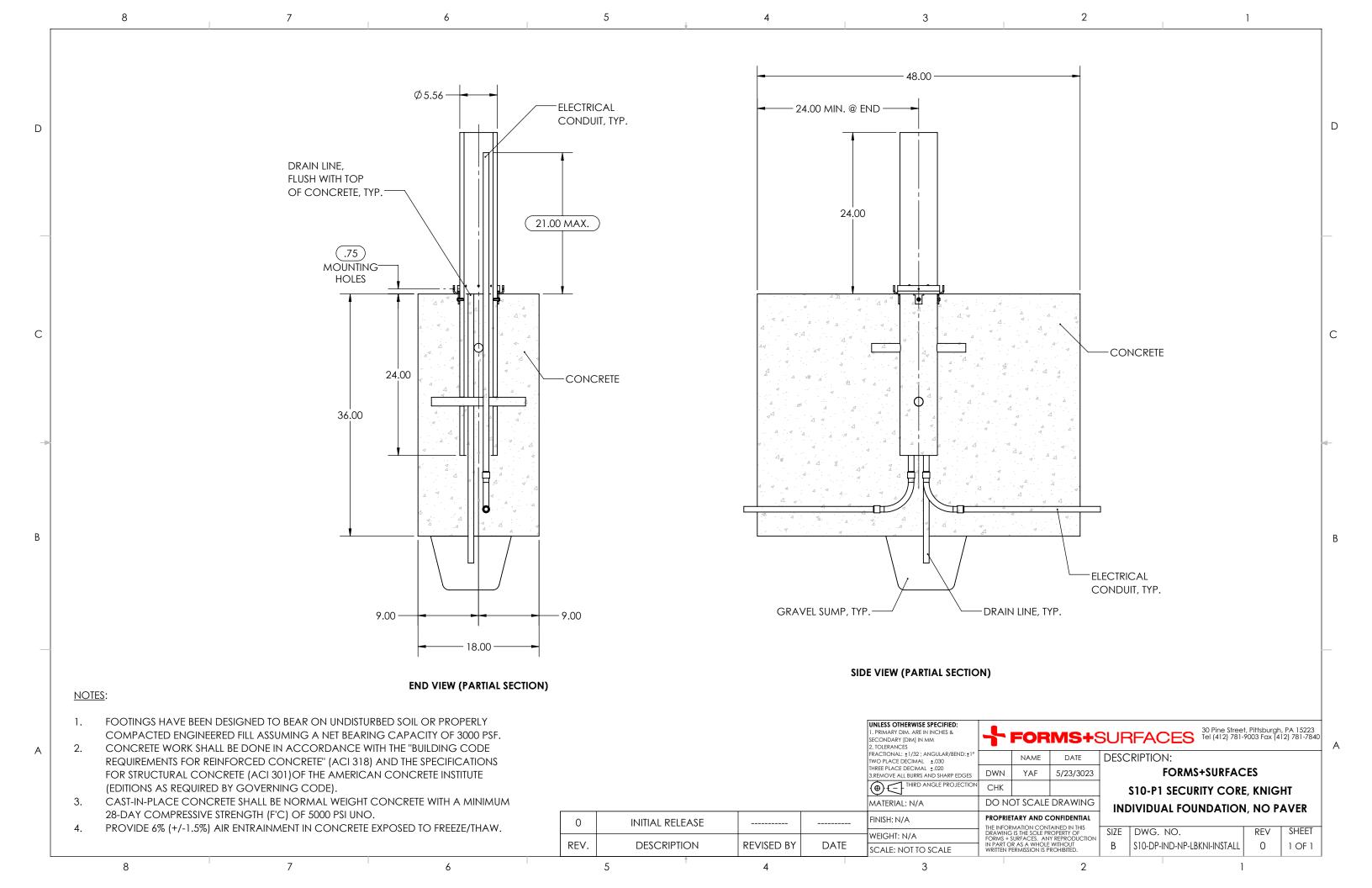
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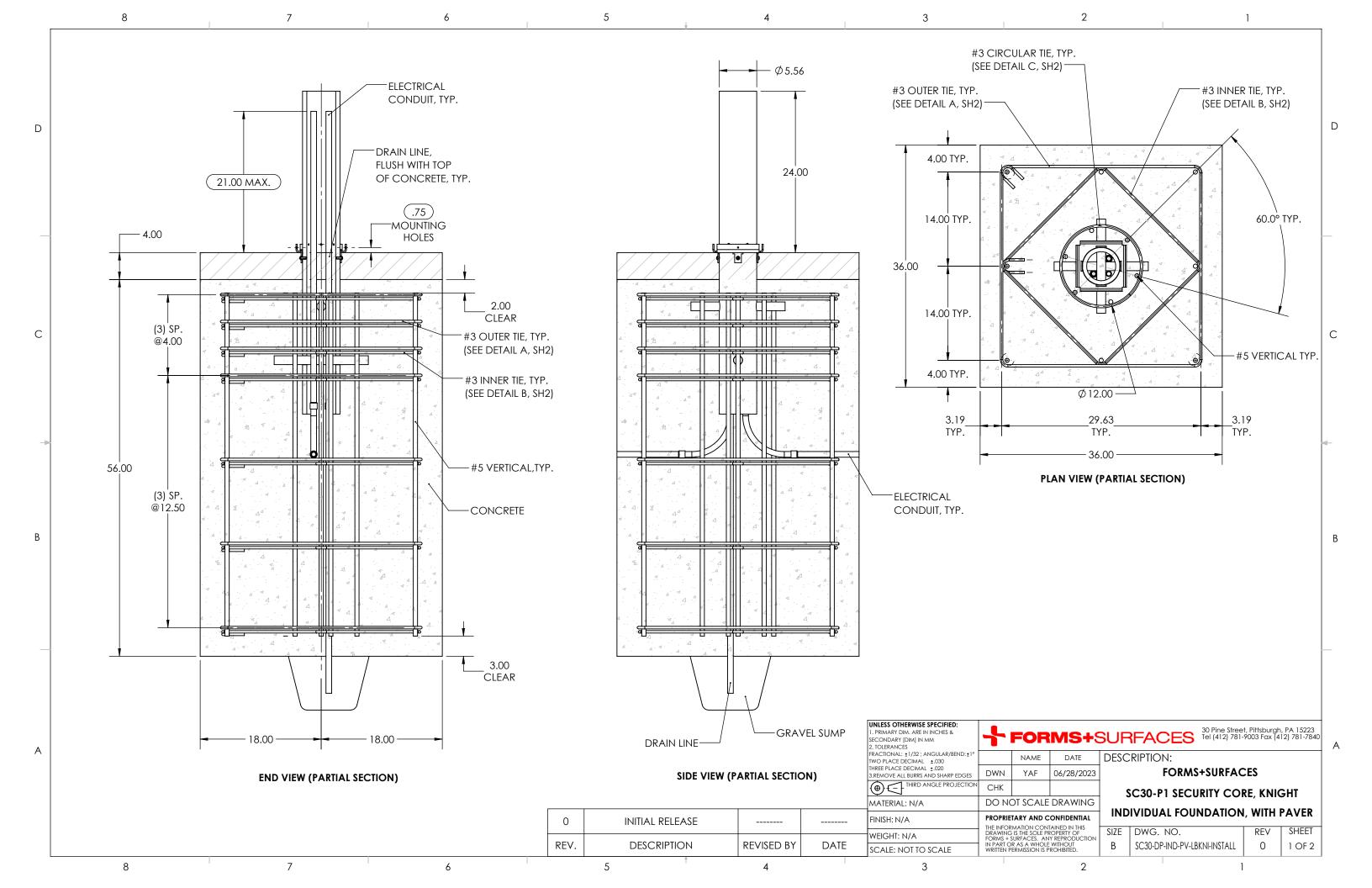
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2 OF 2

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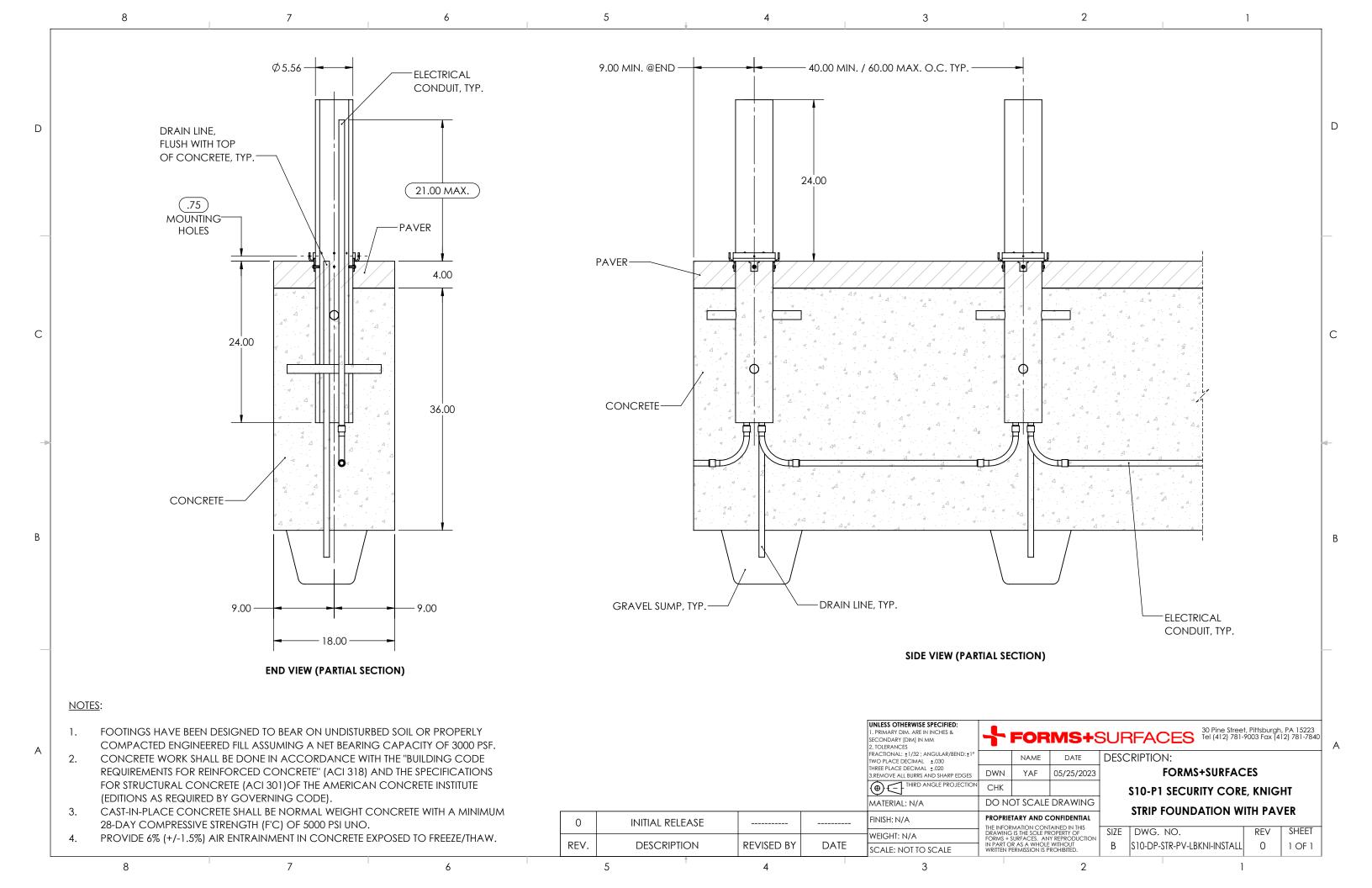
NOTES: - 29.25 -FOOTINGS HAVE BEEN DESIGNED TO BEAR ON UNDISTURBED SOIL OR PROPERLY COMPACTED ENGINEERED FILL ASSUMING A NET BEARING CAPACITY OF 2000 PSF. REINFORCED CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH Ø 1.50 TYP. THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" 0.313 (ACI 318) AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) OF THE AMERICAN CONCRETE INSTITUTE (EDITIONS AS REQUIRED BY GOVERNING CODE). **-** ∅.38 CAST-IN-PLACE CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH 29.25 A MINIMUM 28-DAY COMPRESSIVE STRENGTH (F'C) OF 5000 PSI UNO. PROVIDE 6% (+/-1.5%) AIR ENTRAINMENT IN CONCRETE EXPOSED TO FREEZE/THAW. DEFORMED BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60; SEE CHART FOR SIZING. – Ø11.63 — REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS, STIRRUPS, OR CHAIRS SHALL BE PROVIDED TO FURNISH SUPPORT FOR SPECIFIED BARS. **DETAIL C #3 CIRCULAR TIE, TYP. DETAIL A** #3 OUTER TIE, TYP. REBAR CHART 20.84 **BAR SIZE** DIAMETER #3 Ø 0.375 #5 Ø 0.625 Ø 1.50 TYP. **→** Ø.38 20.84

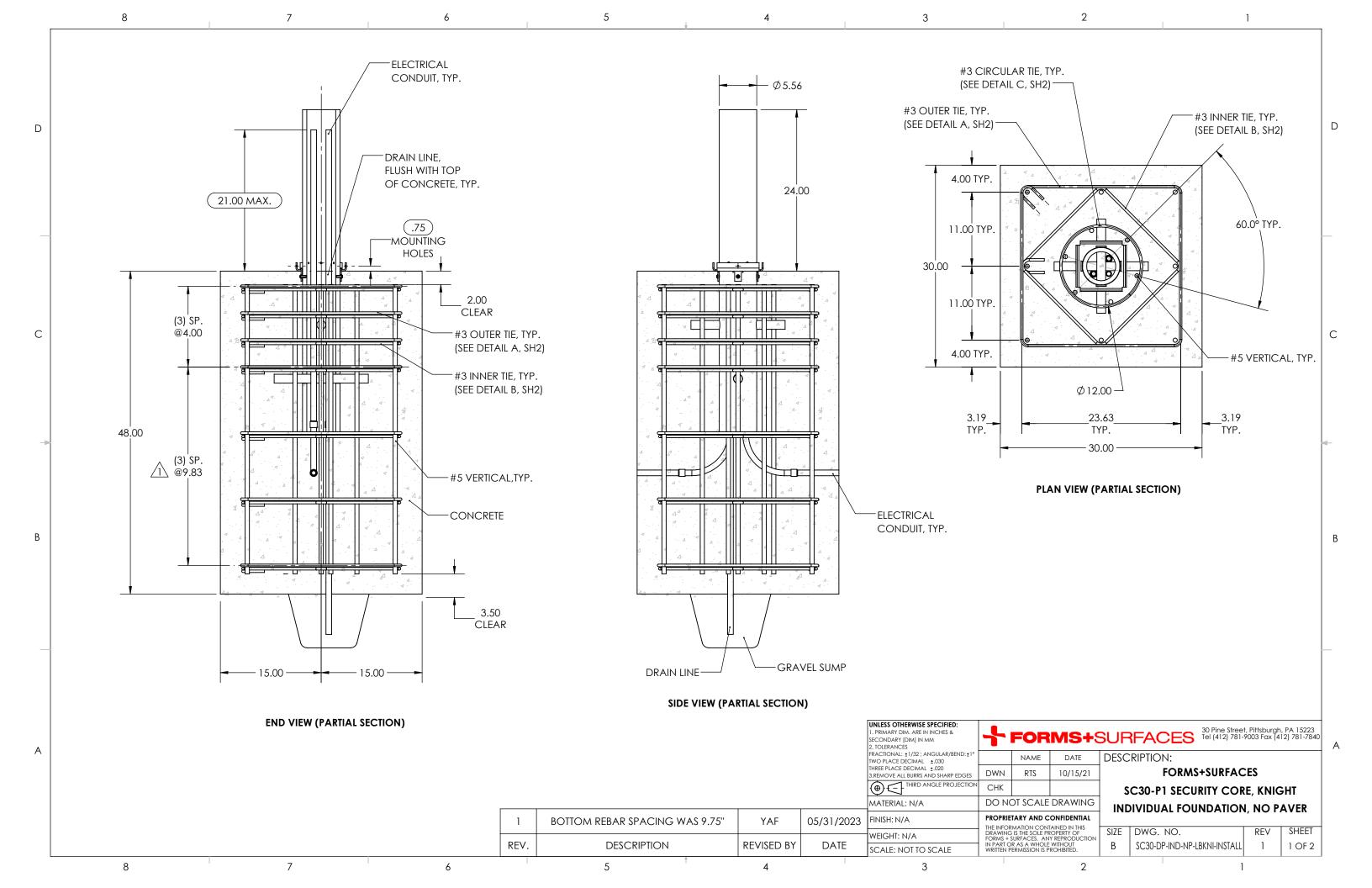
DETAIL B #3 INNER TIE, TYP.

UNLESS OTHERWISE SPECIFIED: 1. PRIMARY DIM. ARE IN INCHES & SECONDARY [DIM] IN MM 2. TOLERANCES	MARY DIM. ARE IN INCHES & INDIARY [DIM] IN MM TO RIMS + SURFACES 30 Pine Street, Pittsburgh, PA 152 Tel (412) 781-9003 Fax (412) 781-7								
FRACTIONAL: ±1/32; ANGULAR/BEND:±1° TWO PLACE DECIMAL ±.030		NAME	DATE	DESC	RIPTION:				
THREE PLACE DECIMAL ±.020 3.REMOVE ALL BURRS AND SHARP EDGES	DWN	YAF	06/28/2023		FORMS+SURFAC	CES			
THIRD ANGLE PROJECTION	CHK			S	C30-P1 SECURITY COR	E, KNIG	HT		
MATERIAL: N/A	DO NOT SCALE DRAWING			IVIDUAL FOUNDATION	-				
FINISH: N/A	PROPRIETARY AND CONFIDENTIAL THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FORMS * SURFACES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT WRITTEN PERMISSION IS PROHIBITED.			VIDO/ LE I GOND/ LIIGH	, •••••	/ ()			
WEIGHT: N/A			SIZE	DWG. NO.	REV	SHEET			
SCALE: NOT TO SCALE			В	SC30-DP-IND-PV-LBKNI-INSTALL	0	2 OF 2			

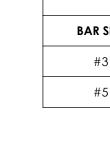
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8 NOTES: D FOOTINGS HAVE BEEN DESIGNED TO BEAR ON UNDISTURBED SOIL OR 23.25 -PROPERLY COMPACTED ENGINEERED FILL ASSUMING A NET BEARING CAPACITY OF 2000 PSF. REINFORCED CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH THE "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE" \emptyset 1.50 TYP. (ACI 318) AND THE SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301) 0.313 \emptyset .38 OF THE AMERICAN CONCRETE INSTITUTE (EDITIONS AS REQUIRED BY GOVERNING CODE). Ø.38 CAST-IN-PLACE CONCRETE SHALL BE NORMAL WEIGHT CONCRETE WITH 23.25 A MINIMUM 28-DAY COMPRESSIVE STRENGTH (F'C) OF 5000 PSI UNO. PROVIDE 6% (+/-1.5%) AIR ENTRAINMENT IN CONCRETE EXPOSED TO FREEZE/THAW. DEFORMED BAR REINFORCEMENT SHALL BE ASTM A615, GRADE 60; SEE CHART FOR SIZING. · Ø 11.63 – REINFORCEMENT SHALL BE SECURELY HELD IN PLACE WHILE PLACING CONCRETE. IF REQUIRED, ADDITIONAL BARS, STIRRUPS, OR CHAIRS SHALL BE PROVIDED TO FURNISH SUPPORT FOR SPECIFIED BARS. **DETAIL C #3 CIRCULAR TIE, TYP. DETAIL A** #3 OUTER TIE, TYP. **REBAR CHART BAR SIZE** DIAMETER - 16.63 -#3 Ø 0.375 Ø 0.625 #5



16.63

Ø 1.50 TYP. -

- Ø.38

DETAIL B UNLESS OTHERWISE SPECIFIED:

1. PRIMARY DIM. ARE IN INCHES & FORMS+SURFACES 30 Pine Street, Pittsburgh, PA 15223 Tel (412) 781-9003 Fax (412) 781-7840 #3 INNER TIE, TYP. SECONDARY [DIM] IN MM 2. TOLERANCES FRACTIONAL: ±1/32; ANGULAR/BEND:±1
TWO PLACE DECIMAL ±.030 DESCRIPTION: NAME DATE THREE PLACE DECIMAL ±.020 3.REMOVE ALL BURRS AND SHARP EDGES **FORMS+SURFACES** DWN RTS 10/15/21 THIRD ANGLE PROJECTION CHK SC30-P1 SECURITY CORE, KNIGHT MATERIAL: N/A DO NOT SCALE DRAWING INDIVIDUAL FOUNDATION, NO PAVER PROPRIETARY AND CONFIDENTIAL FINISH: N/A THE INFORMATION CONTAINED IN THIS DRAWING IS THE SOLE PROPERTY OF FORMS + SURFACES. ANY REPRODUCTION IN PART OR AS A WHOLE WITHOUT WRITTEN PERMISSION IS PROHIBITED. SIZE DWG. NO. WEIGHT: N/A

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SHEET

2 OF 2

REV

SC30-DP-IND-NP-LBKNI-INSTALL

3 2

SCALE: NOT TO SCALE

