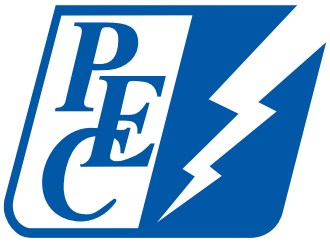


Pedernales Electric Cooperative, Inc.

Underground Installation Specifications

As of 9/6/2022

DRAWING NUMBER	DESCRIPTION
COVER	COVER PAGE
500-000	INDEX
500-100	DEVELOPER/MEMBER/PEC SUPPLIED MATERIAL (2 PAGES)
500-103	APPROVED MANUFACTURERS LIST WITH CONTACT INFORMATION (LAST PAGE)
510-009	TYPICAL NOTES REFERENCE PAGE
510-010	SINGLE-PHASE PRIMARY CONDUIT ARRANGEMENT
510-012	SINGLE-PHASE PRIMARY & SECONDARY CONDUIT ARRANGEMENT
510-014	SINGLE-PHASE PRIMARY & SECONDARY CONDUIT ARRANGEMENT JOINT WITH OTHER UTILITIES
510-016	SINGLE-PHASE SERVICE CONDUIT ARRANGEMENT
510-020	THREE-PHASE PRIMARY & SECONDARY CONDUIT ARRANGEMENT (2 PAGES)
510-022	THREE-PHASE PRIMARY, SECONDARY & OTHER UTILITIES CONDUIT ARRANGEMENT (2 PAGES)
510-023	THREE-PHASE PRIMARY CONDUIT ARRANGEMENT JOINT WITH NATURAL GAS (HORIZONTAL OPTION)
510-024	CONDUIT CROSSING DETAIL FOR PEC ABOVE OTHER UTILITIES
510-025	THREE-PHASE PRIMARY CONDUIT ARRANGEMENT JOINT WITH NATURAL GAS (STACKED OPTION)
510-026	CONDUIT INSTALLATION ON SLOPE GREATER THAN 25%
510-027	CONDUIT INSTALLATION ON SLOPE GREATER THAN 25% (ALTERNATIVE)
510-029	CONDUIT INSTALLATION IN FLOOD-PRONE AREAS
520-010	PAD FOR SINGLE-PHASE METER PEDESTAL
520-020	52" PAD FOR 1Ø TRANSFORMER WITH VFI, SMALL SECTIONALIZING ENCLOSURE
520-030	72" PAD FOR 1Ø TRANSFORMER WITH VFI, SMALL SECTIONALIZING ENCLOSURE
530-010	SMALL PAD FOR SINGLE-PHASE SECTIONALIZING ENCLOSURE
530-020	SMALL PAD FOR THREE-PHASE SECTIONALIZING ENCLOSURE
530-022	LARGE PAD FOR THREE-PHASE SECTIONALIZING ENCLOSURE
530-023	SINGLE-PHASE COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD
530-024	SMALL COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD
530-026	LARGE COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD
530-030	PAD FOR THREE-PHASE TRANSFORMER 45-300 kVA
530-032	PAD FOR THREE-PHASE TRANSFORMER 500-1,500 kVA
530-034	PAD FOR THREE-PHASE TRANSFORMER 2,000-3,000 kVA
530-040	GENERAL SPECIFICATIONS FOR POURED-IN-PLACE VAULTS
530-050	VAULT FOR SUBMERSIBLE SWITCHGEAR & SPLICE BOX (2 PAGES)
530-051	LID FOR VAULT FOR SUBMERSIBLE SWITCHGEAR & SPLICE BOX (USE ON 530-050) 6'x12' 3.5'x8' OPENING
530-052	VAULT FOR SWITCHGEAR STACKABLE SECTIONS WITH CAST-IN-PLACE H20-RATED LIDS (4 PAGES)
530-090	VAULT FOR SWITCHGEAR (2 PAGES)
530-091	LID FOR SWITCHGEAR (USE ON VAULT 530-090) 8'x8' TWO 18"x64" OPENINGS
530-092	LID FOR SUBMERSIBLE SWITCHGEAR & SPLICE BOX (USE ON VAULT 530-090) 8'x8' 48"x72" DOUBLE-LEAF LID
530-093	LID FOR DEAD-FRONT AND ABOVE-GROUND SWITCHGEAR SINGLE WINDOW (FOR USE ON VAULT 530-090)
550-020	SECONDARY ENCLOSURE
550-021	TAP BOX
550-022	TAP BOX PAD
560-015	SINGLE-PHASE RISER POLE USING STANDOFF BRACKETS
560-025	THREE-PHASE RISER POLE USING STANDOFF BRACKETS
560-050	SECONDARY RISER WITH STANDOFFS
560-051	SECONDARY RISER WITH STANDOFFS TO A METER RACK
560-052	600 VOLT UNDERGROUND SERVICE FROM OVERHEAD TRANSFORMER
570-010	SAFETY CLEARANCES AROUND PADMOUNT UNDERGROUND TRANSFORMERS
570-015	WORKING CLEARANCES AROUND PADMOUNT UNDERGROUND TRANSFORMERS
580-010	ELECTRONIC MARKING BALLS FOR PRIMARY STUB-OUT LOCATIONS

REV	H	DATE	04/05/2022	REVISION	ADDED 520-020 CHANGED TITLE OF 520-030 TO MATCH	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

INDEX

drawn:	approved:	date:	500-000
RWC	MMG	04/05/2022	

TRENCH SPECIFICATIONS:

Installation of conduit:

1. Minimum cover to be 30" from the top of primary conduit to sub-grade.
2. Bottom of trench shall be sanded to provide smooth, even support for conduits.
3. Sand to be placed directly around conduits for initial backfill.
4. There is to be a minimum of 12" separation between electrical conduits and all other utilities' conduits.
5. Warning tape to be a minimum of 12" above electrical conduits.
6. Concrete or flowable fill to be poured around all conduit crossings and 90-degree bends. On conduit bends of other angles, concrete or flowable fill may be required upon inspection.
7. Trench may be used jointly if adequate separation is provided. (See drawings 510-014, 510-022, 510-023, 510-024 and 510-025).
8. Conduit may be under pavement if a depth of 30" cover to sub-grade is maintained.
9. Trench may be on property if adequate depth is maintained. "Adequate depth" is defined as 30" below the lowest point between the edge of pavement and property line.

Inspection schedule:

1. After primary conduit installation.
2. After initial backfill.
3. After secondary conduit installation.
4. After remainder of initial backfill and warning tape.
5. After secondary backfill (rock-free dirt).

Failure to receive inspection will require removal of the backfill to allow inspection.

DEVELOPER/CONTRACTOR CONTRIBUTION:

1. Payment to PEC for materials per the Line Extension Policy.
2. Trench.
3. Conduit:
   a. 3" conduit Schedule 40, conduit bends Schedule 80 with 3", 36" minimum radius and accessories.
   b. 4" conduit Schedule 40, conduit bends Schedule 80 with 4", 48" minimum radius and accessories.
   c. Conduit for service will be sized as needed.
   d. 2" conduit for controls or temporary service only.
   e. Conduit bends with a 24" radius may be used only for secondary.

   NOTE: Contractor may be required to pull a mandrel, of a diameter not less than 80% of the inside diameter of the conduit through all conduits, under the supervision of a PEC representative.
4. Conduit spacers.
5. Transformer pads.
6. Meter pedestal pads.
7. Underground secondary enclosures and extensions.
8. Ground rods and clamps.
9. Polyester pulling tape (2,500-pound tensile strength) in all conduit. No knots to be tied in the mule tape. It must be a continuous run.
10. Sand for initial backfill.
11. Rock-free dirt over initial backfill.
12. 1/2" to 3/4" gravel for the bottom of vaults and secondary enclosures.
13. Concrete or flowable fill where required. Flowable fill is NOT allowed as a substitute for concrete for PEC equipment pads. Flowable fill may be used as backfill in situations where trench settling may be an issue or anywhere that does not require structural strength. The 28-day compressive strength range when tested must be a minimum of 300-psi. Flowable fill is NOT a substitute for concrete except where explicitly listed in the Underground Installation Specifications.
14. Install meter socket when metering on building.
15. Furnish and install any gang-type meter sockets.
16. Primary enclosures and extensions (if applicable).
17. Meter sockets (PEC will provide pedestal-mounted sockets only).
18. Switchgear (if applicable).
19. Bollards, if deemed necessary by PEC to protect electrical equipment. Design must be approved by PEC prior to installation.

MEMBER'S RESPONSIBILITY:

Meter pedestals are approved by PEC. In situations where meter pedestals are used, the following conditions will apply:

1. Purchase and install circuit breaker in box. Circuit breakers are the bolt-in type. The box will accommodate 150 and 200 amp breakers. The breaker must have an interrupting capacity of 10,000 amps rated at 240 volts. GE Cat. No. TQD22 (amp needed) WL and Eaton Cuttler-Hammer FD2200 or equal (old Westinghouse # CA2200W).
2. Install insulated jumpers from bottom of meter socket to top of breakers.
3. Install galvanized rigid conduit, Schedule 40 PVC or an approved equal from pedestal pad to bottom of box.
4. Member will be responsible for the installation of underground cable from the meter pedestal to the house and the connections to the bottom of the circuit breakers. The underground cable used from the meter pedestal to the house shall be an approved type for underground installation (USE or UF type). Conductor size will be based on member load, location of meter and National Electrical Code for size of conduit.

Refer to applicable drawings within these specifications.

REV	B	DATE	07/09/2020	REVISION	ADD 2" CONDUIT AND FLOWABLE FILL NOTES	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

DEVELOPER/MEMBER/PEC SUPPLIED MATERIAL

drawn:	approved:	date:	500-100
RWC	MMG	07/09/2020	

MEMBER'S RESPONSIBILITY CONTINUED:

5. Underground conductor from secondary enclosure/transformer to meter shall have 24" of cover. This depth may be reduced to 18" when a 2" supplemental protective covering of concrete or flowable fill is provided. If rigid conduit is used, the depth can be reduced by 6". Red electric warning tape is also required in the ditch.
6. Apply and receive all applicable inspections.
7. When all work is completed according to specifications, notify PEC you are ready for electric service. PEC will make the connect and set the meter on a routine connect order.
8. For commercial and residential applications, the member shall supply the CT enclosure (if needed) and all secondary cable in accordance with the National Electrical Code.

PEC CONTRIBUTION PAID FOR BY DEVELOPER/MEMBER AS INDICATED ON THE LINE EXTENSION POLICY:

1. Primary conductors.
2. Secondary conductors.
3. Cable terminations.
4. Transformers.
5. Meter pedestals.
6. Switchgear.
7. Secondary GelPort connectors.
8. Meter socket combo.

PEC RESPONSIBILITY:

1. Furnish and install meter pedestal.
2. Furnish and install combination meter socket and breaker box.
3. Install jumper wires from top of meter socket to pedestal connector and set meter on connect order after all work has been completed.

Refer to applicable drawings within these specifications.

REV	B	DATE	07/09/2020	REVISION	ADD 2" CONDUIT AND FLOWABLE FILL NOTES	BY	RWC	CHK	SSS	APR	SSS

UNDERGROUND INSTALLATION SPECIFICATIONS

DEVELOPER/MEMBER/PEC SUPPLIED MATERIAL

drawn:	approved:	date:	500-100
RWC	MMG	07/09/2020	

Typical All Pads

1. Require 3" conduit (unless otherwise specified by PEC) with bell-end fittings to extend 1 1/2" to 2" above pad.
2. Pads must extend a minimum of 4" above final grade and 1 1/2" below final grade. All pads must be placed on a slope less than or equal to 3:1. If greater than 3:1, contractor must bring slope to required grade.
3. All disturbed soil underneath pad must be replaced by concrete.
4. All ground rods shall be 3/4" X 10' copper-clad with clamp and must extend 3" above top of pad.
5. Wood float finish leaving pad square and level with no dips or crown.
6. **Contact PEC before pouring concrete and comply with the following instructions:**
   - Pre-pour inspection: Check framing and layout of pad and conduit components.
   - Final inspection: Overall review of pad and conduits. Ensure bell ends are on conduit.

Typical For Single-Phase Transformer, Combination, Sectionalizer, and Secondary Pads

7. Concrete to have minimum strength of 3,000 PSI.
8. Steel reinforcing shall be 6" X 6" No. 10 wire mesh or 3/8" re-bar on 12" center to stop 1" from the sides.

Typical For Three-Phase Transformer Pads

9. Concrete testing, 4,000 PSI; 4%-6% entrained air, 3/4" maximum-size aggregate.
10. Steel reinforcement shall be 3/8" re-bar on 12" center to stop 1" from sides.
11. Minimum concrete cover over reinforcing steel 2" unless noted.

Typical Trench Details

12. Schedule 40 electrical grade PVC conduit. Schedule 80 electrical-grade conduit can be used in place of sand in secondary-only trenches.
13. Initial backfill shall be manufactured or commercial sand. Minimum 3/8" pea gravel may be used for initial backfill in flood-prone areas.
14. With PEC approval, minimum cover requirements may be reduced by six inches with every two inches of 3,000 PSI concrete poured directly onto conduit. ***Contact PEC before pouring concrete***
15. If any type of vault or pedestal for the underground electric is planned, then all other utilities should be routed around these facilities.
16. For 2" and **smaller** waterlines, special permission must be granted by PEC. Water lines larger than 2" will not be allowed in PEC trench.
17. Refer to drawings 510-023 and 510-025 for PEC specifications and trench details on gas joint trench installations.

Legend
Typical in all drawings

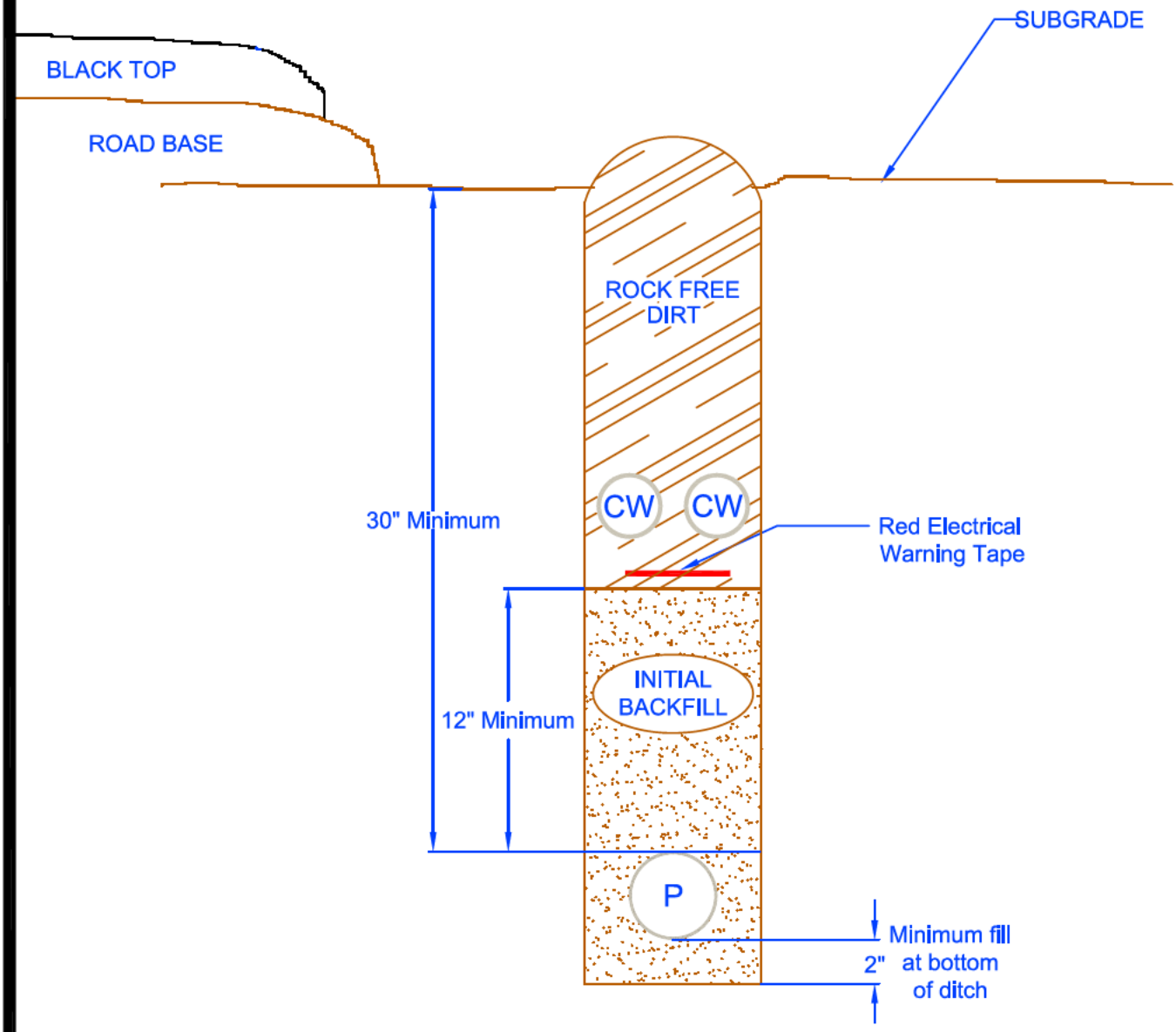
(P) Primary Conduit | (S) Secondary Conduit | (CW) Communications or Water | (G) Gas line | (AS) Alternate Secondary Conduit

REV	B	DATE	07/23/2020	REVISION	NOTE 4: 3/4' X 10' GROUND ROD WAS 5/8" X 8'	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

TYPICAL NOTES REFERENCE PAGE

drawn:	approved:	date:	510-009
RWC	MMG	07/23/2020	

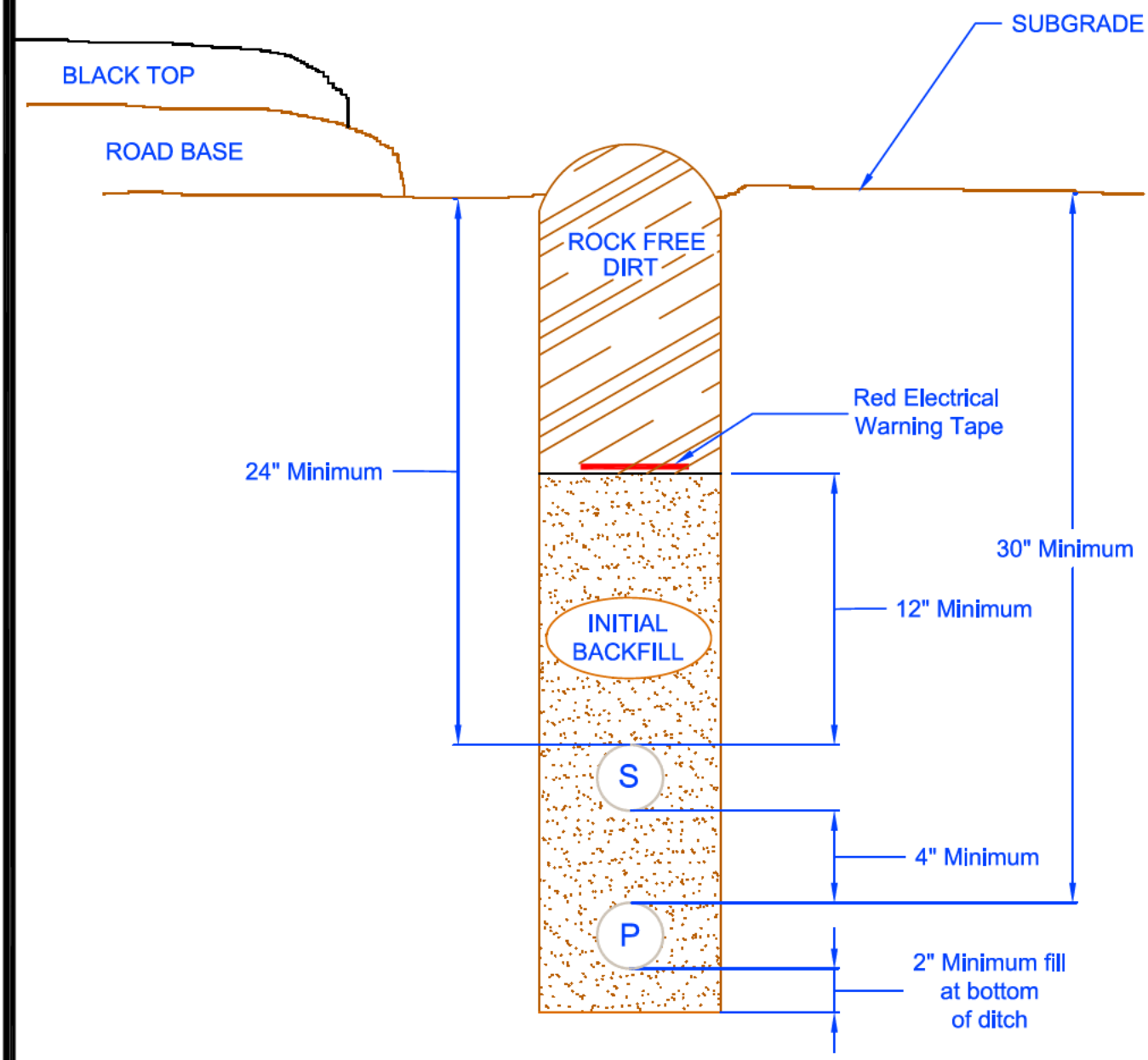


Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

1Ø Conduit Arrangement
for Primary
601 to 50,000 Volts

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-010-0911



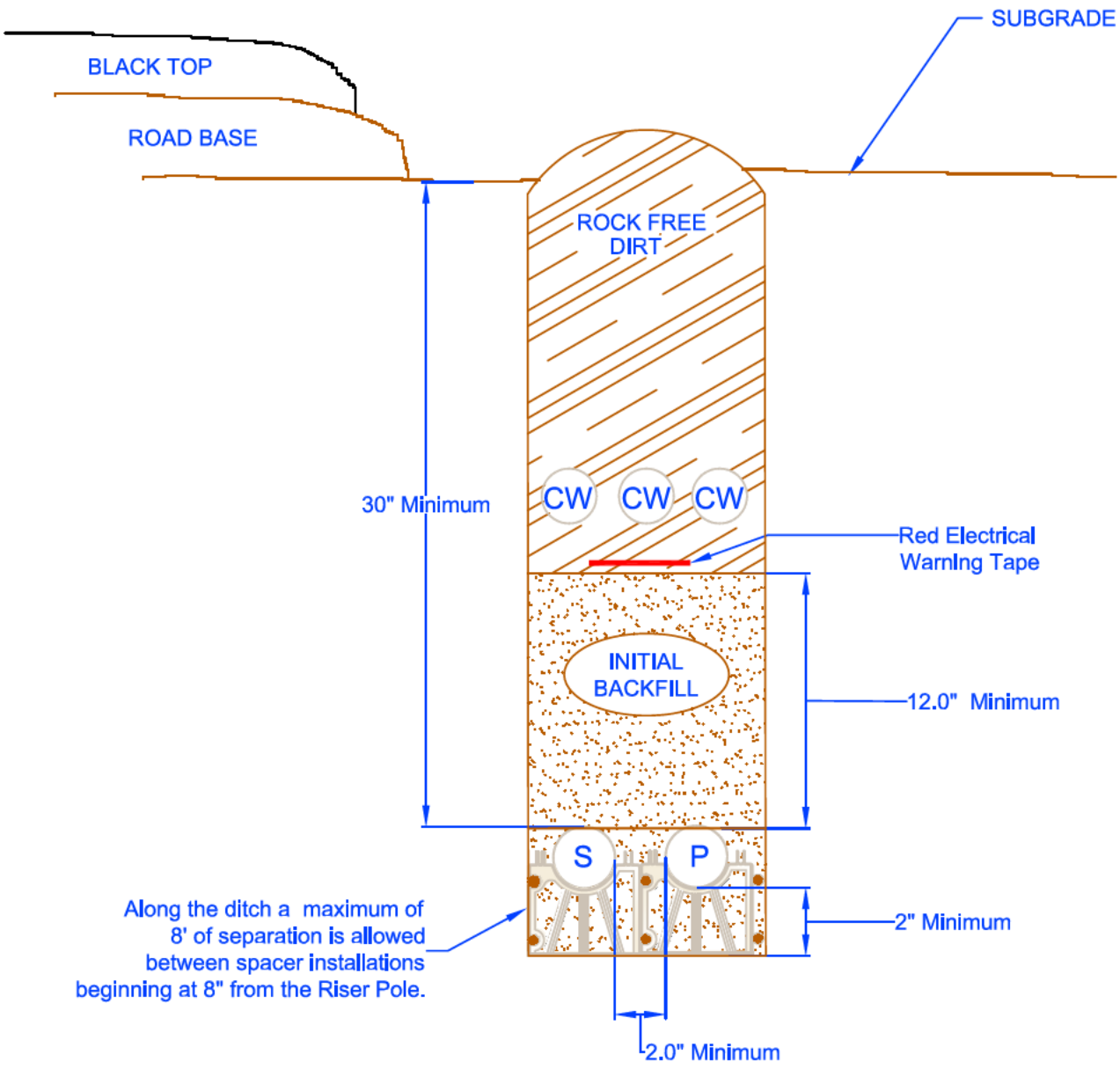
Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC COOPERATIVE, INC.

URD DEVELOPERS SPECIFICATIONS

1Ø Conduit Arrangement for Primary and Secondary

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-012-0911

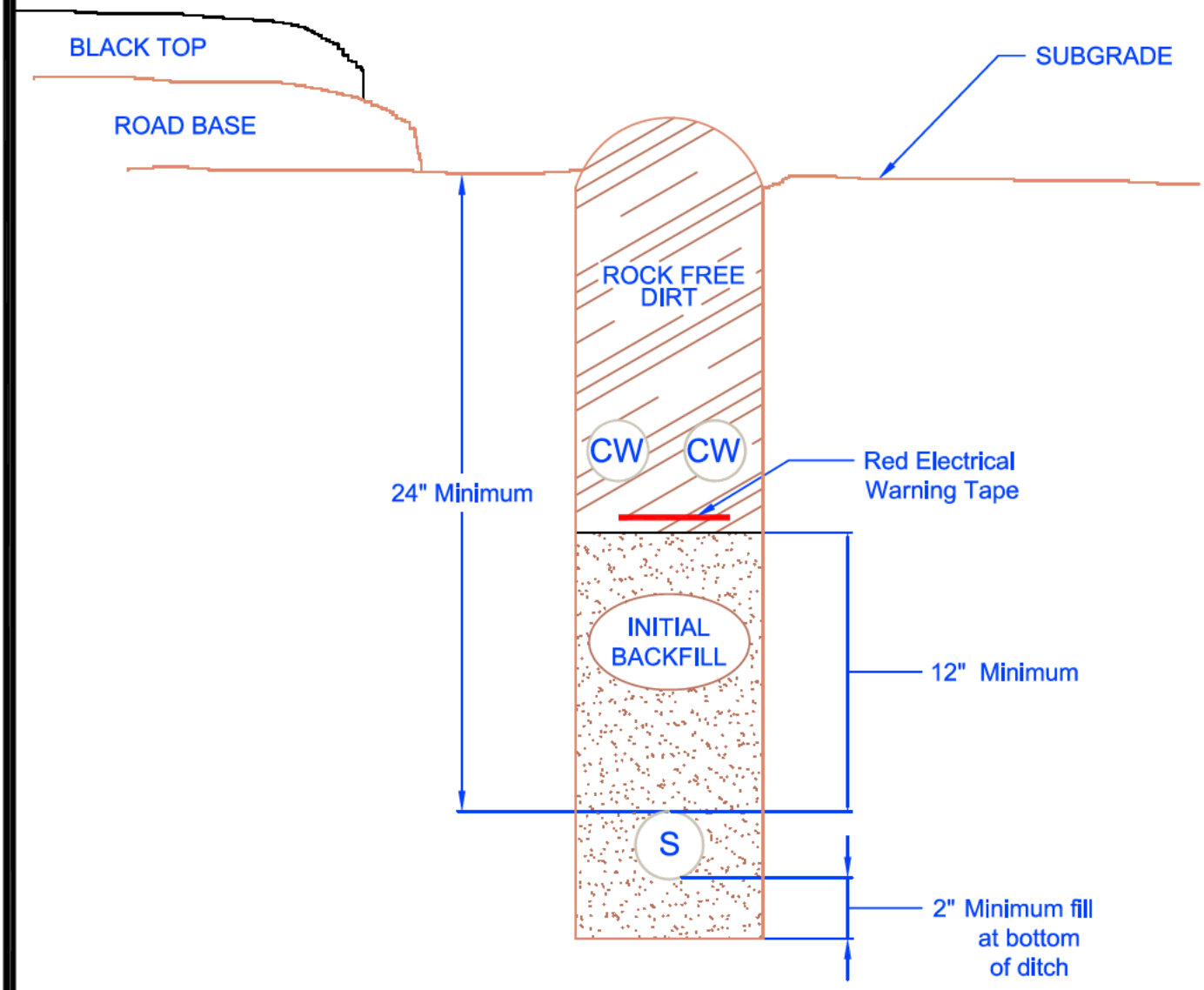


Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

1Ø Conduit Arrangement Joint with other Utilites

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-014-0911



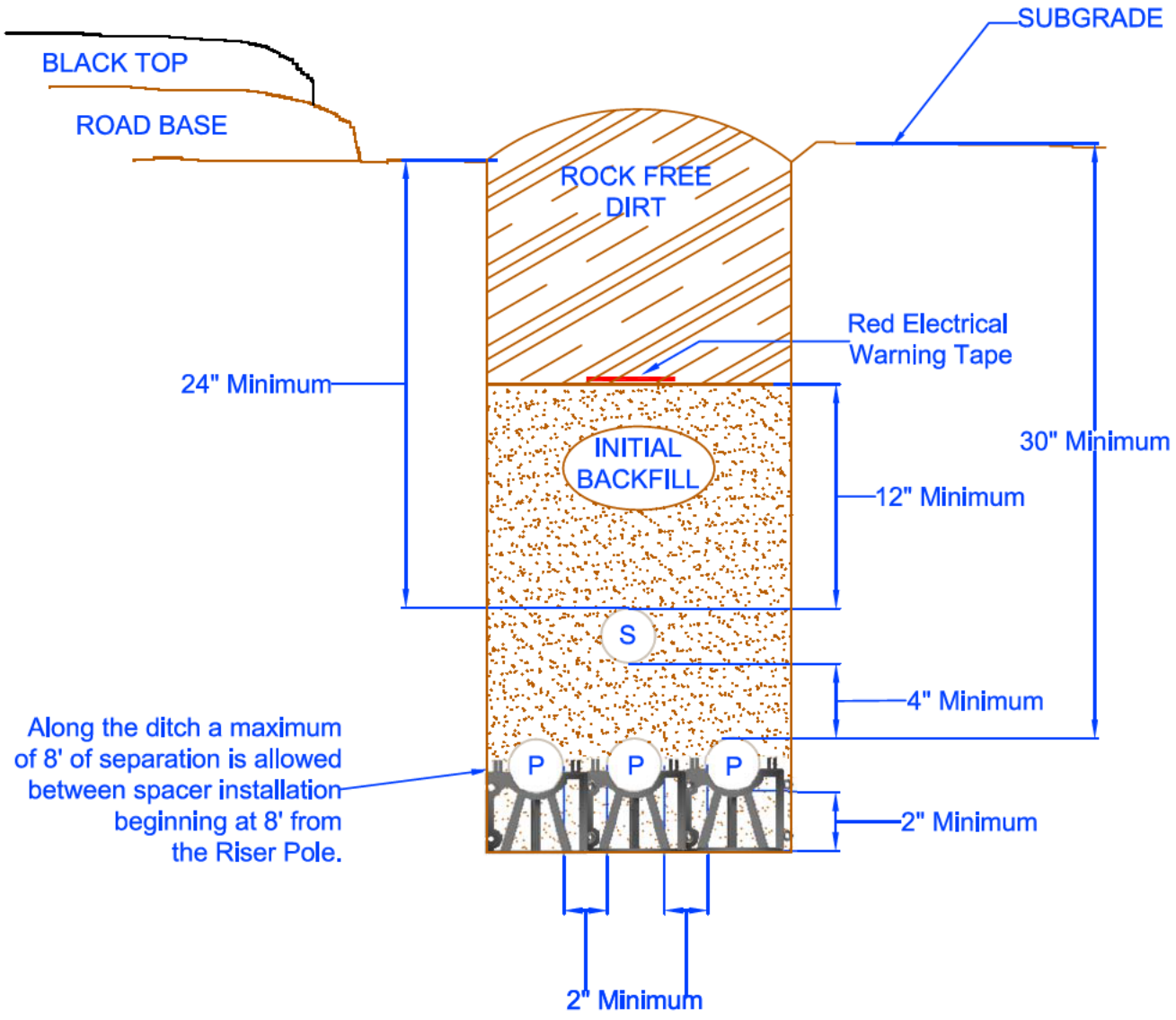
Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

1Ø Conduit Arrangement for Service 0 to 600 Volts

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-016-0911

OPTION 1



Reference Drawing
510-009-0911 for
Typical Trench Details

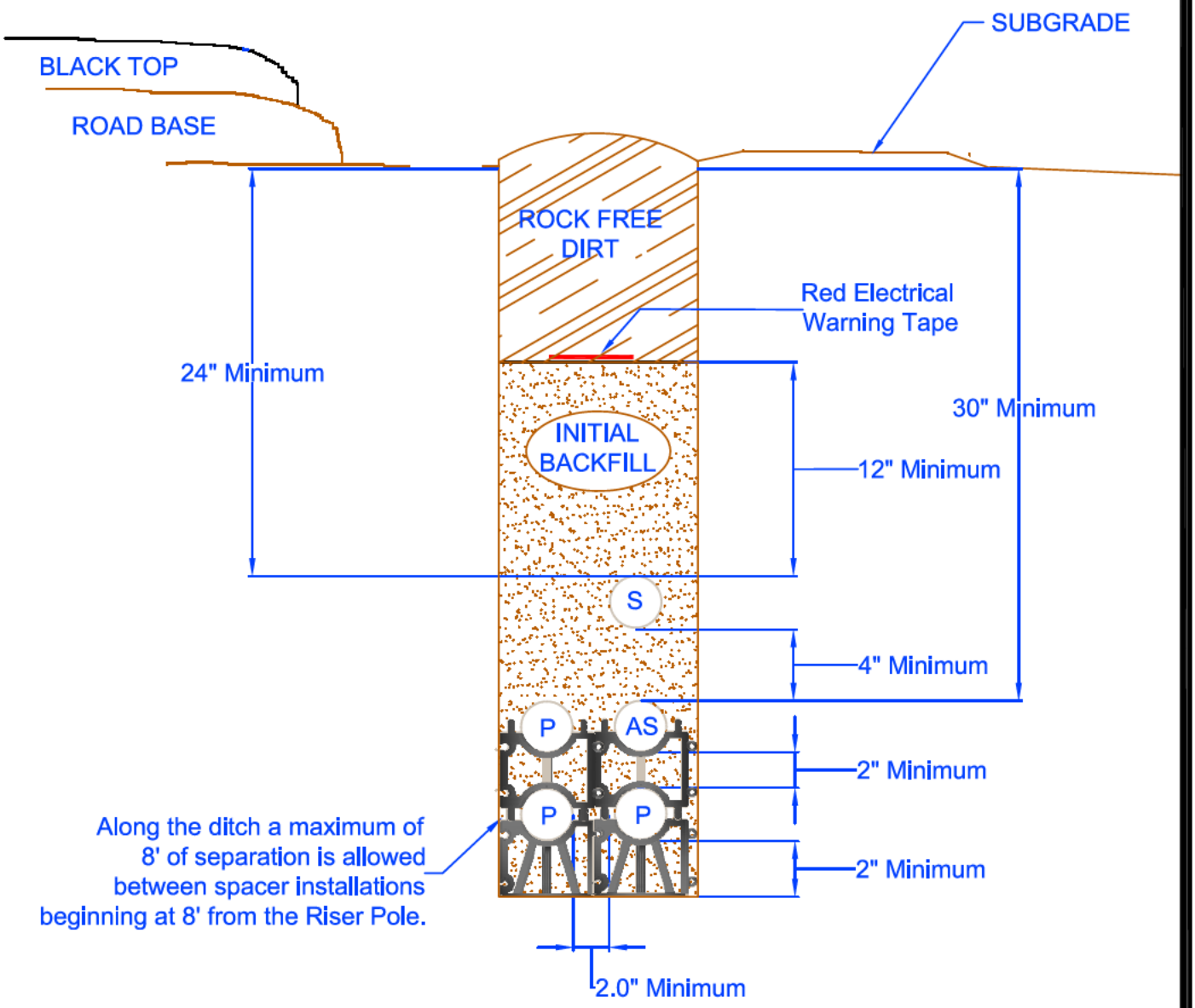
PEDERNALES ELECTRIC COOPERATIVE, INC.

URD DEVELOPER'S SPECIFICATIONS

3Ø Conduit Arrangement
Electric Only
Primary and Secondary

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-020-0911

OPTION 2



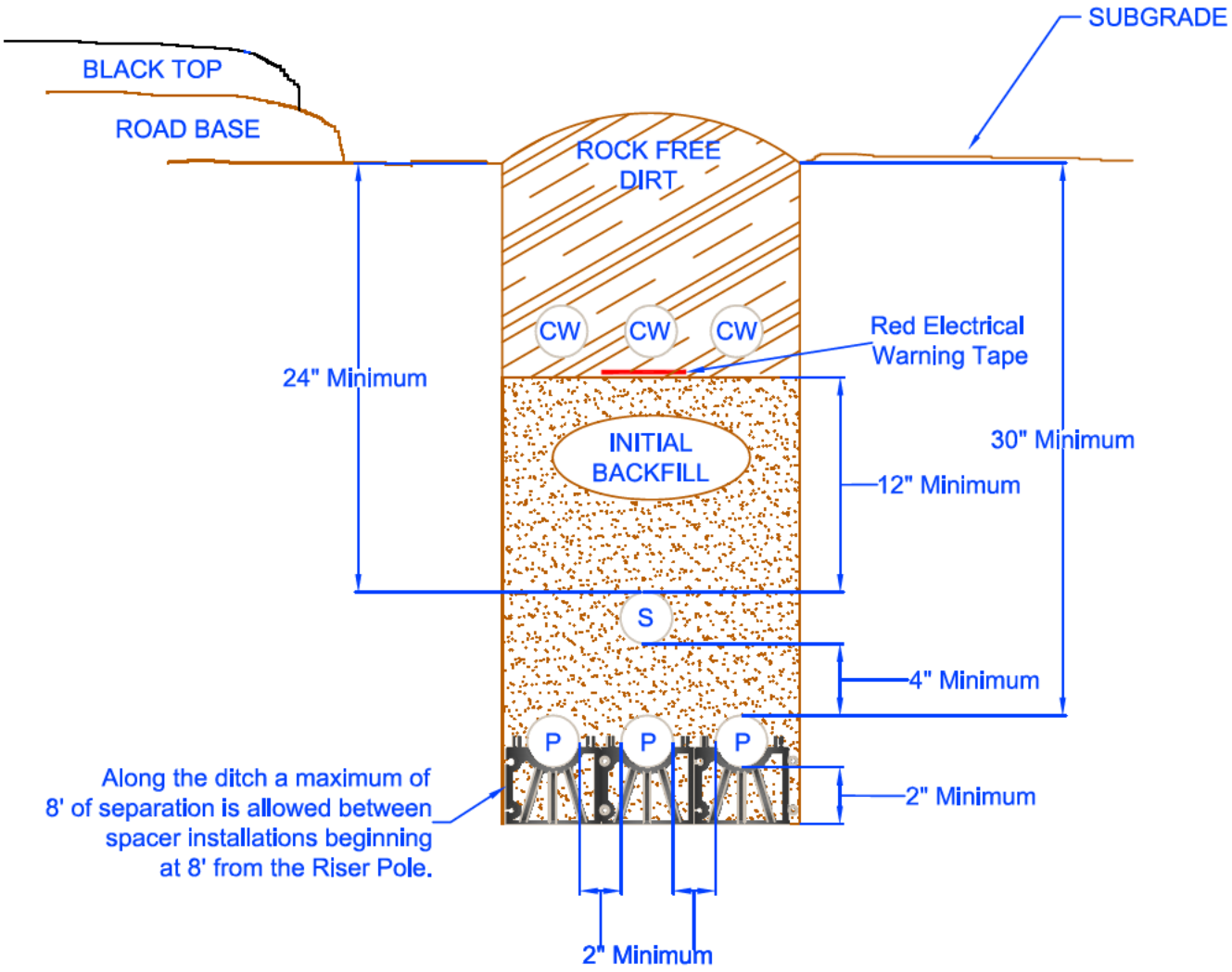
Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

3Ø Conduit Arrangement
Electric Only
Primary and Secondary

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-020-0911

OPTION 1



Reference Drawing
510-009-0911 for
Typical Trench Details

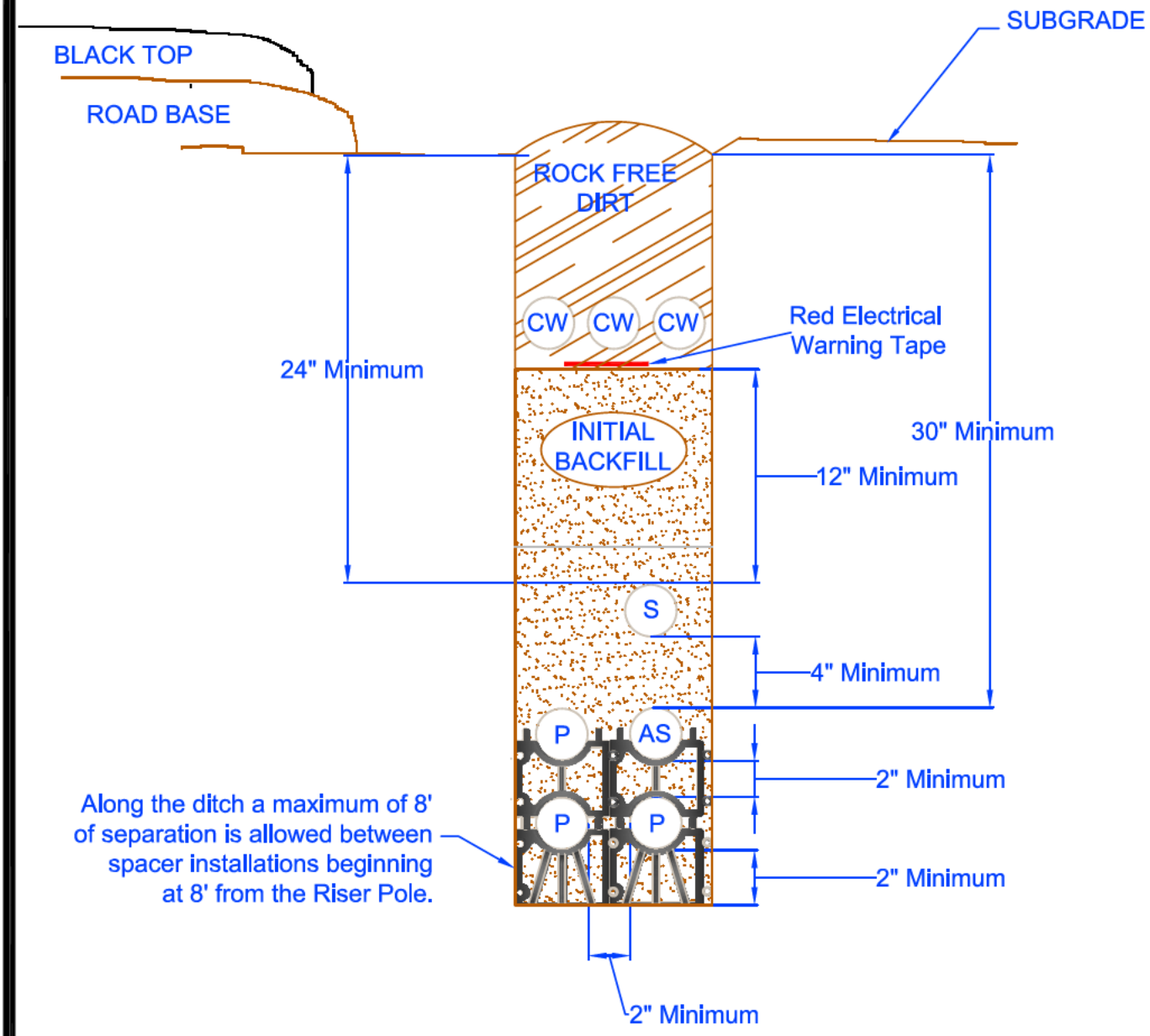
PEDERNALES ELECTRIC COOPERATIVE, INC.

URD DEVELOPER'S SPECIFICATIONS

3Ø Conduit Arrangement
Joint with Other Utilities

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-022-0911

OPTION 2



Reference Drawing
510-009-0911 for
Typical Trench Details

PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

3Ø Conduit Arrangement
Joint with Other Utilities

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	510-022-0911

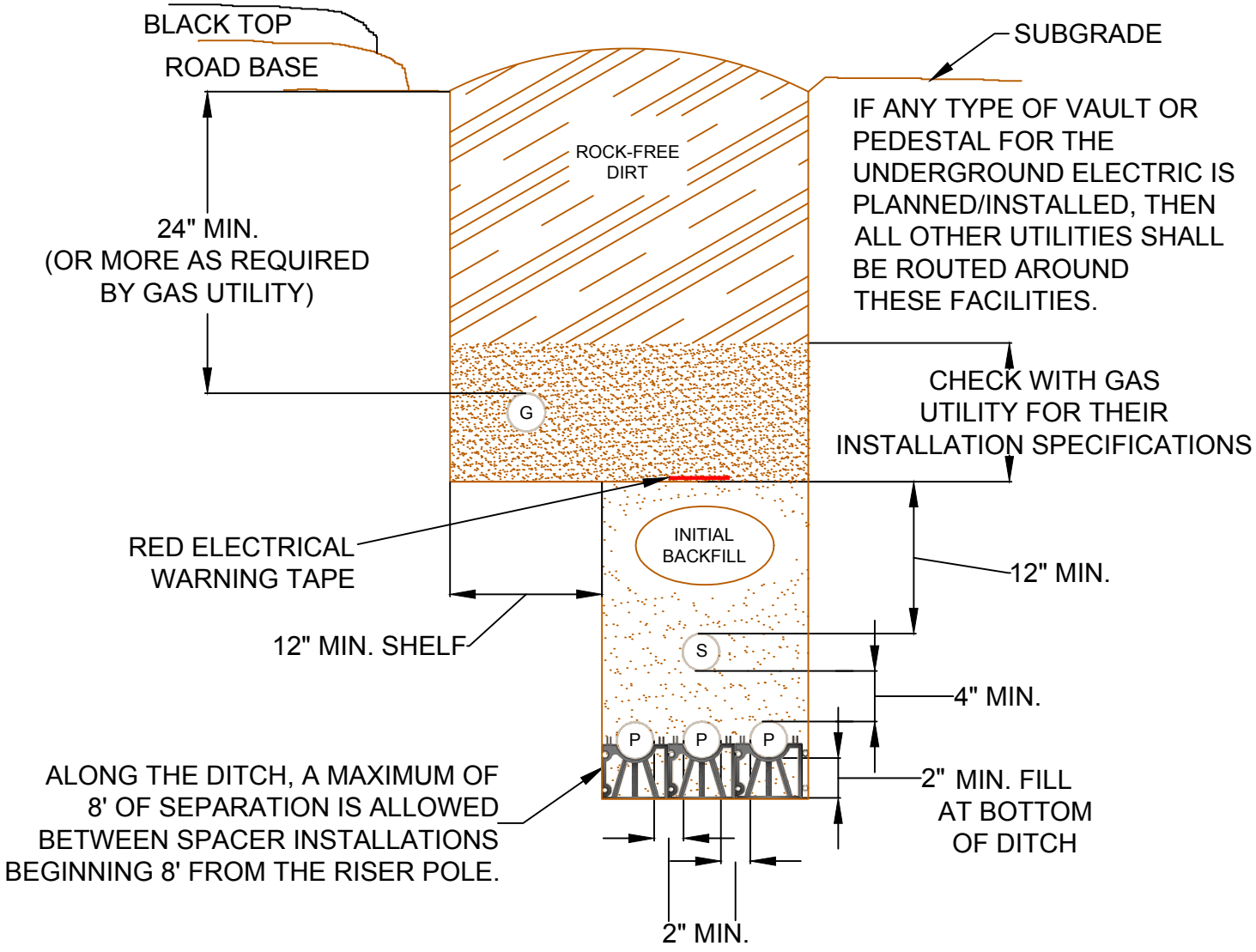
PEC prefers to avoid joint trench installations with gas lines. If a gas joint trench is required, contact PEC for permission and to coordinate inspections. A joint trench as depicted below or on drawing 510-025 is permitted with prior approval providing the following conditions are met:

- The joint trench is not in a public right of way.
- The gas utility is regulated by the Public Utility Commision of Texas.
- The trench installation must meet PEC, gas utility and national standards.
- The maximum pressure of the gas line is 60 PSI or less.

Gas lines not meeting the listed requirements above are not permitted in trenches with PEC facilities. These lines shall be separated horizontally from primary and secondary conduits by at least 24 inches of undisturbed earth. A final inspection by a PEC inspector is required before the gas facilities are installed in the trench and prior to backfill.

Other Notes:

- 1Ø installation is allowable. Gas main shall be a minimum of 12" from all electrical conduit.
- Reference drawing 510-009 for typical trench details.
- See drawing 510-025 for joint gas trench stacked installation option.

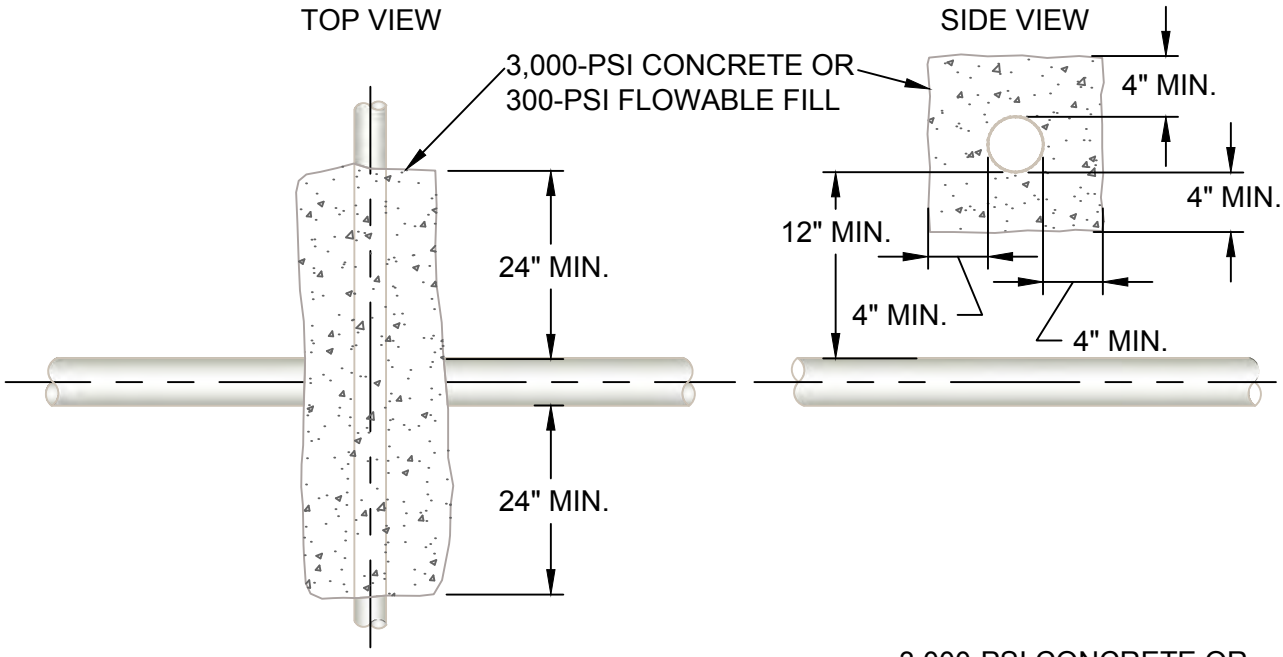


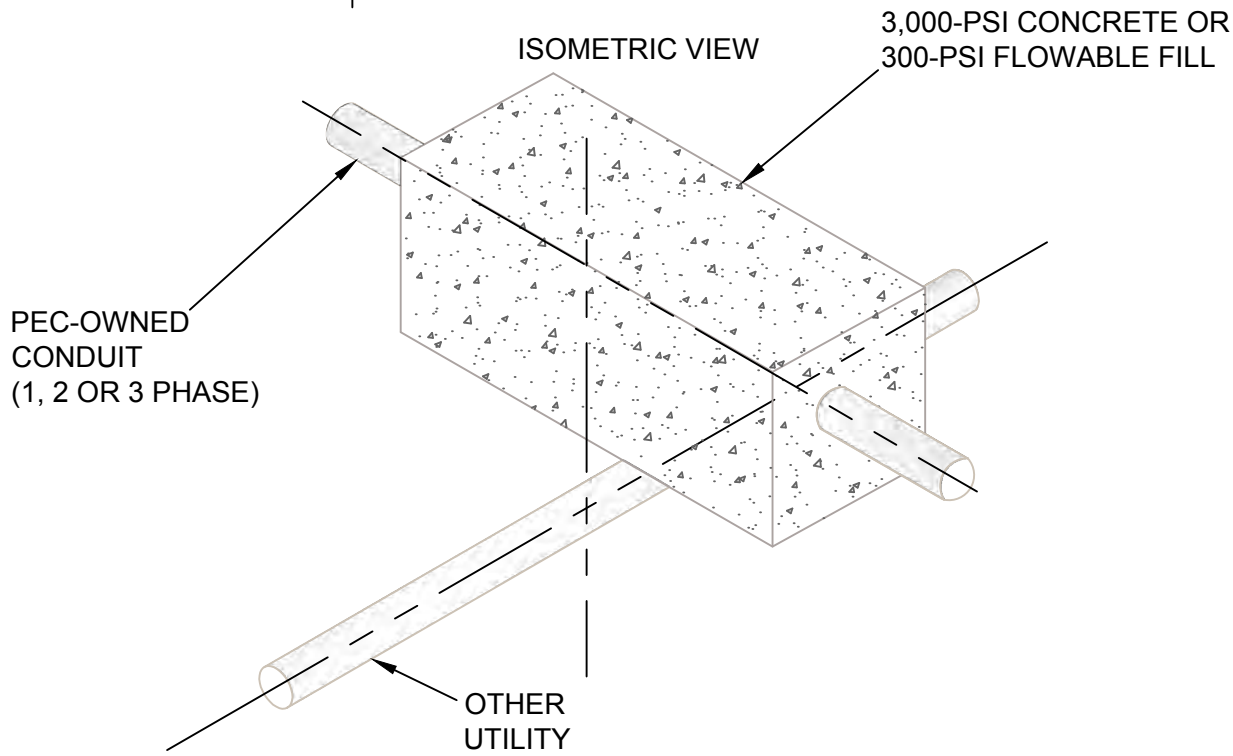
REV	DATE	REVISION	BY	CHK	APR
A	03/26/2020	ADDED NOTE FOR JOINT USE WITH NATURAL GAS	RWC	MMG	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

3Ø PRIMARY CONDUIT ARRANGEMENT JOINT WITH NATURAL GAS HORIZONTAL OPTION

drawn:	approved:	date:	
RWC	MMG	03/26/2020	510-023





NOTES:

1. REFER TO APPROPRIATE DRAWINGS FOR CORRECT EMBEDMENT DEPTH.
2. 3,000-PSI CONCRETE OR 300-PSI FLOWABLE FILL TO BE A MINIMUM THICKNESS OF 4" AROUND CONDUIT.
3. THIS INSTALLATION APPLIES WHEREVER THE ELECTRICAL CONDUIT CROSSES ABOVE ANY OTHER CONDUIT.
4. IF ANOTHER UTILITY CROSSES OVER A PEC CONDUIT SYSTEM, THE OTHER UTILITY MUST COMPLY WITH NESC RULES 353B1 AND 353B2.

REV	A	DATE	07/09/2020	REVISION	ADD FLOWABLE FILL TO CONCRETE NOTES	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND
INSTALLATION
SPECIFICATIONS

CONDUIT CROSSING DETAIL
FOR PEC ABOVE OTHER UTILITIES

drawn:	approved:	date:	510-024
RWC	MMG	07/09/2020	

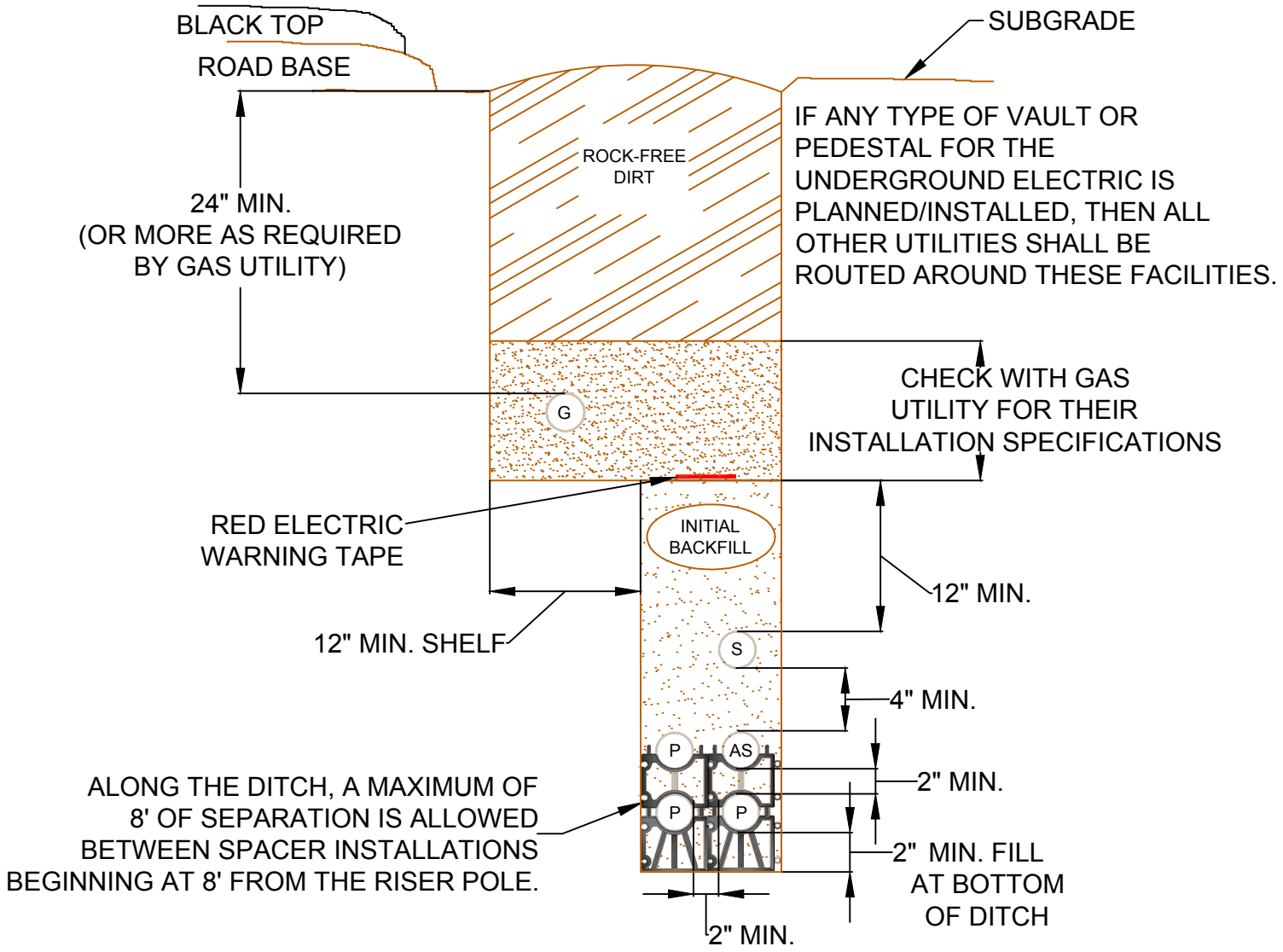
PEC prefers to avoid joint trench installations with gas lines. If a gas joint trench is required, contact PEC for permission and to coordinate inspections. A joint trench as depicted below or on drawing 510-023 is permitted with prior approval providing the following conditions are met:

- The joint trench is not in a public right of way.
- The gas utility is regulated by the Public Utility Commision of Texas.
- The trench installation must meet PEC, gas utility and national standards.
- The maximum pressure of the gas line is 60 PSI or less.

Gas lines not meeting the listed requirements above are not permitted in trenches with PEC facilities. These lines shall be separated horizontally from primary and secondary conduits by at least 24 inches of undisturbed earth. A final inspection by a PEC inspector is required before the gas facilities are installed in the trench and prior to backfill.

Other Notes:

- 1Ø installation is allowable. Gas main shall be a minimum of 12" from all electrical conduit.
- Reference drawing 510-009 for typical trench details.
- See drawing 510-023 for joint gas trench horizontal installation option.

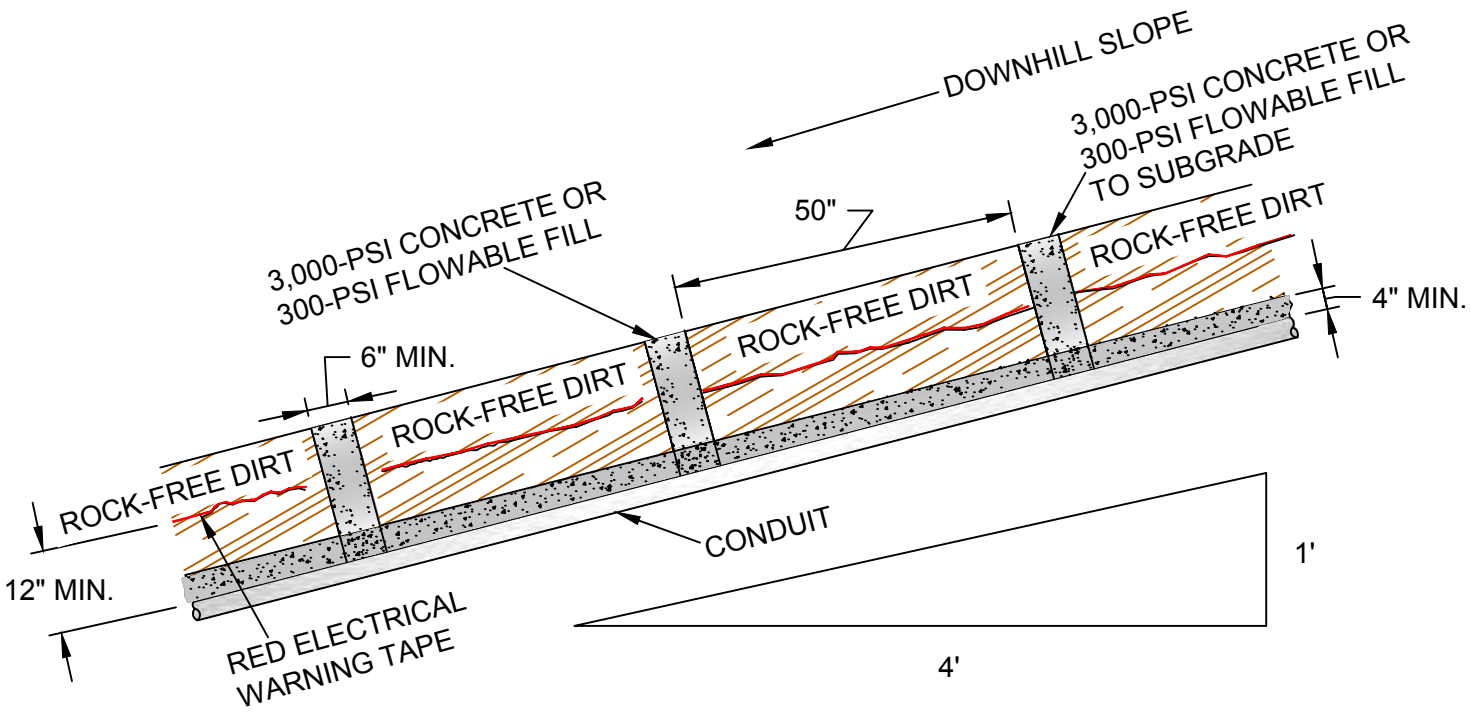


REV	A	DATE	03/26/2020	REVISION	ADDED NOTE FOR JOINT USE WITH NATURAL GAS	BY	RWC	CHK	MMG	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

3Ø PRIMARY CONDUIT ARRANGEMENT
JOINT WITH NATURAL GAS
STACKED OPTION

drawn:	approved:	date:	
RWC	MMG	03/26/2020	510-025



NOTES:

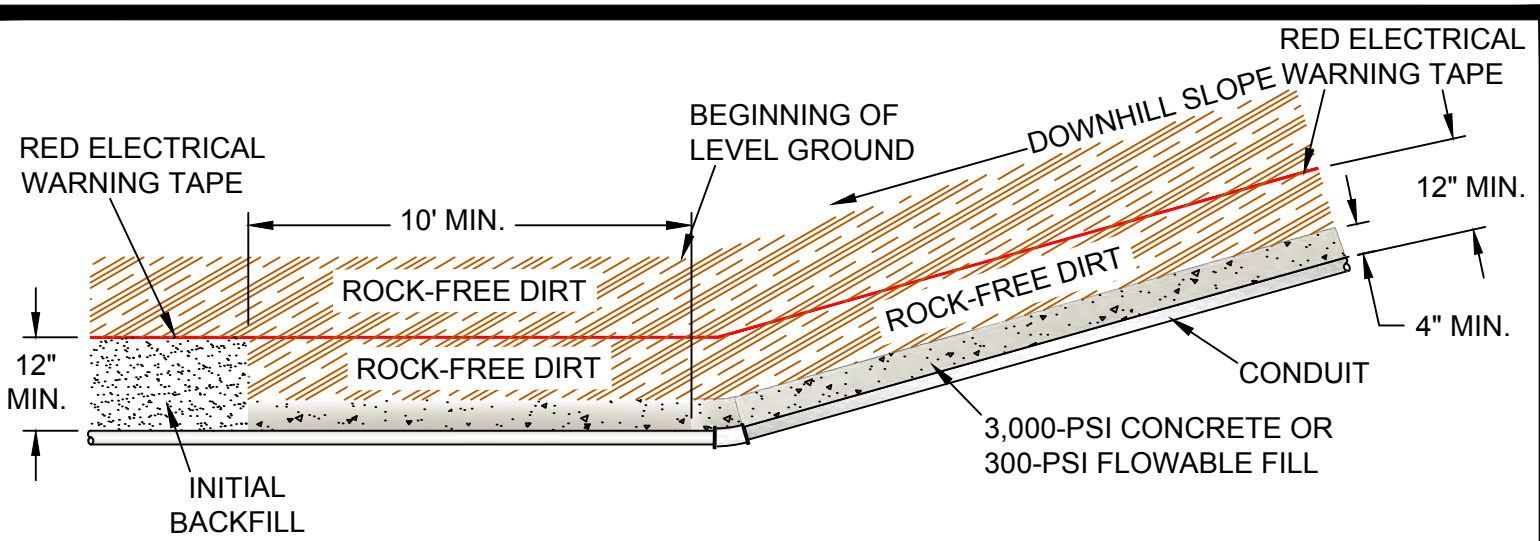
1. REFER TO APPROPRIATE TRENCH DRAWING FOR CORRECT EMBEDMENT DEPTH.
2. AS AN ALTERNATIVE, SEE DRAWING 510-027.

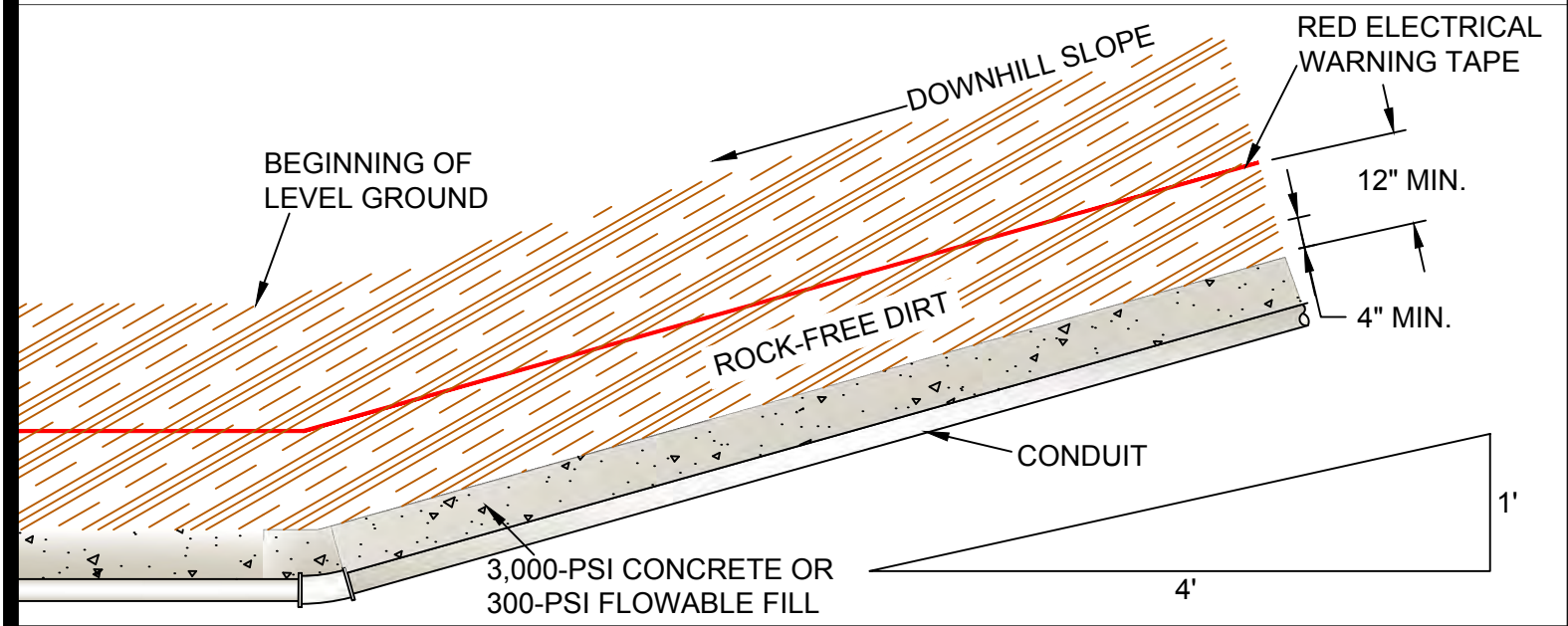
REV	A	DATE	07/09/2020	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

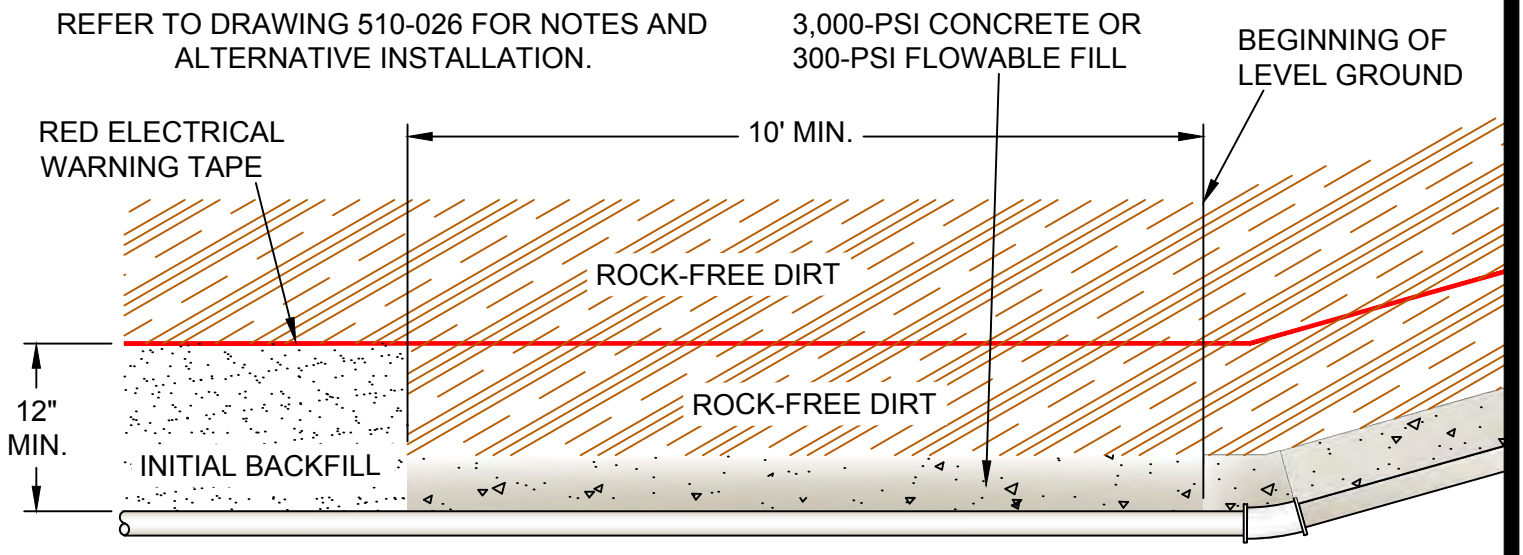
CONDUIT INSTALLATION ON SLOPE GREATER THAN 25%

drawn:	approved:	date:	510-026
RWC	MMG	07/09/2020	





REFER TO DRAWING 510-026 FOR NOTES AND ALTERNATIVE INSTALLATION.

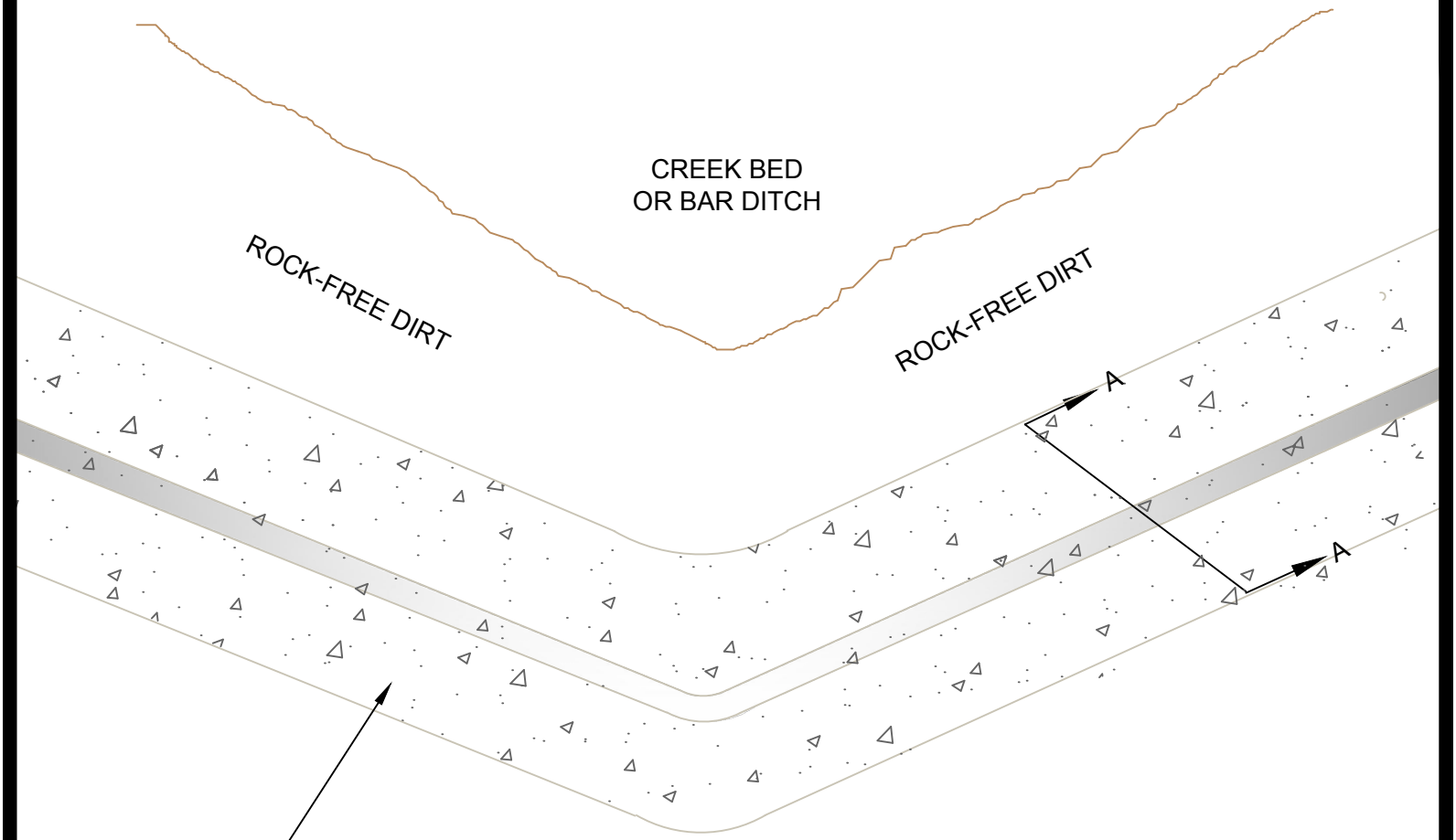


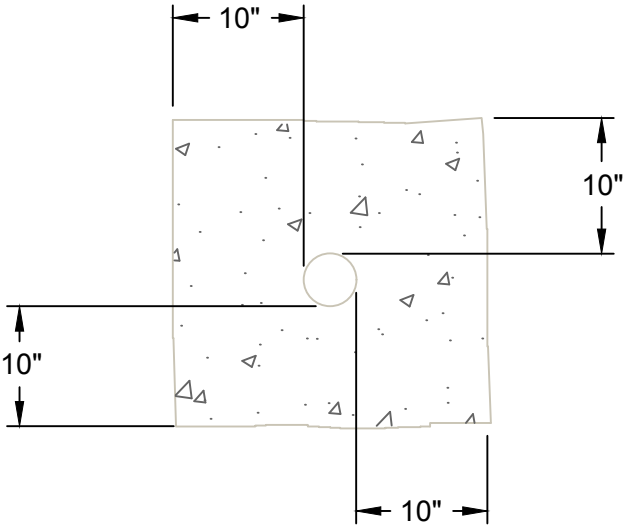
REV	A	DATE	07/09/2020	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

CONDUIT INSTALLATION ON SLOPE GREATER THAN 25% (ALTERNATIVE)

drawn:	approved:	date:	510-027
RWC	MMG	07/09/2020	





SECTION A-A

NOTE: REFER TO APPROPRIATE DRAWINGS FOR CORRECT EMBEDMENT DEPTH.

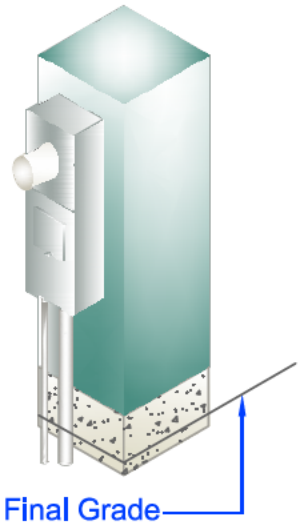
REV	A	DATE	07/09/2020	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	SSS	APR	MMG

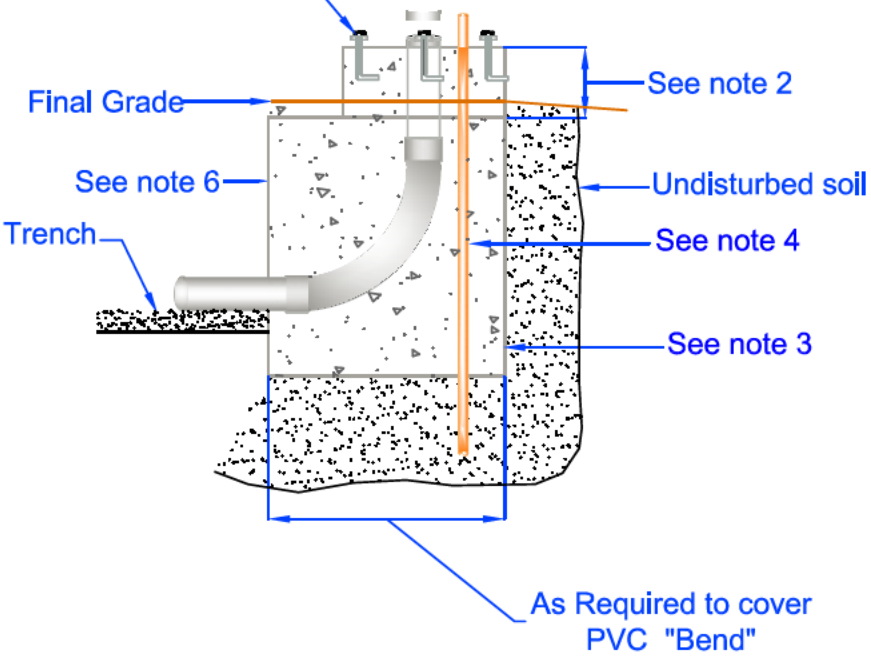
UNDERGROUND
INSTALLATION
SPECIFICATIONS

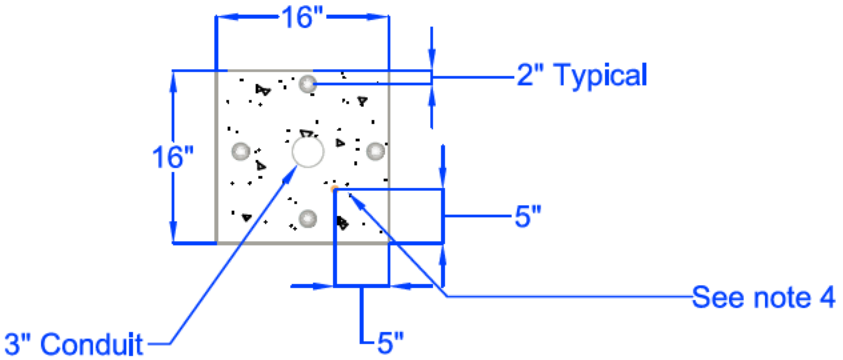
CONDUIT INSTALLATION IN FLOOD-PRONE AREAS

drawn:	approved:	date:	510-029
RWC	MMG	07/09/2020	

3/8" X 4" Galvanized "L" bolts with nuts and 1" washers. Bolts to be 1" above concrete with clean threads. Drop in anchors approved- to be drilled and set after pour. See inspector for template for bolt locations.







Reference Drawing 510-009-0911 for Typical Notes

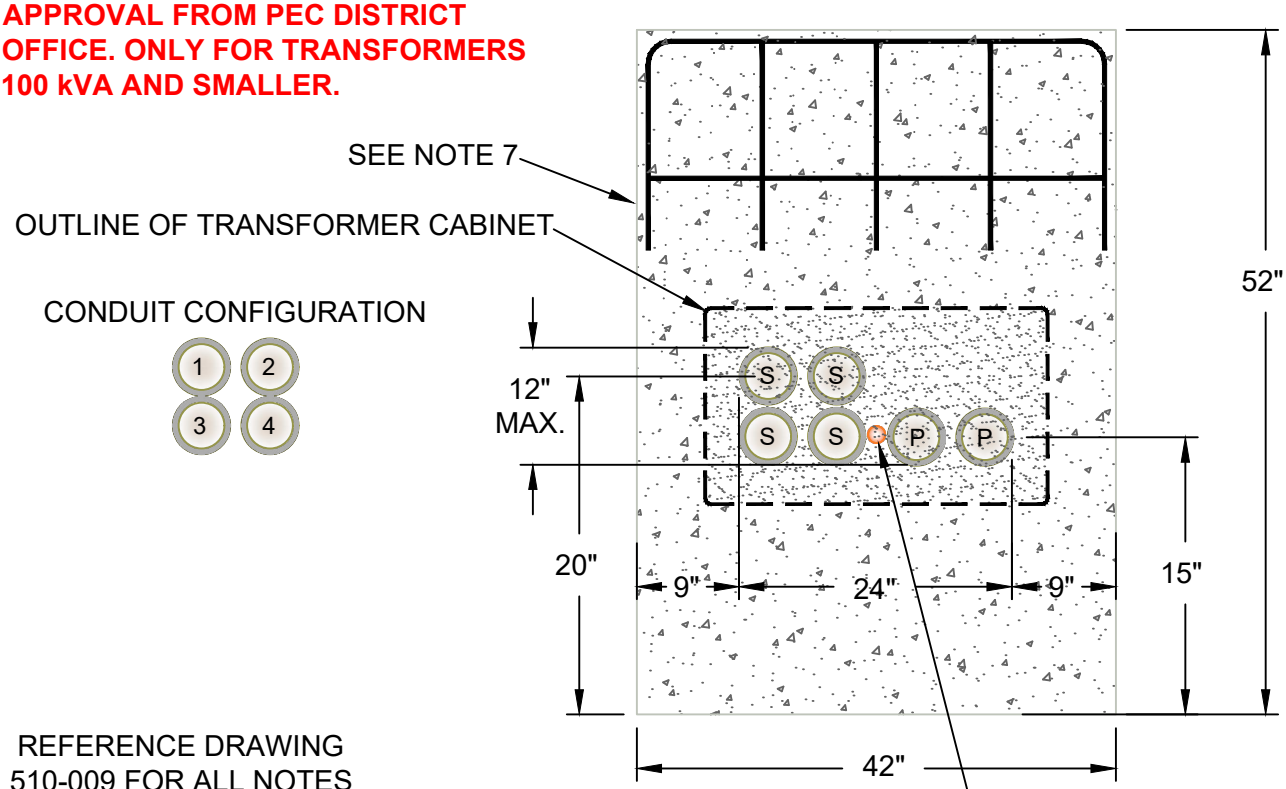
PEDERNALES ELECTRIC COOPERATIVE, INC.

URD DEVELOPER'S SPECIFICATIONS

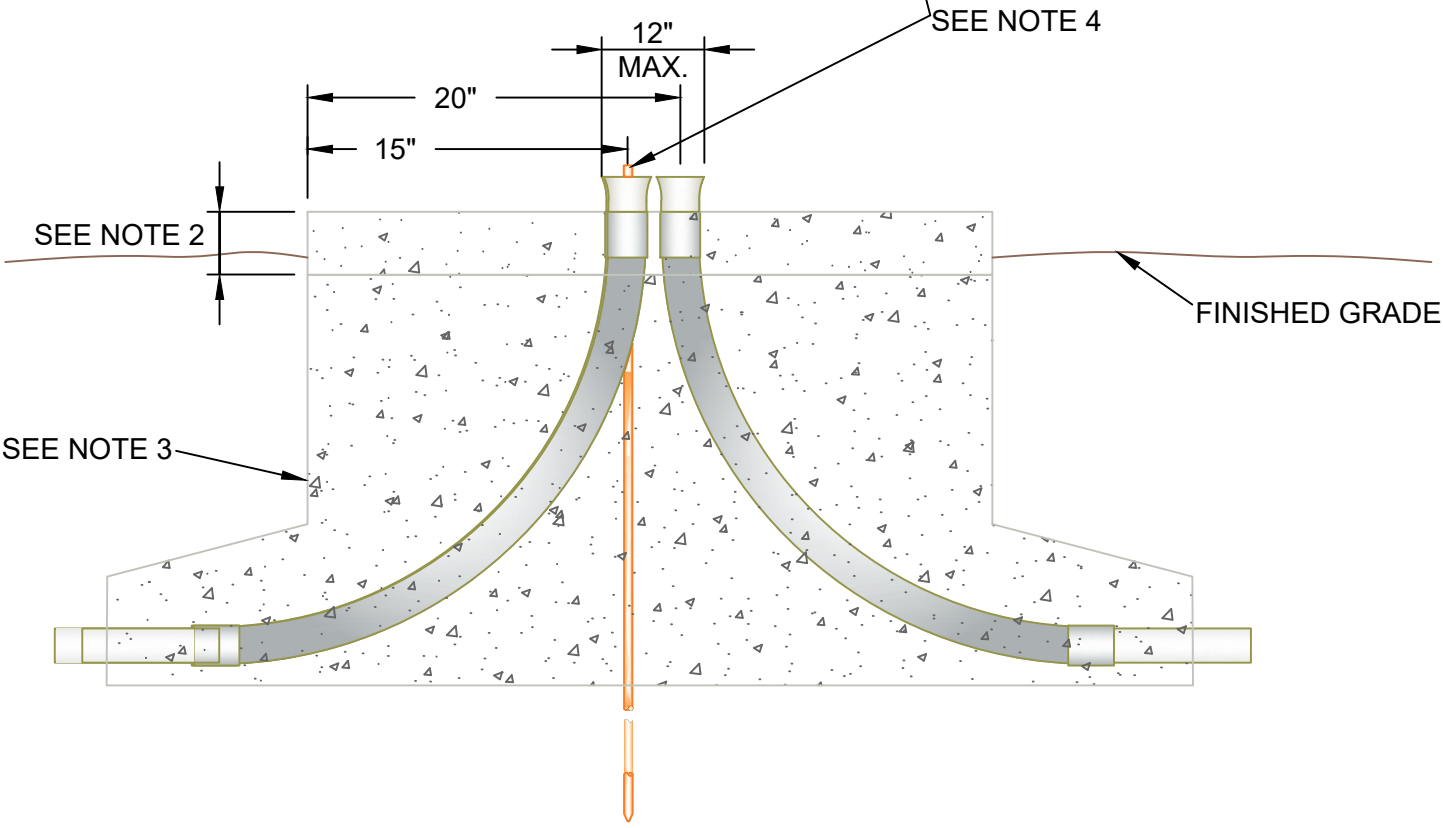
Pad for Service Meter Pedestal

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	520-010-0911

52" PAD OPTION IS FOR COMPACT INSTALLATIONS AND MUST HAVE APPROVAL FROM PEC DISTRICT OFFICE. ONLY FOR TRANSFORMERS 100 kVA AND SMALLER.



REFERENCE DRAWING
510-009 FOR ALL NOTES

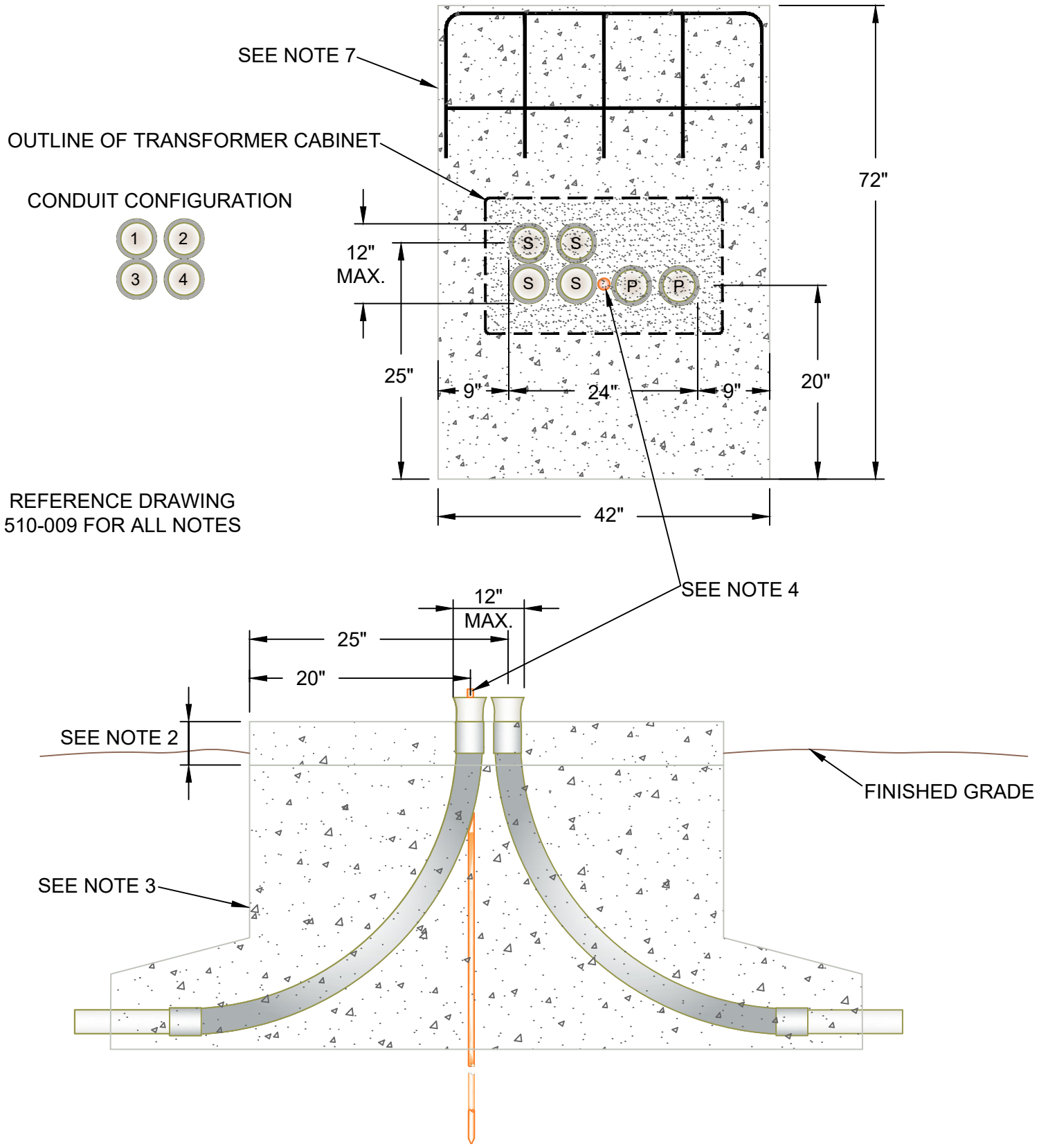


REV	A	DATE	04/28/2022	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

52" PAD FOR 1Ø TRANSFORMER WITH VFI, SMALL SECTIONALIZING ENCLOSURE

drawn:	approved:	date:	
RWC	MMG	04/28/2022	520-020



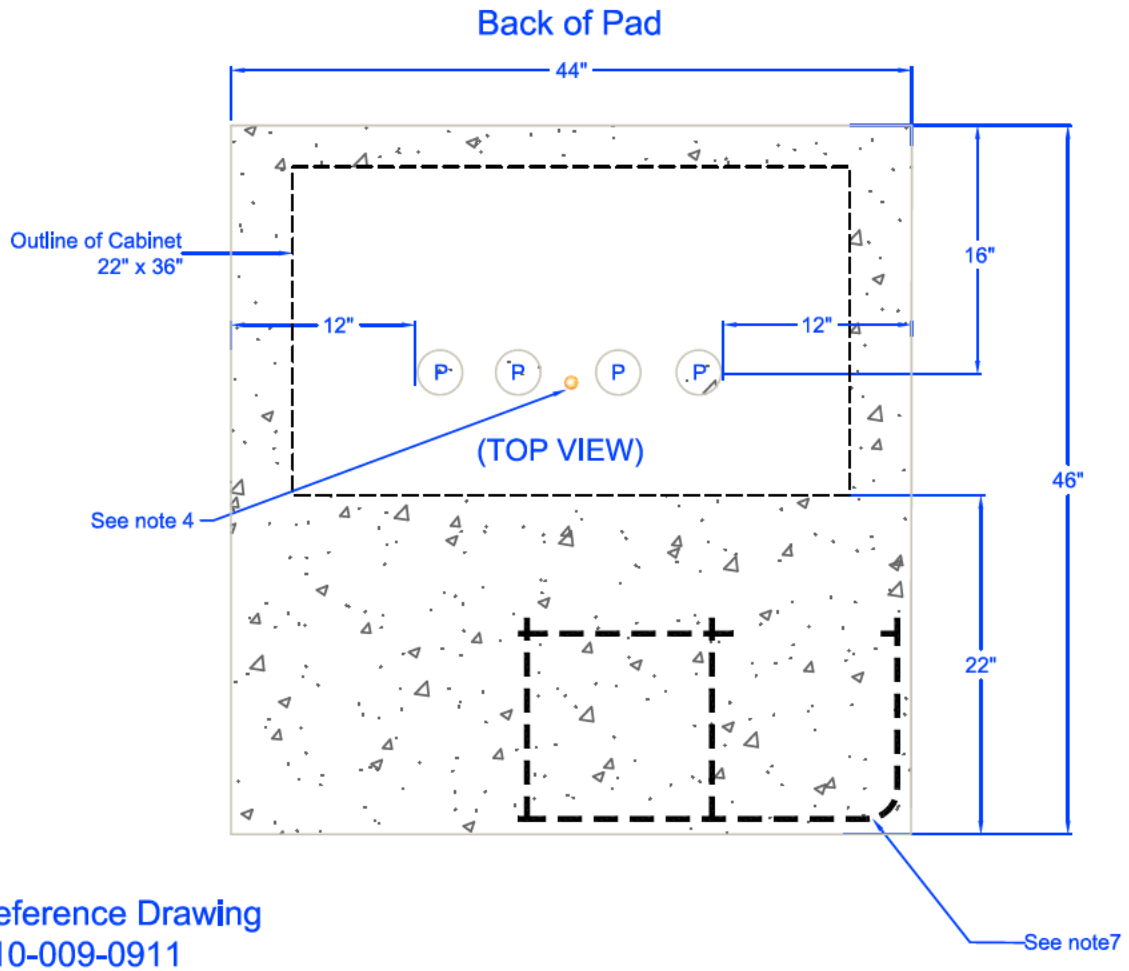
REV	B	DATE	04/28/2022	REVISION	REMOVED NOTE	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND
INSTALLATION
SPECIFICATIONS

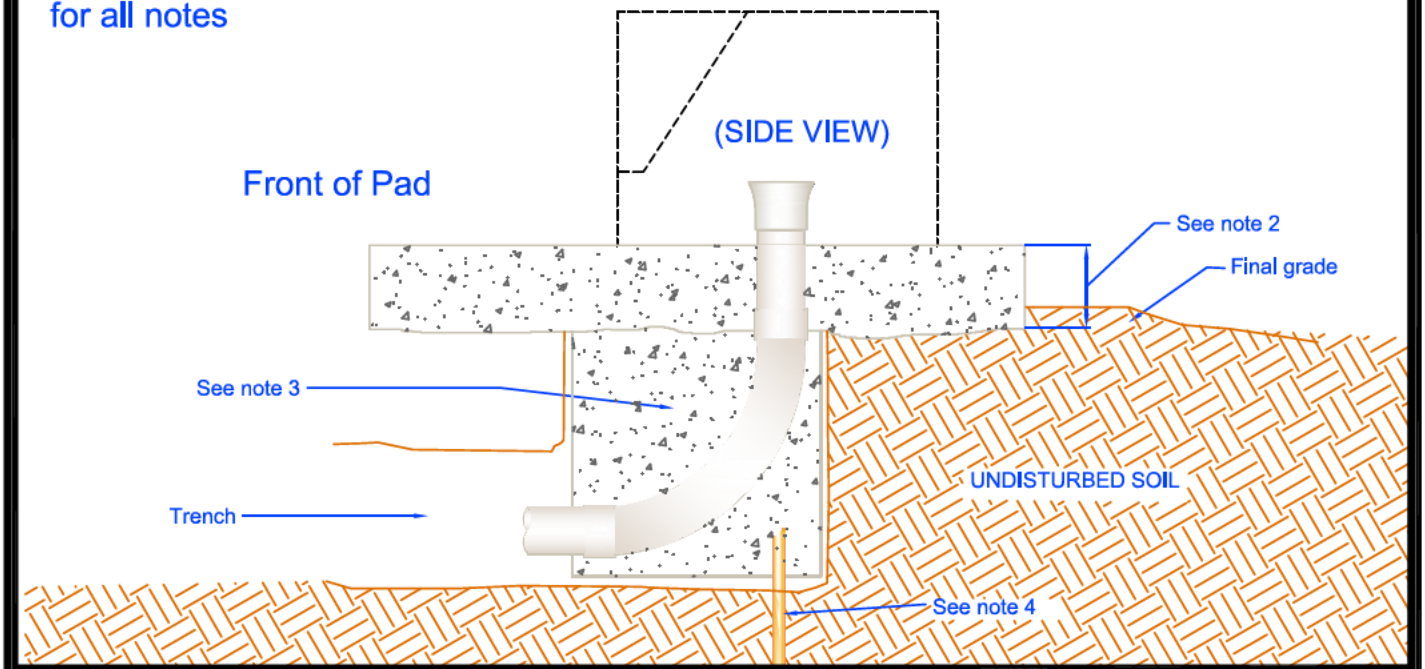
72" PAD FOR 1Ø TRANSFORMER WITH VFI, SMALL SECTIONALIZING ENCLOSURE

drawn:	approved:	date:	520-030
RWC	MMG	04/28/2022	

Approved Sectionalizers:
Maysteel CC336-22TH



Reference Drawing
510-009-0911
for all notes



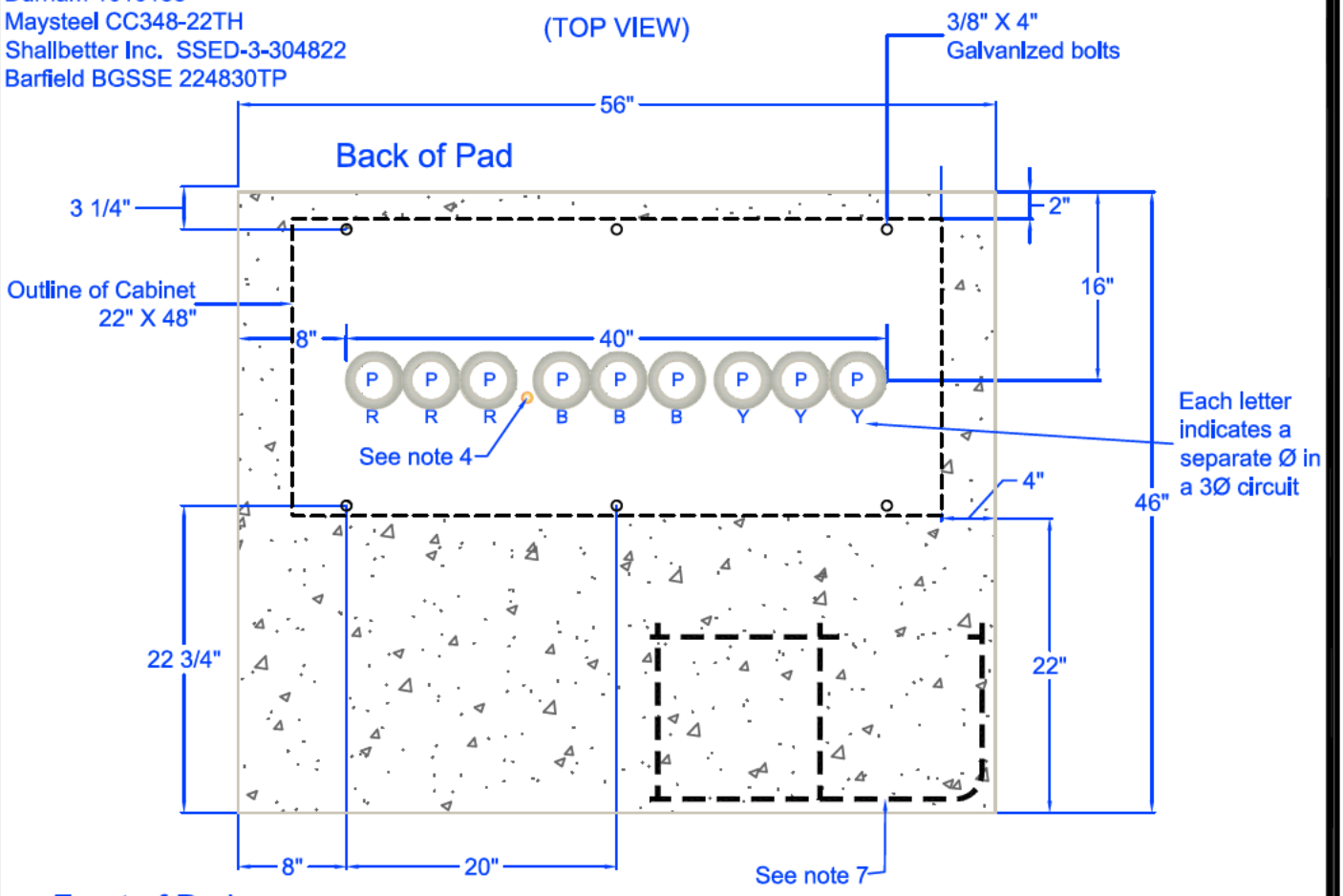
PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Small Pad for 1Ø Sectionalizing Enclosure

drawn:	approved	date:	drawing number:
JBS	MJB	March 2, 2014	530-010-0911

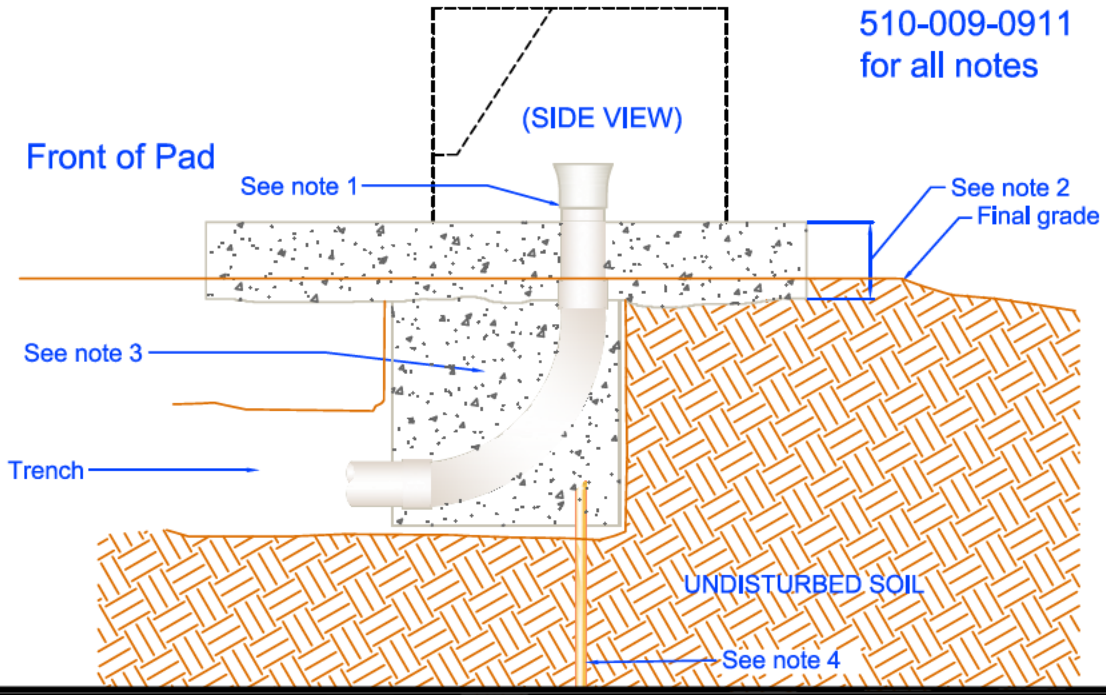
Approved Sectionalizers:
Durham 1010188
Maysteel CC348-22TH
Shallbetter Inc. SSED-3-304822
Barfield BGSSE 224830TP

(TOP VIEW)



Reference Drawing
510-009-0911
for all notes

(SIDE VIEW)



PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

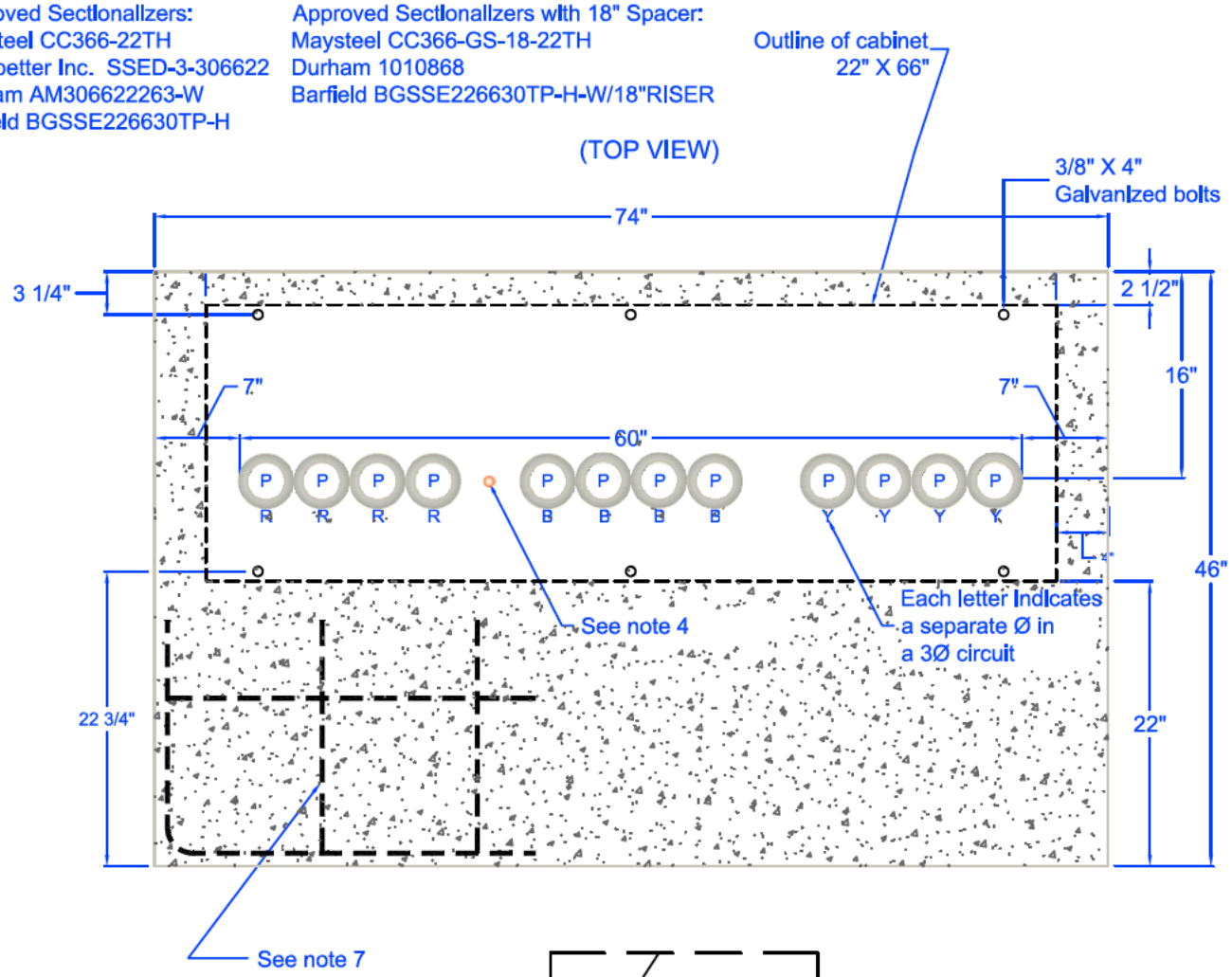
Small Pad for 3Ø Sectionalizing Enclosure

drawn:	approved	date:	drawing number:
JBS	MJB	March 3, 2014	530-020-0911

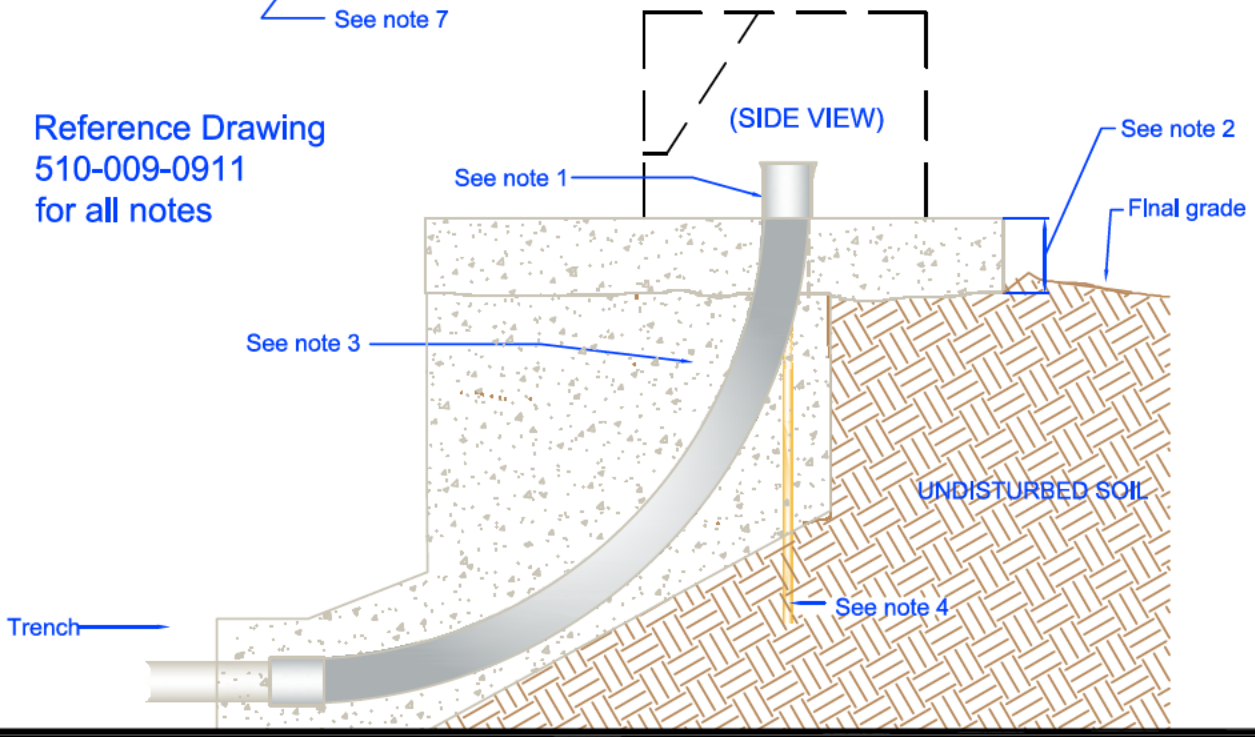
Approved Sectionalizers:
Maysteel CC366-22TH
Shallbetter Inc. SSED-3-306622
Durham AM306622263-W
Barfield BGSSE226630TP-H

Approved Sectionalizers with 18" Spacer:
Maysteel CC366-GS-18-22TH
Durham 1010868
Barfield BGSSE226630TP-H-W/18"RISER

(TOP VIEW)



Reference Drawing
510-009-0911
for all notes



PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

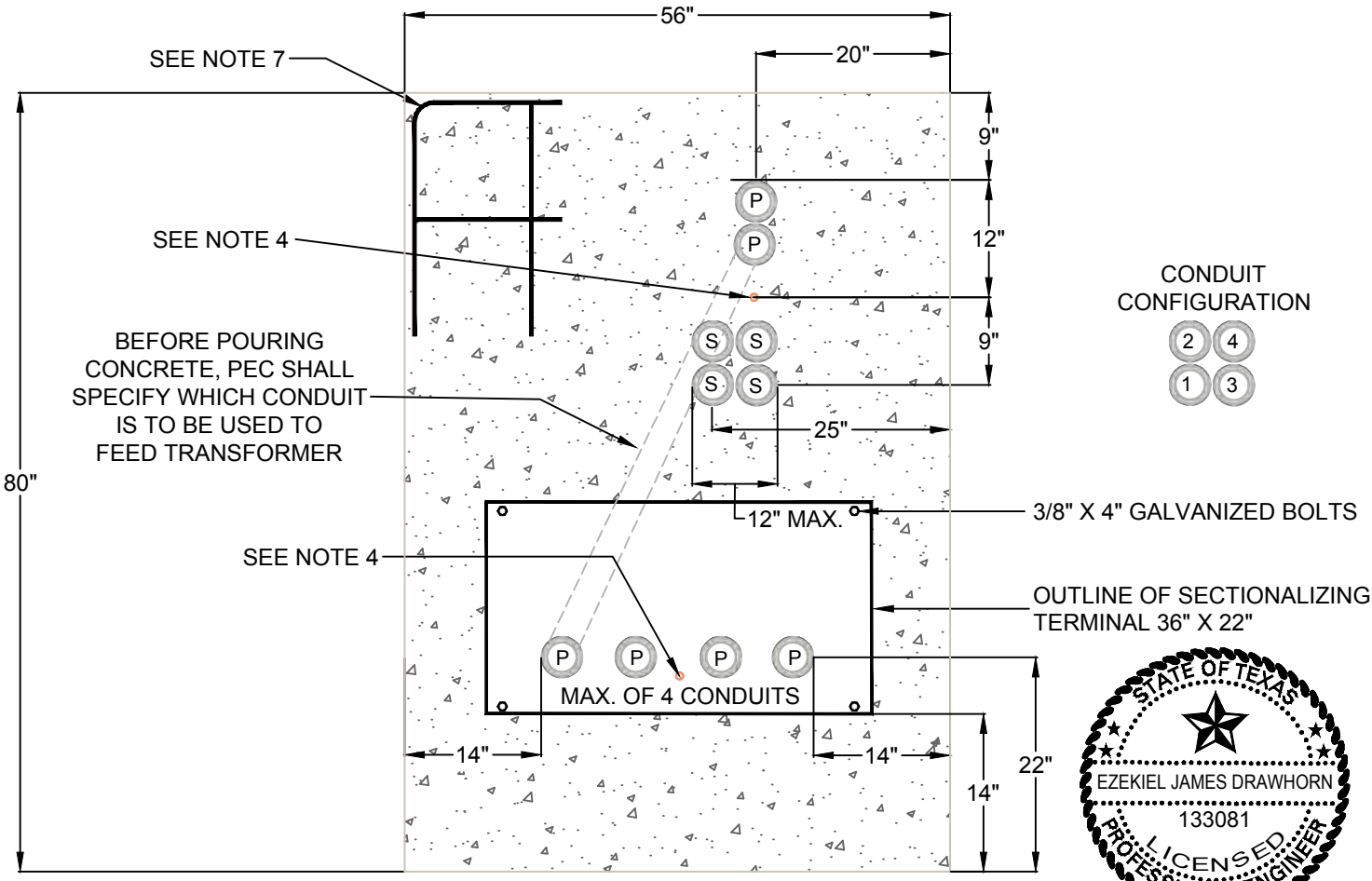
Large Pad for 3Ø Sectionalizing Enclosure

drawn:	approved	date:	drawing number:
JBS	MJB	March 3, 2014	530-022-0911

APPROVED SECTIONALIZER:
MAYSTEEL CC336-22TH

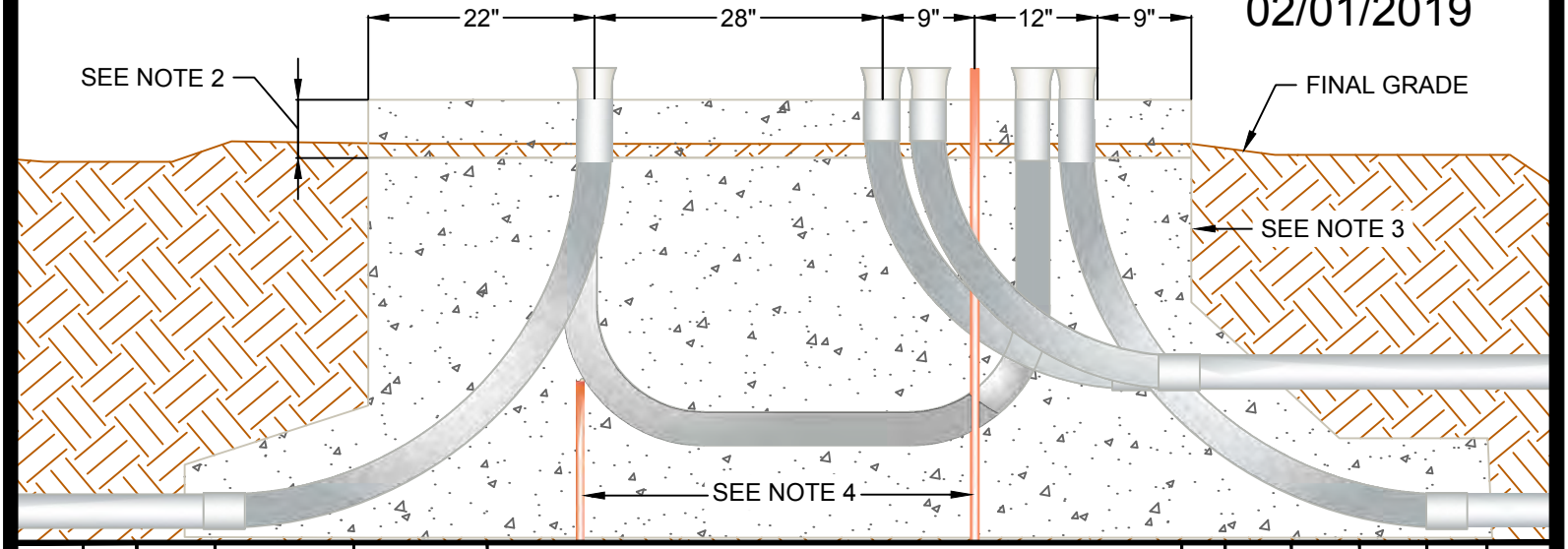
CHANGED PLACEMENT OF SECONDARY CONDUITS, EFFECTIVE AS OF MARCH 20, 2013

REFERENCE DRAWING
510-009
FOR ALL NOTES



STATE OF TEXAS
EZEKIEL JAMES DRAWHORN
133081
LICENSED PROFESSIONAL ENGINEER

02/01/2019



REV	A	DATE	12/26/2018	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

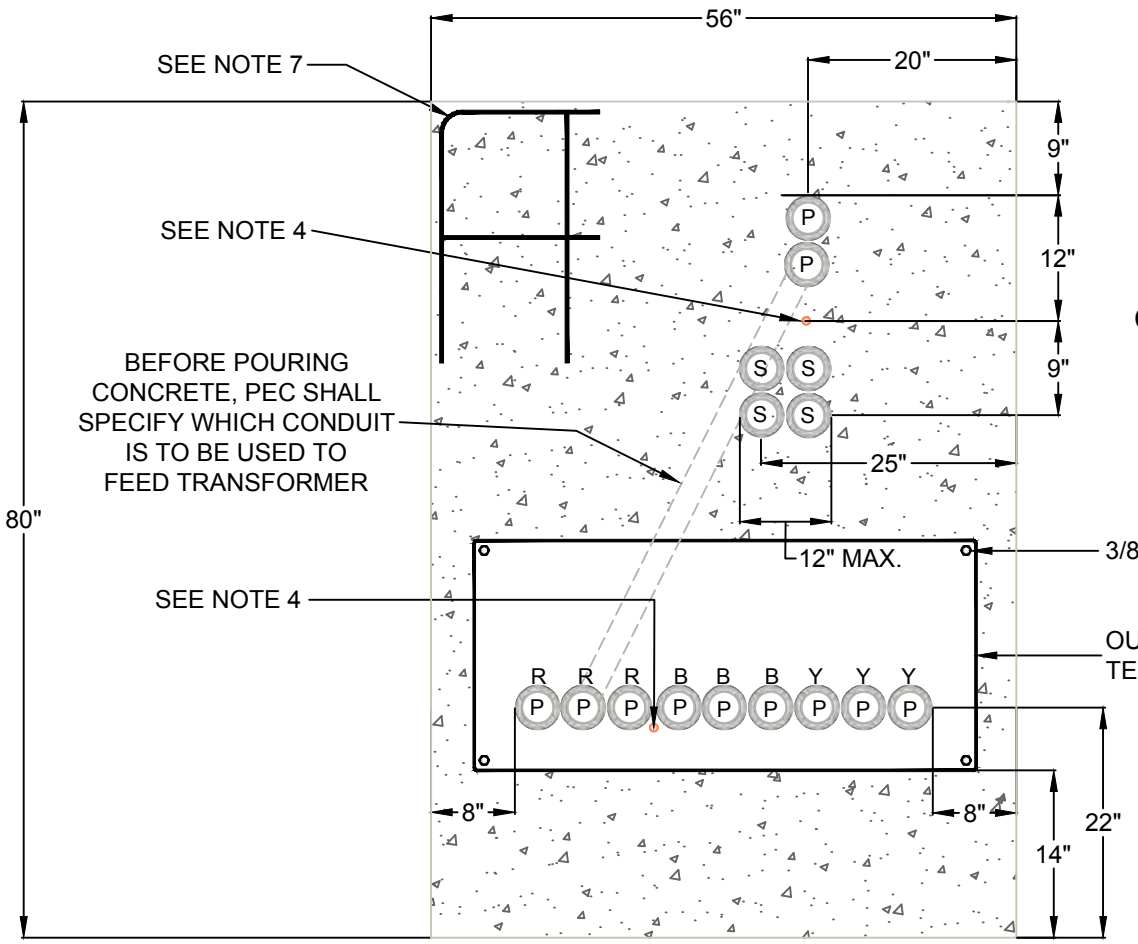
1Ø COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD

drawn:	approved:	date:	530-023
RWC	MMG	12/26/2018	

APPROVED SECTIONALIZERS:
DURHAM 1010188
MAYSTEEL CC348-22TH
SHALLBETTER INC. SSED 3-304822
BARFIELD BGSSE 224830TP

CHANGED PLACEMENT OF SECONDARY CONDUITS, EFFECTIVE AS OF MARCH 20, 2013

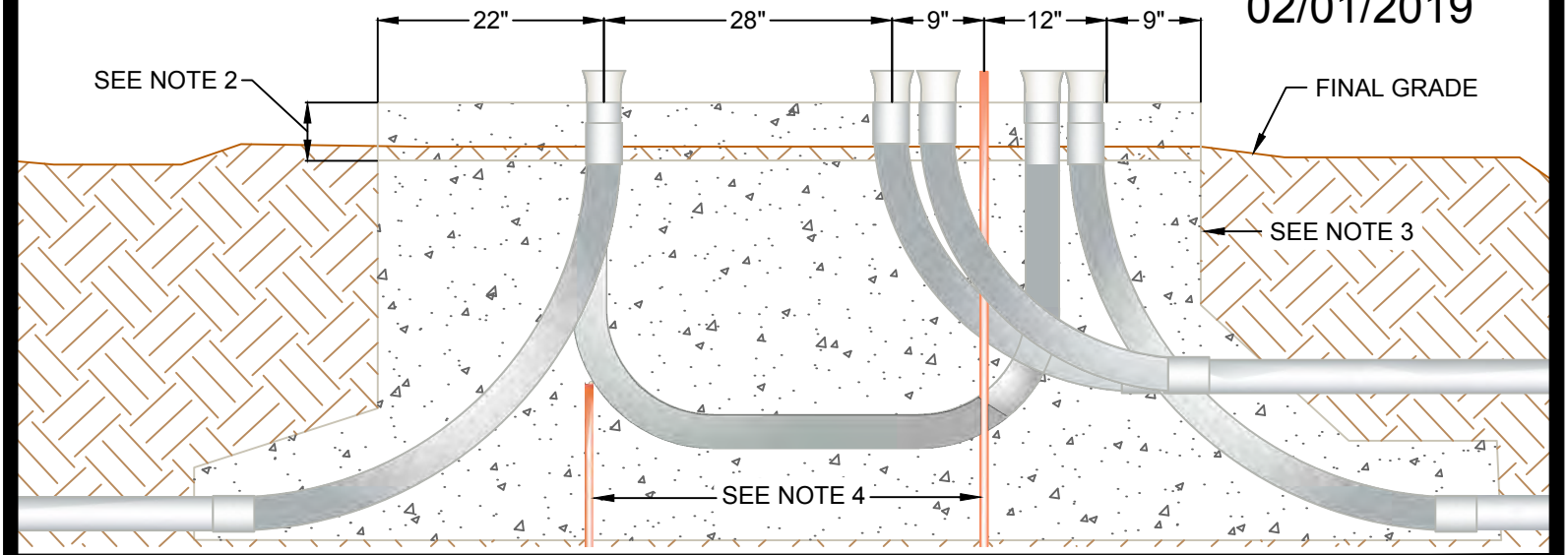
REFERENCE DRAWING
510-009
FOR ALL NOTES



CONDUIT CONFIGURATION

STATE OF TEXAS
EZEKIEL JAMES DRAWHORN
133081
LICENSED PROFESSIONAL ENGINEER

02/01/2019



REV	A	DATE	12/26/2018	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

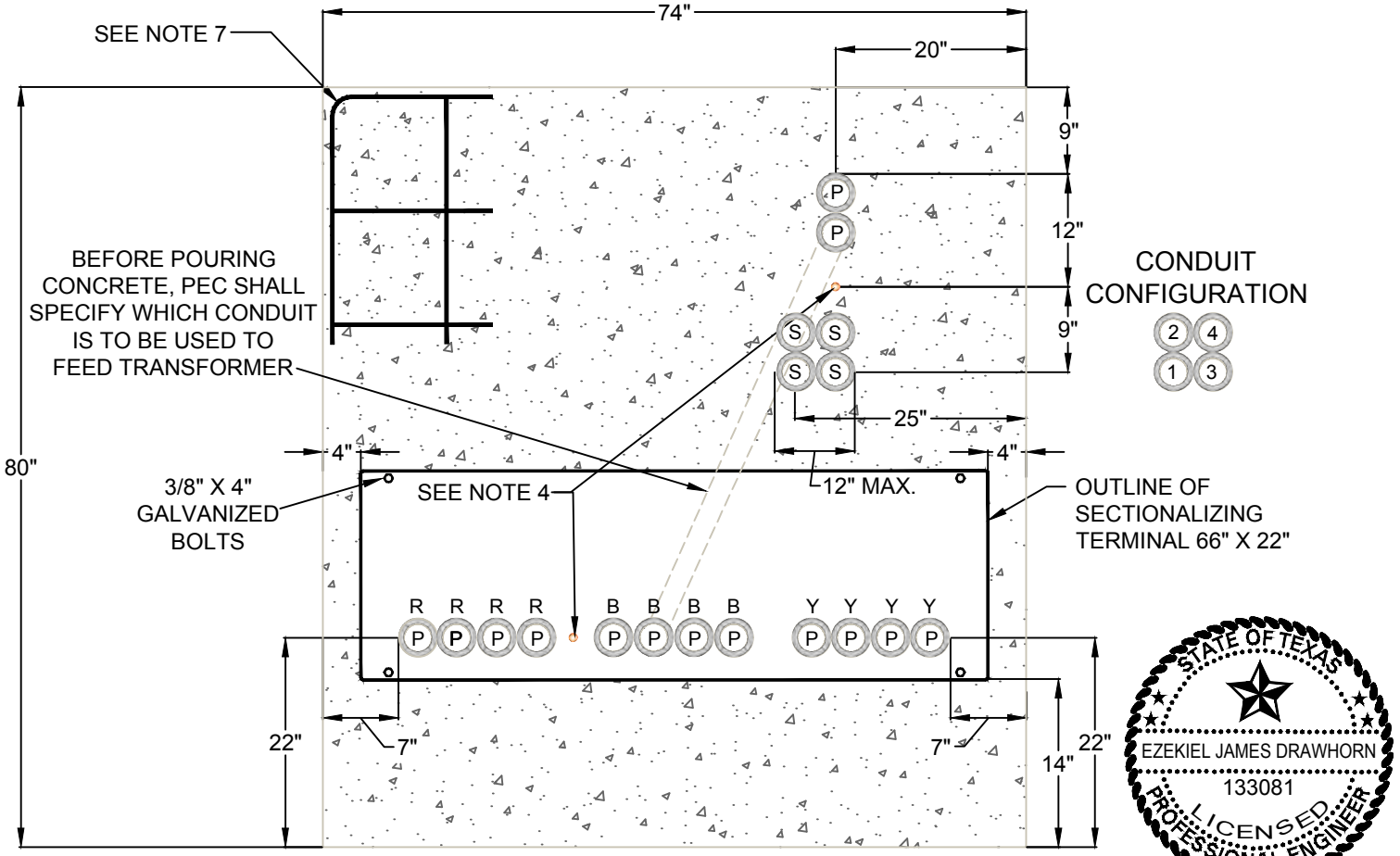
SMALL COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD

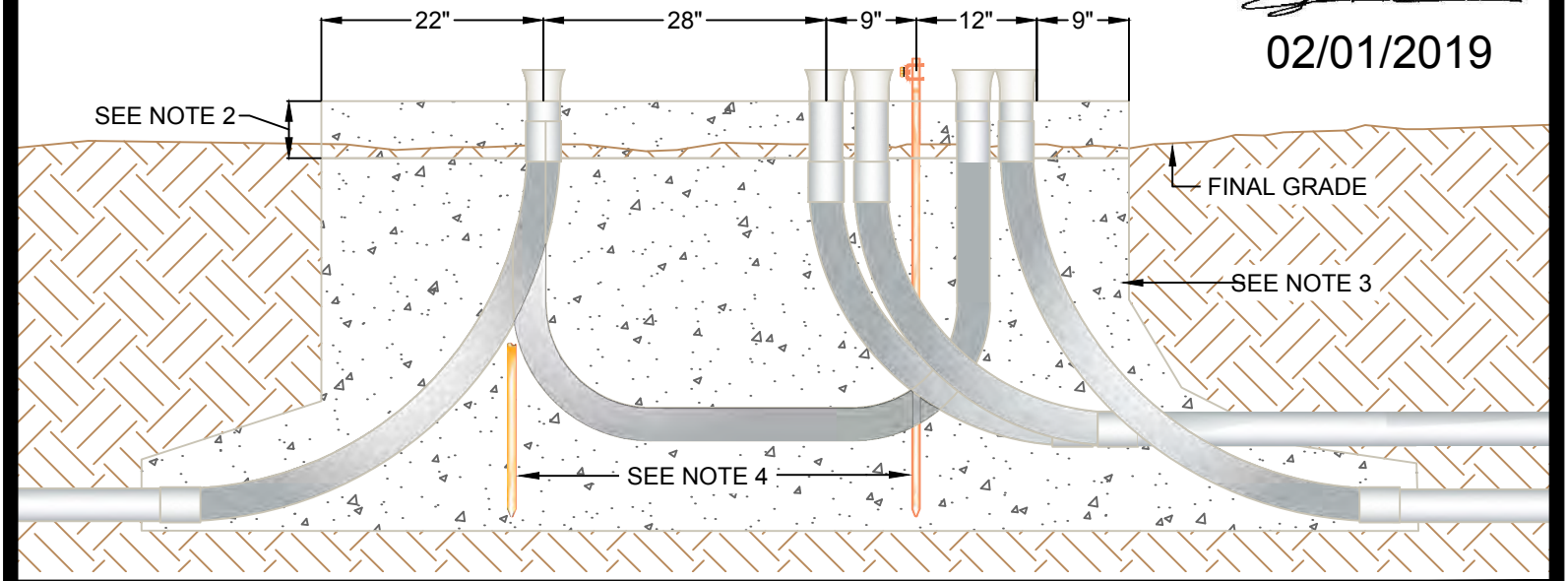
drawn:	approved:	date:	530-024
RWC	MMG	12/26/2018	

APPROVED SECTIONALIZERS:
MAYSTEEL CC366-22TH
SHALLBETTER INC. SSED-3-306622
DURHAM AM306622263-W
BARFIELD BGSSE236730TP-H

CHANGED PLACEMENT OF SECONDARY CONDUITS, EFFECTIVE AS OF MARCH 20, 2013

REFERENCE DRAWING 510-009 FOR ALL NOTES





STATE OF TEXAS
EZEKIEL JAMES DRAWHORN
133081
LICENSED PROFESSIONAL ENGINEER

02/01/2019

REV	A	DATE	12/26/2018	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

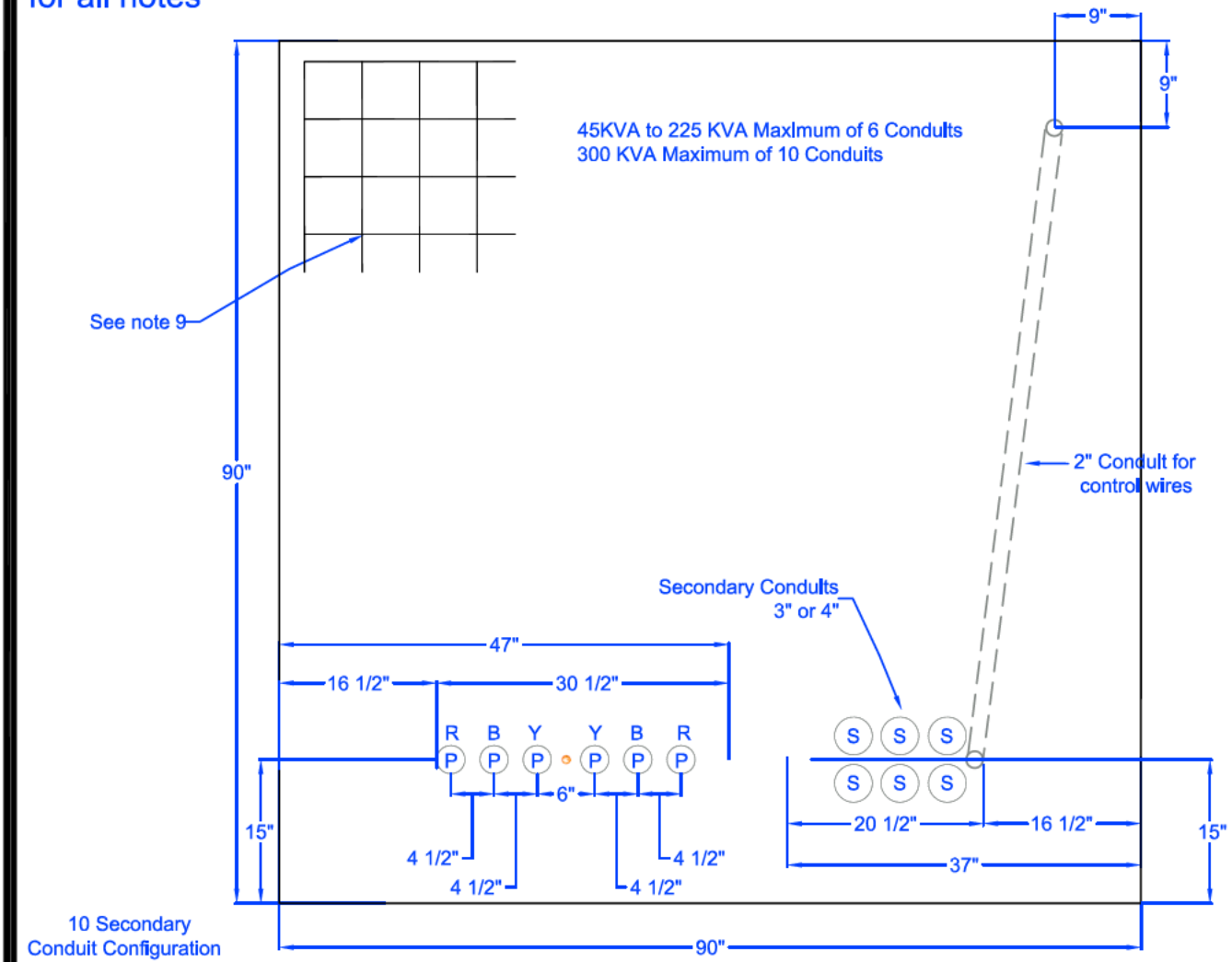
UNDERGROUND INSTALLATION SPECIFICATIONS

LARGE COMBINATION SECTIONALIZING ENCLOSURE AND TRANSFORMER PAD

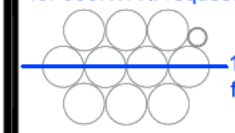
drawn:	approved:	date:	530-026
RWC	MMG	12/26/2018	

Reference Drawing
510-009-0911
for all notes

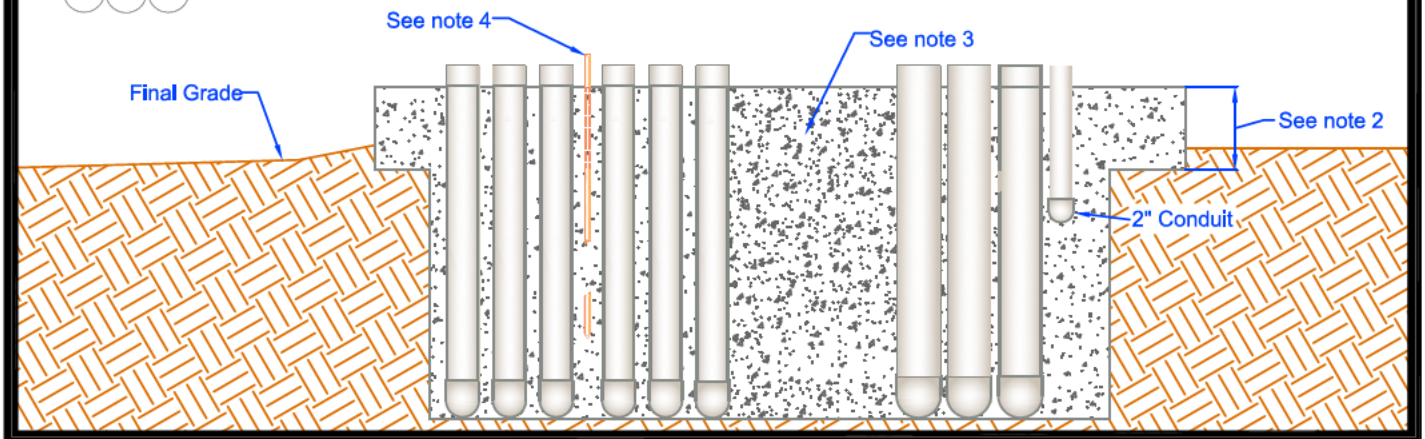
12' GATE REQUIRED IF PAD ENCLOSED IN FENCE OF ANY KIND.



10 Secondary
Conduit Configuration
for 300KVA If requested



15" From
front of pad



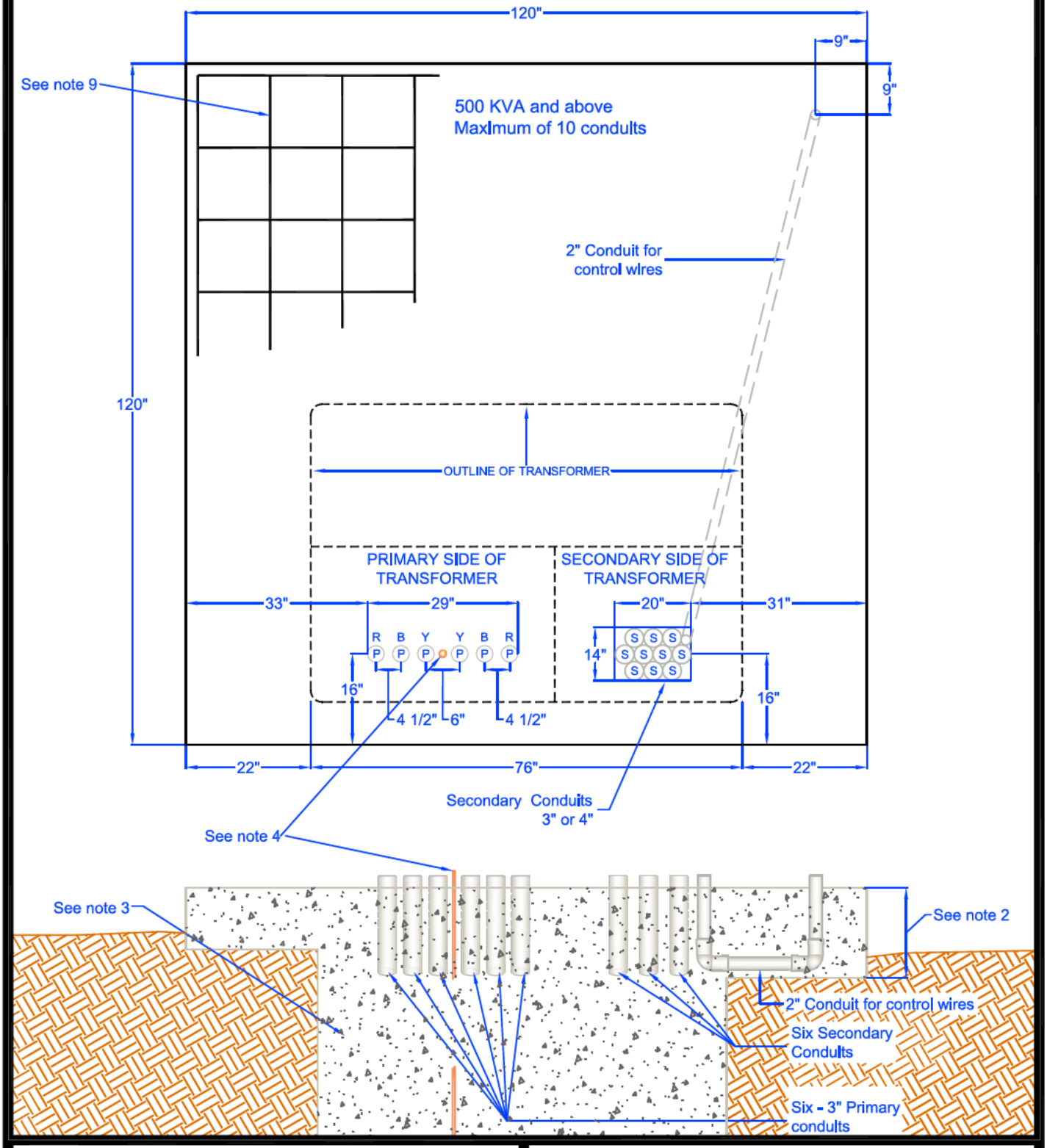
PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

3Ø Transformer Pad
45-300 KVA

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	530-030-0911

Reference Drawing
510-009-0911
for all notes

12' GATE REQUIRED IF PAD ENCLOSED IN FENCE OF ANY KIND.



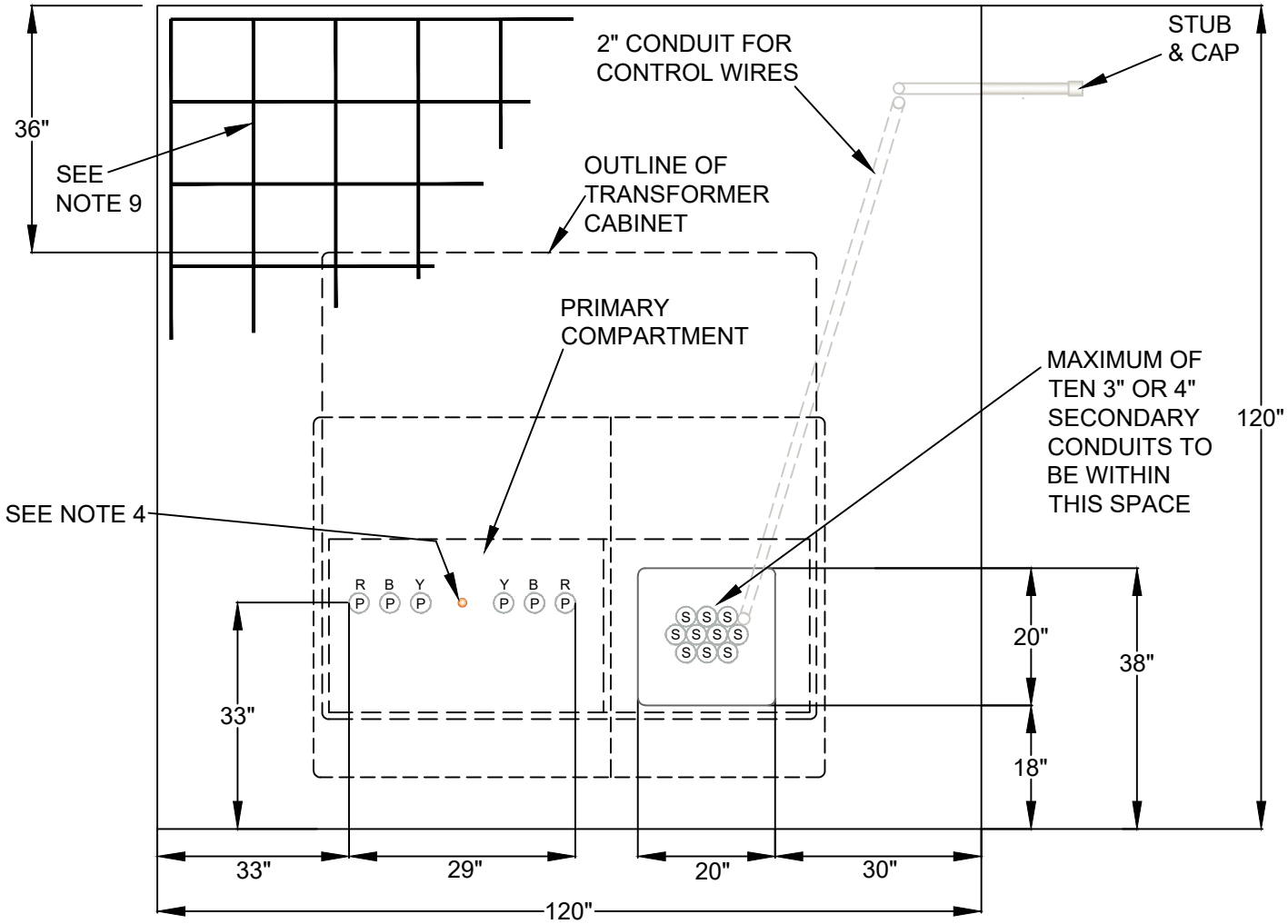
PEDERNALES ELECTRIC
COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

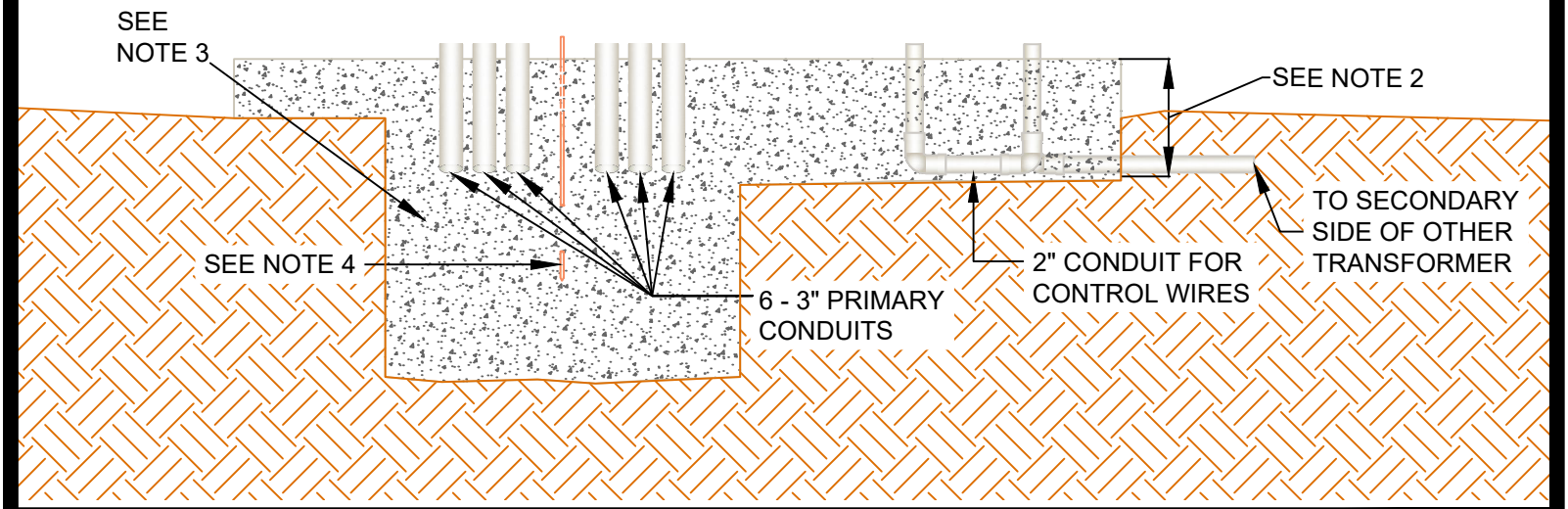
3Ø Transformer Pad
500-1500 KVA

drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	530-032-0911

REFERENCE DRAWING 510-009 FOR ALL NOTES

12' GATE REQUIRED IF PAD ENCLOSED IN FENCE OF ANY KIND.
GROUND IN FRONT OF PAD-MOUNTED EQUIPMENT SHALL NOT HAVE A SLOPE OF MORE THAN 6" IN 10'.





REV	A	DATE	12/03/2021	REVISION	Y B R WAS R B Y	BY	RWC	CHK	SSS	APR	MMG

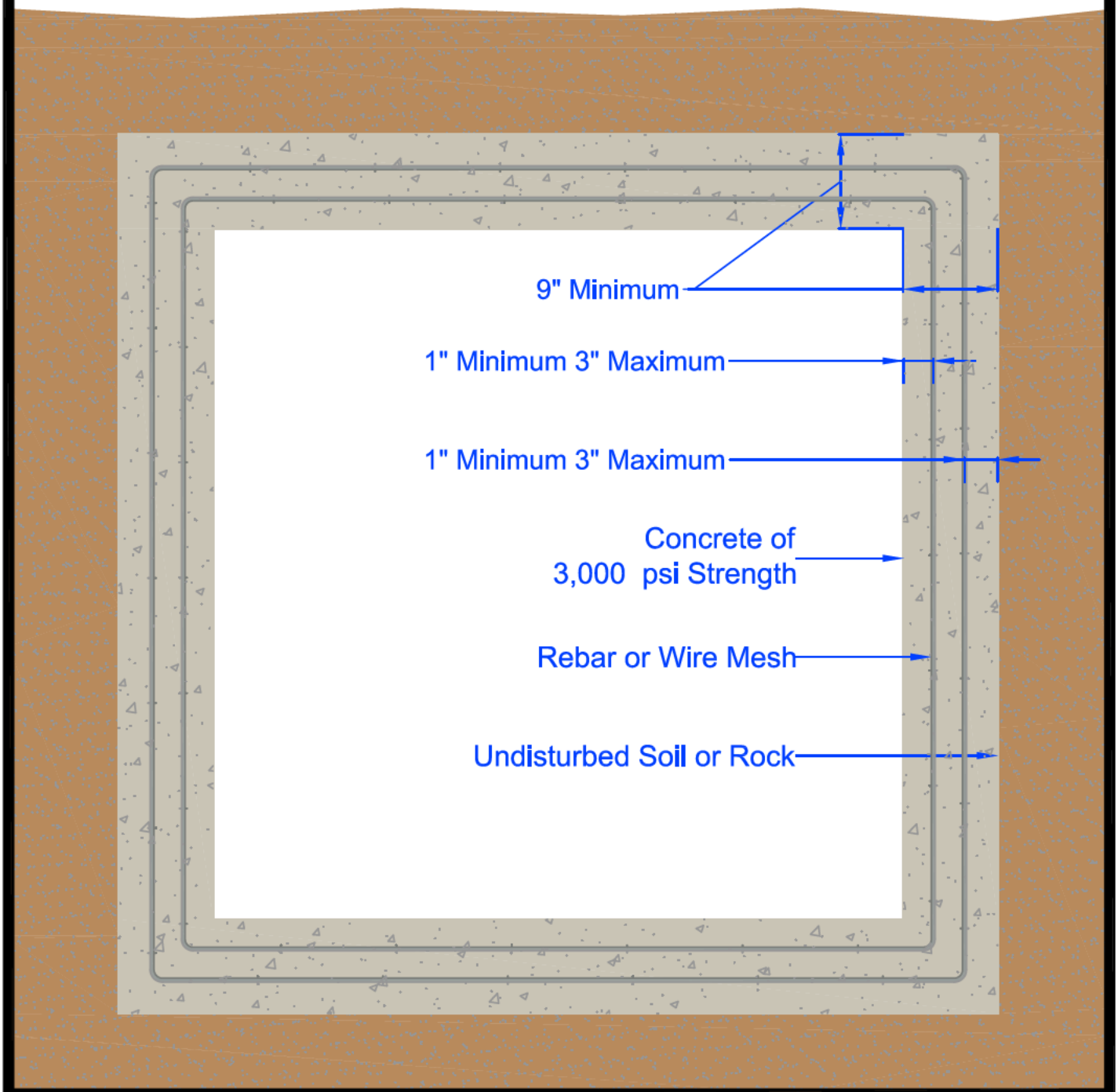
UNDERGROUND INSTALLATION SPECIFICATIONS

3Ø TRANSFORMER PAD
2000-3000 kVA

drawn:	approved:	date:	530-034
RWC	MMG	12/03/2021	

Notes:

1.) Concrete to be a minimum of 3,000 psi design strength.
2.) All walls to be a minimum of 9" thick.
3.) ⅜"steel rebar minimum spaced a maximum 12" apart..
4.) Footing to extend to undisturbed soil or rock.
5.) See individual vault drawings for actual dimensions.



PEDERNALES ELECTRIC COOPERATIVE, INC.

URD DEVELOPER'S SPECIFICATIONS

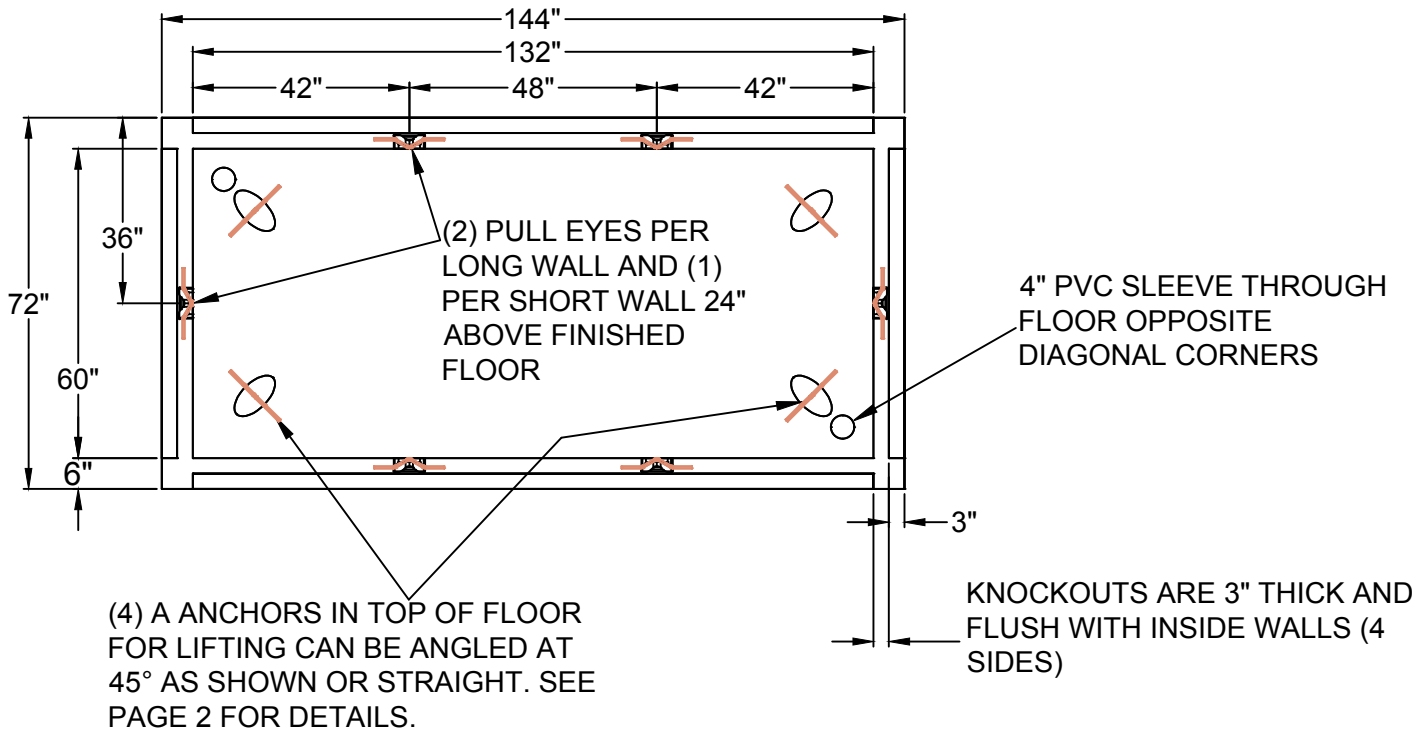
General Specifications for Poured in Place Vaults

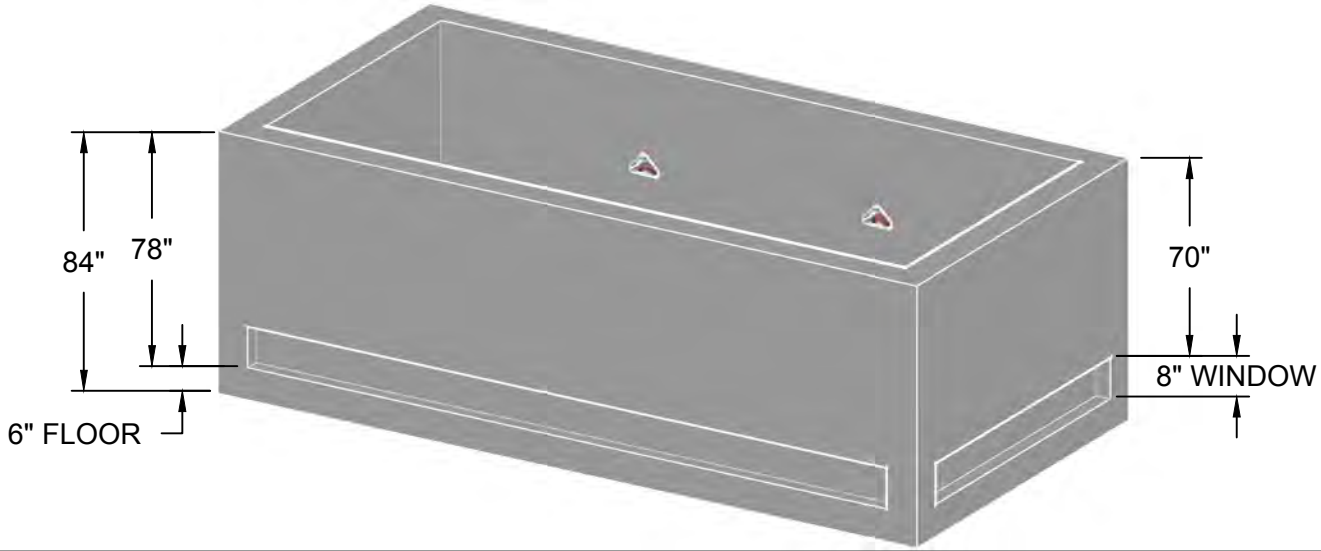
drawn:	approved	date:	drawing number:
JBS	MJB	December 12, 2011	530-040-0911

NOTES:

1) SHORT WALLS SHALL HAVE ONE PULLING EYE CENTERED AND AT 24" FROM THE BOTTOM OF THE VAULT. LONG WALLS SHALL HAVE TWO PULLING EYES LOCATED 48" APART, EVENLY SPACED BETWEEN INSIDE WALLS, AND 24" FROM THE BOTTOM OF THE VAULT.
2) ALL PULLING EYES SHALL BE RATED FOR A MINIMUM OF 5,000 POUNDS EACH.
3) 6" ABOVE THE BOTTOM OF THE VAULT, AN 8" KNOCKOUT SHALL EXTEND AROUND THE ENTIRE PERIMETER OF THE VAULT (EXCEPT FOR 6" FROM EACH CORNER) FOR CONDUIT TO BE BROUGHT IN. KNOCKOUTS SHOULD BE 3" THICK AND FLUSH WITH THE INSIDE OF THE VAULT. THE VAULT SHALL BE 7' DEEP.
4) THE VAULT SHALL BE INSTALLED ON A MINIMUM 6" DEEP BED OF 1/2" TO 3/4" DIAMETER GRAVEL.

(NOTES CONTINUED ON NEXT PAGE.)





REV	C	DATE	07/23/2020	REVISION	NOTE 5: 3/4" X 10' GROUND ROD WAS 8' GROUND ROD	BY	RWC	CHK	SSS	APR	MMG

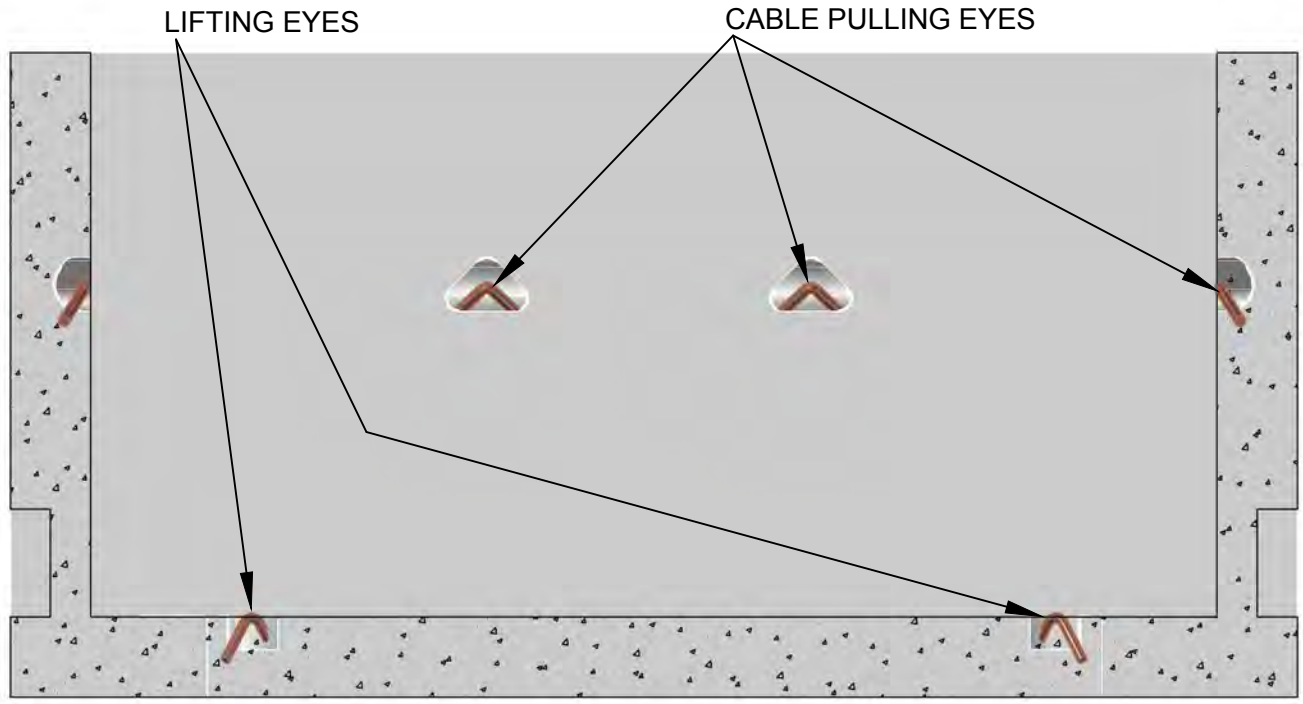
UNDERGROUND INSTALLATION SPECIFICATIONS

VAULT FOR SUBMERSIBLE SWITCHGEAR AND SPLICE BOX

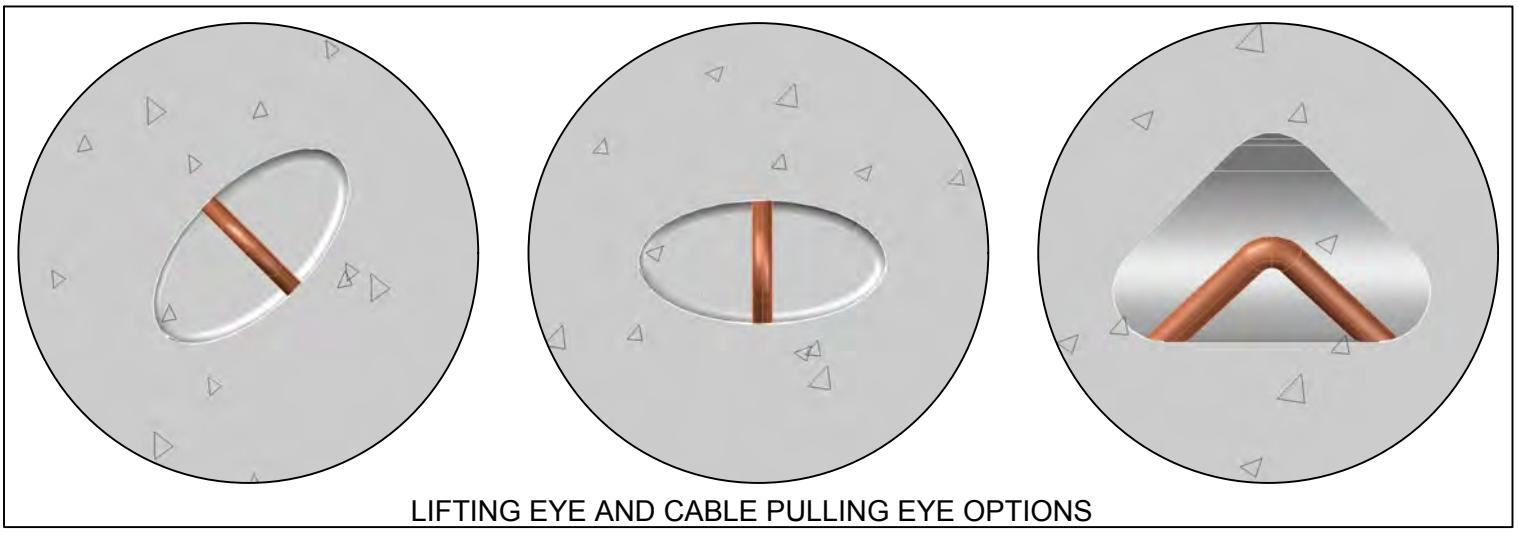
drawn:	approved:	date:	
RWC	MMG	07/23/2020	530-050

NOTES CONTINUED:

5) EACH VAULT SHALL BE SUPPLIED WITH EITHER A 3/4" X 10' GROUND ROD DRIVEN IN THE VAULT FLOOR OR A MINIMUM 100 FEET OF #6 BARE COPPER WIRE BURIED NO LESS THAN 18" DEEP IN THE EARTH AND MEETING THE NATIONAL ELECTRICAL SAFETY CODE RULE #094B3.
6) ALL CONCRETE TO HAVE 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60. BAR BENDING AND PLACEMENT SHALL COMPLY WITH LATEST ACI STANDARDS. DESIGN BASED ON AASHTO HS 20-44 LOADING.
7) LIFTING AND PULLING EYE SHAPES AND DIMENSIONS CAN VARY, SO LONG AS FORM, FIT AND FUNCTION ARE SATISFIED.
8) VAULT CAN BE MADE WITH NO BOTTOM. IT WILL BE 84" TALL, WITH 4 WALLS ON A BED OF 1/2" TO 3/4" DIAMETER GRAVEL.



SECTION THROUGH LIFTING EYES AND CABLE PULLING EYES



LIFTING EYE AND CABLE PULLING EYE OPTIONS

REV	C	DATE	07/23/2020	REVISION	NOTE 5: 3/4" X 10' GROUND ROD WAS 8' GROUND ROD	BY	RWC	CHK	SSS	APR	MMG

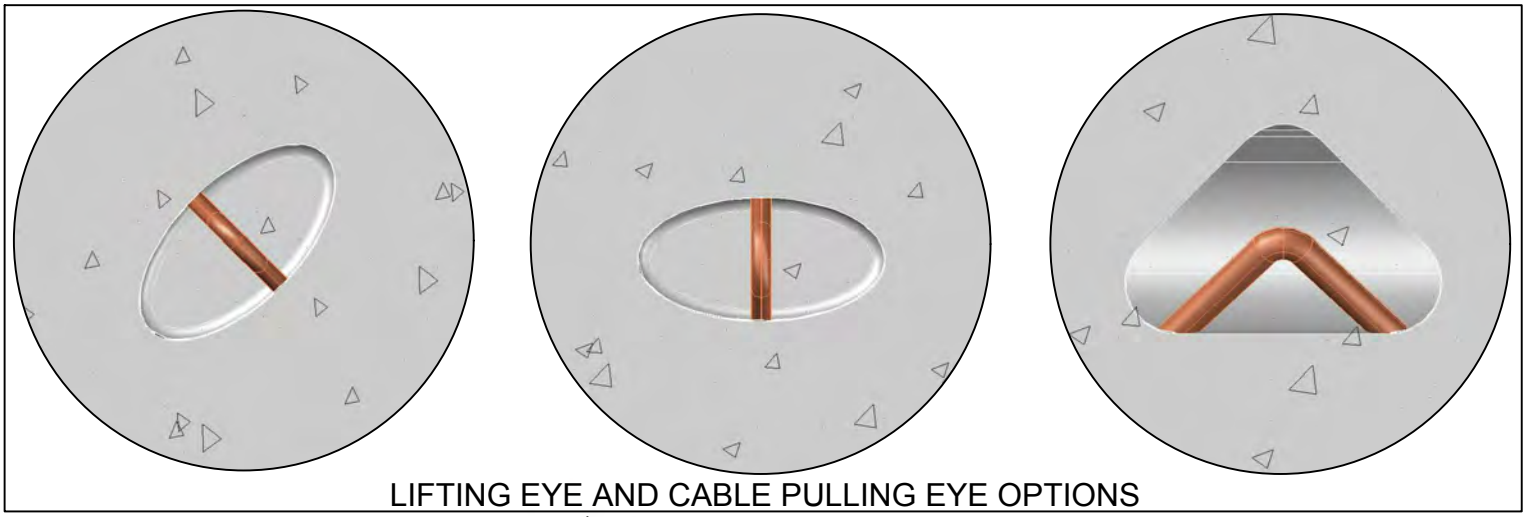
UNDERGROUND INSTALLATION SPECIFICATIONS

VAULT FOR SUBMERSIBLE SWITCHGEAR AND SPLICE BOX
PAGE 2 OF 2

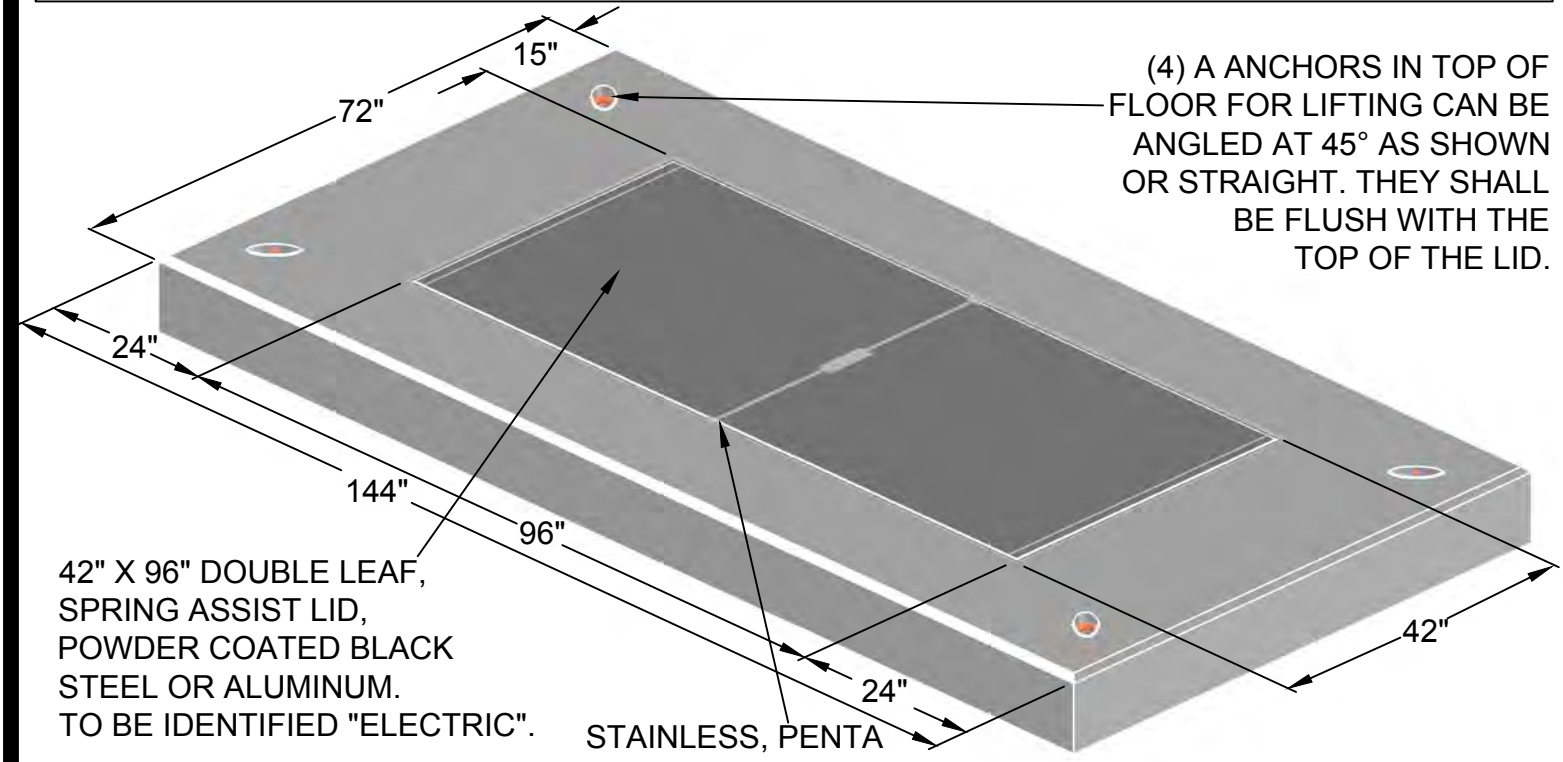
drawn:	approved:	date:	530-050
RWC	MMG	07/23/2020	

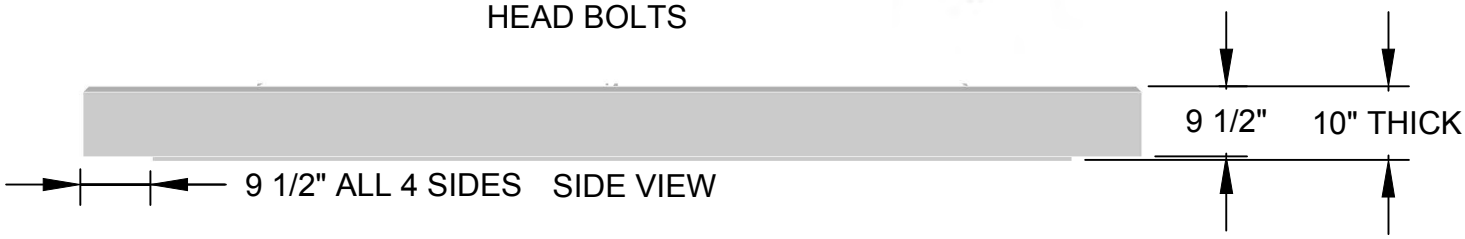
GENERAL NOTES:

- ALL CONCRETE TO HAVE 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60. BAR BENDING AND PLACEMENT SHALL COMPLY WITH LATEST ACI STANDARDS. DESIGN BASED ON AASHTO HS 20-44 LOADING.
- ALL LIFTING AND PULLING EYES SHALL BE RATED FOR A MINIMUM 5,000 POUNDS EACH.
- LIFTING AND PULLING EYE SHAPES AND DIMENSIONS CAN VARY, SO LONG AS FORM, FIT AND FUNCTION ARE SATISFIED.



LIFTING EYE AND CABLE PULLING EYE OPTIONS



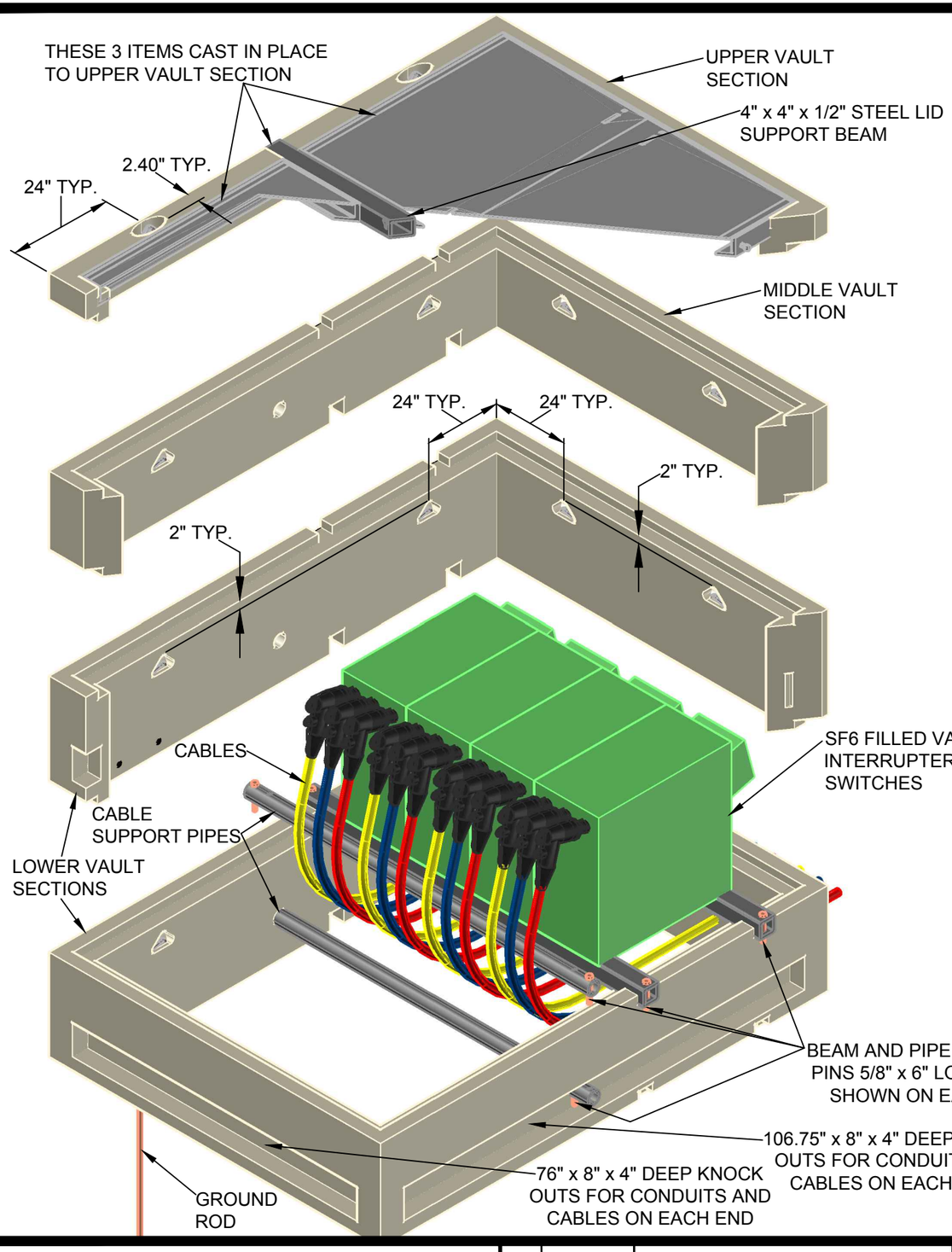


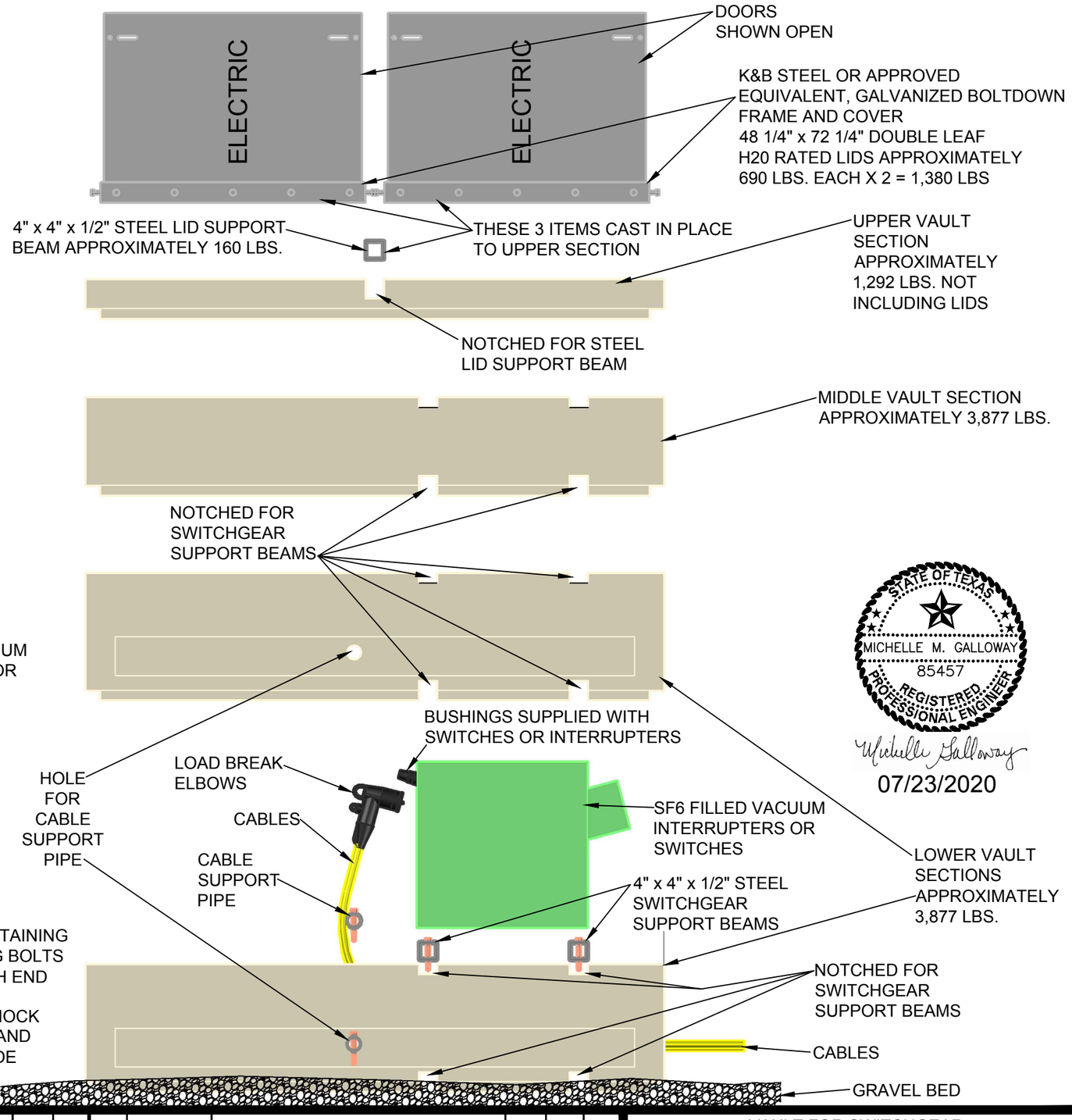
REV	A	DATE	02/15/2019	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

LID FOR SUBMERSIBLE SWITCHGEAR AND SPLICE BOX (FOR USE WITH VAULT 530-050)

drawn:	approved:	date:	530-051
RWC	MMG	02/15/2019	





STATE OF TEXAS
MICHELLE M. GALLOWAY
85457
REGISTERED PROFESSIONAL ENGINEER

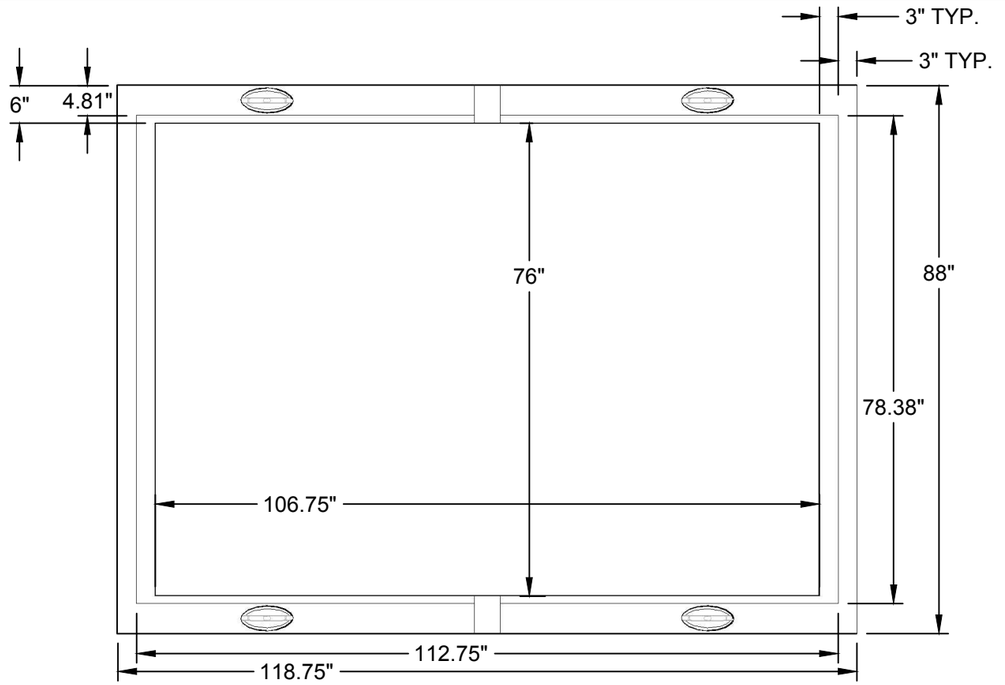
07/23/2020

UNDERGROUND INSTALLATION SPECIFICATIONS

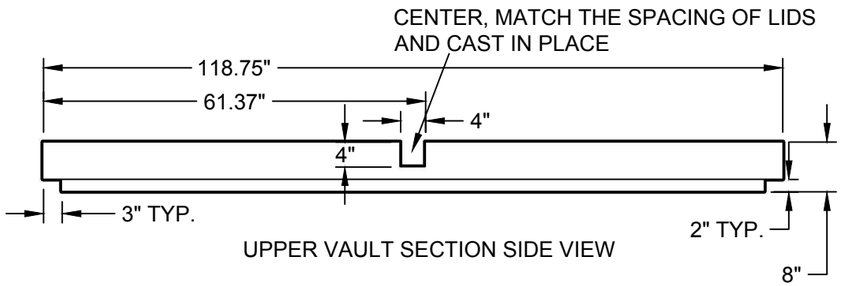
REV	DATE	REVISION	BY	CHK	APR
B	07/23/2020	GROUND ROD TO 3/4" X 10'	RWC	SSS	MMG

VAULT FOR SWITCHGEAR
STACKABLE SECTIONS WITH SQUARE STEEL TUBING FOR SWITCHGEAR SUPPORT AND TWO SETS DOUBLE DOOR CAST-IN-PLACE LIDS

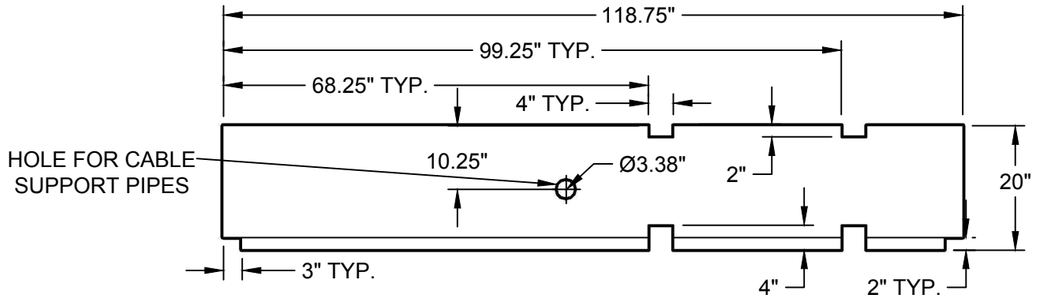
drawn:	approved:	date:	
RWC	MMG	07/23/2020	530-052 PAGE 1 OF 4



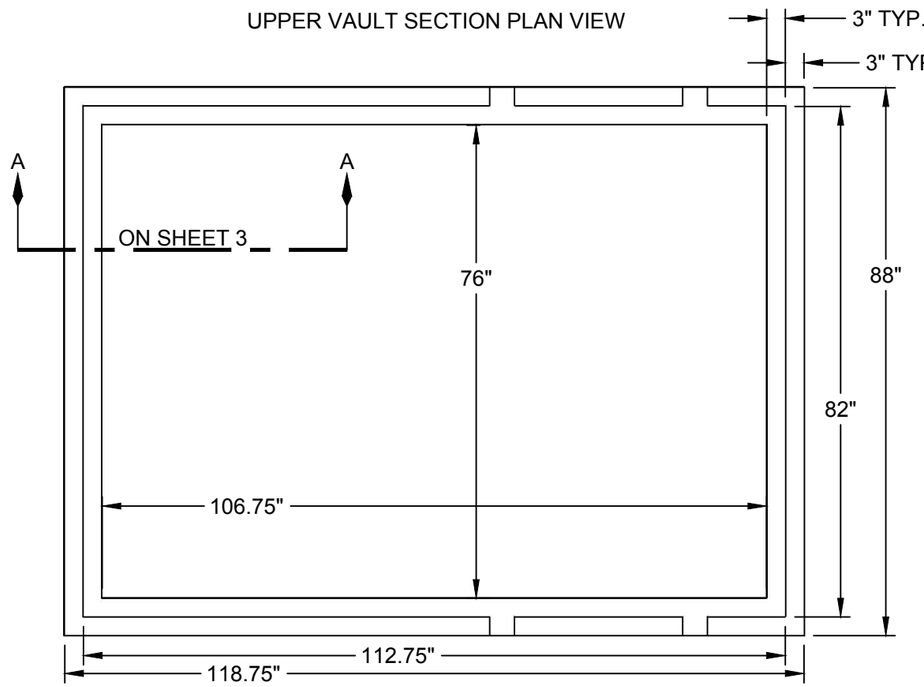
UPPER VAULT SECTION PLAN VIEW



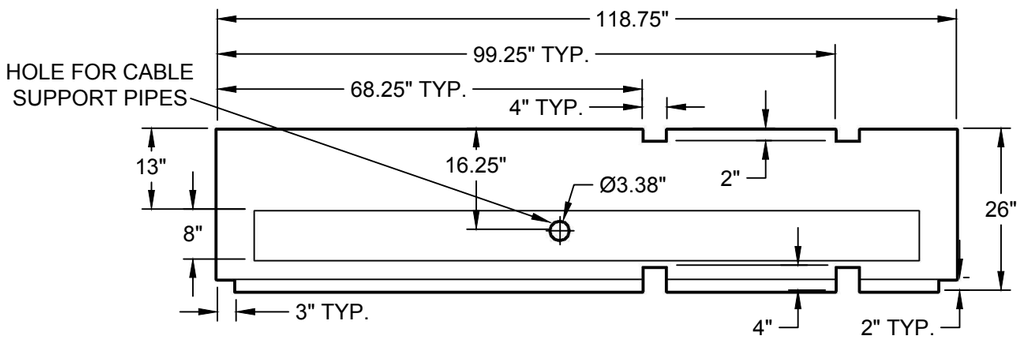
UPPER VAULT SECTION SIDE VIEW



MIDDLE VAULT SECTION SIDE VIEW



MIDDLE AND LOWER VAULT SECTION PLAN VIEW



LOWER VAULT SECTION SIDE VIEW

STATE OF TEXAS
MICHELLE M. GALLOWAY
85457
REGISTERED PROFESSIONAL ENGINEER

Michelle Galloway

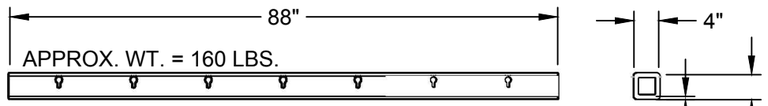
07/23/2020

UNDERGROUND INSTALLATION SPECIFICATIONS

REV	DATE	REVISION	BY	CHK	APR
B	07/23/2020	GROUND ROD TO 3/4" X 10'	RWC	SSS	MMG

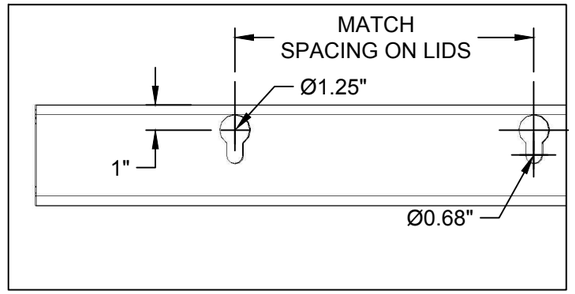
VAULT FOR SWITCHGEAR
STACKABLE SECTIONS WITH SQUARE STEEL TUBING FOR SWITCHGEAR SUPPORT AND TWO SETS DOUBLE DOOR CAST-IN-PLACE LIDS

drawn:	approved:	date:	
RWC	MMG	07/23/2020	530-052 PAGE 2 OF 4

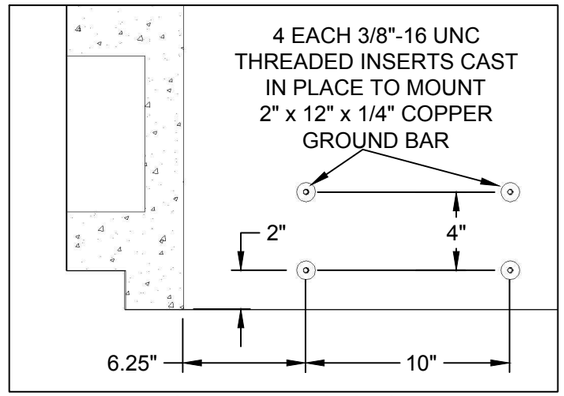


4" x 4" x 1/2" SQUARE STEEL TUBING. CUT KEYHOLES MATCHING THE SPACING OF NELSON STUDS ON LIDS, ASSEMBLE TO LIDS AND CAST IN PLACE.

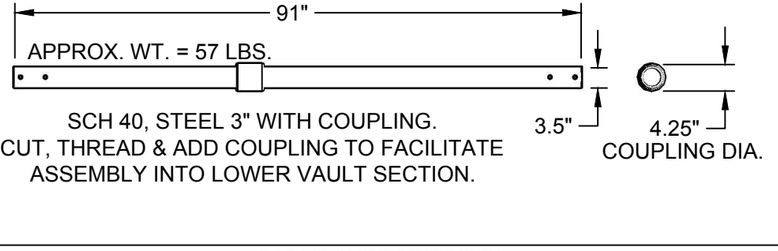
LID SPACING BEAM



LID SPACING BEAM DRILLING DETAIL
(BOTH SIDES)

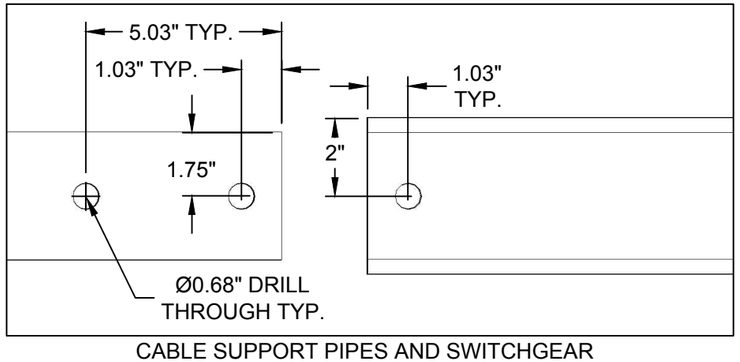


LOWER VAULT SECTION A-A

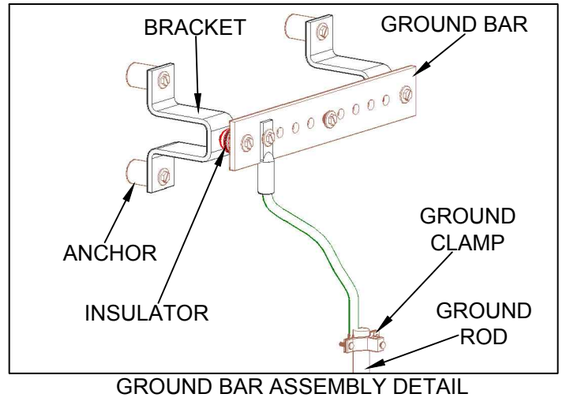


SCH 40, STEEL 3" WITH COUPLING.
CUT, THREAD & ADD COUPLING TO FACILITATE ASSEMBLY INTO LOWER VAULT SECTION.

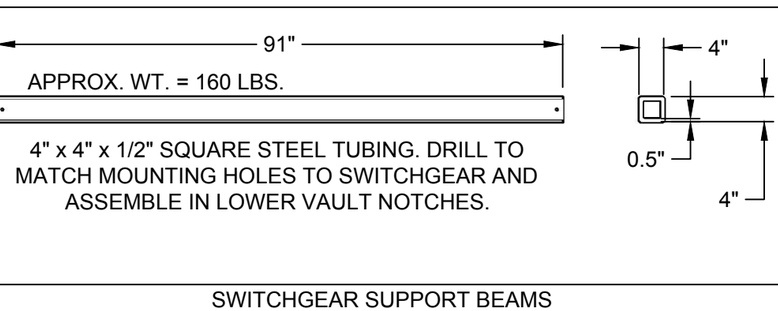
CABLE SUPPORT PIPES



CABLE SUPPORT PIPES AND SWITCHGEAR
SUPPORT BEAMS DRILLING DETAIL
(BOTH ENDS)



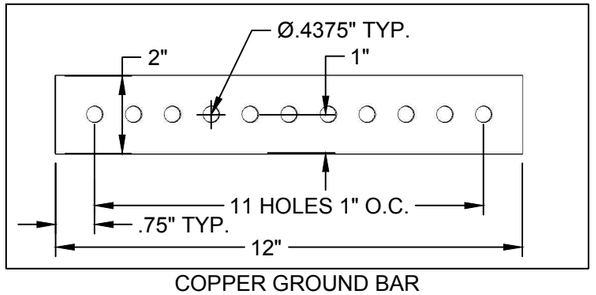
GROUND BAR ASSEMBLY DETAIL



4" x 4" x 1/2" SQUARE STEEL TUBING. DRILL TO MATCH MOUNTING HOLES TO SWITCHGEAR AND ASSEMBLE IN LOWER VAULT NOTCHES.

SWITCHGEAR SUPPORT BEAMS

07/23/2020



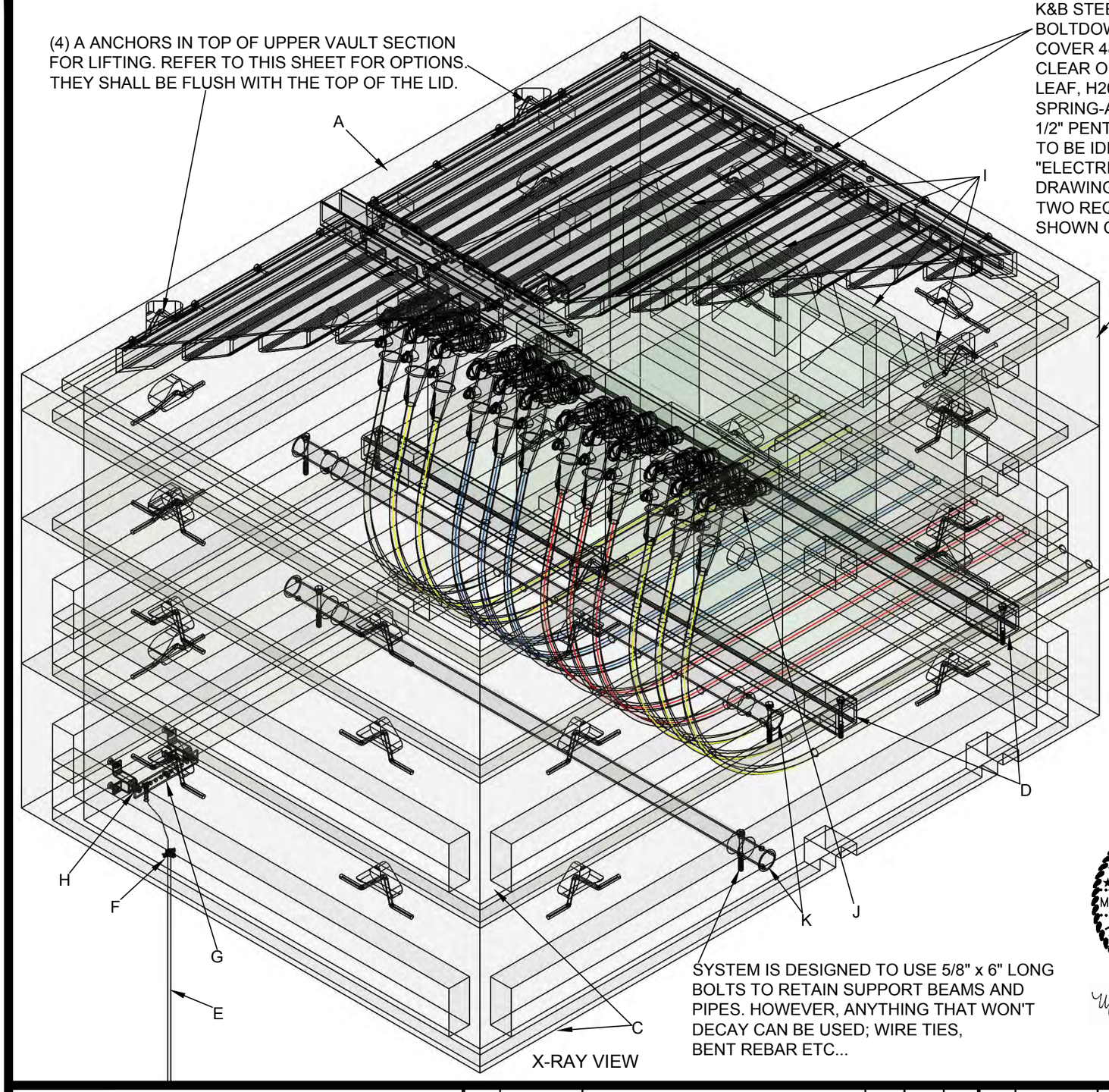
COPPER GROUND BAR

UNDERGROUND
INSTALLATION
SPECIFICATIONS

REV	DATE	REVISION	BY	CHK	APR
B	07/23/2020	GROUND ROD TO 3/4" X 10'	RWC	SSS	MMG

VAULT FOR SWITCHGEAR
STACKABLE SECTIONS WITH SQUARE STEEL TUBING FOR SWITCHGEAR SUPPORT AND TWO SETS DOUBLE DOOR CAST IN PLACE LIDS

drawn:	approved:	date:	
RWC	MMG	07/23/2020	530-052 PAGE 3 OF 4



X-RAY VIEW

SYSTEM IS DESIGNED TO USE 5/8" x 6" LONG BOLTS TO RETAIN SUPPORT BEAMS AND PIPES. HOWEVER, ANYTHING THAT WON'T DECAY CAN BE USED; WIRE TIES, BENT REBAR ETC...

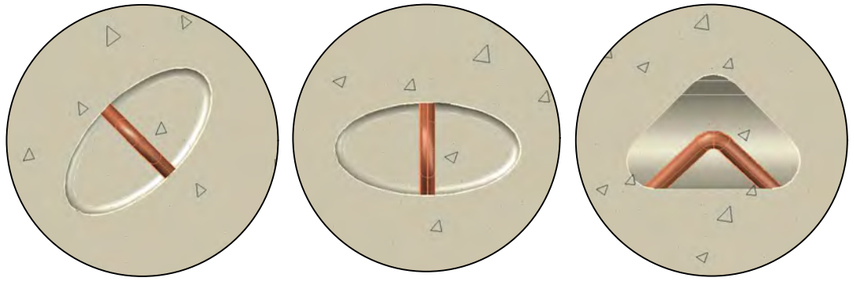
GENERAL NOTES:

- ALL CONCRETE TO HAVE 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60. BAR BENDING AND PLACEMENT SHALL COMPLY WITH LATEST ACI STANDARDS. DESIGN BASED ON AASHTO HS 20-44 LOADING.
- ALL LIFTING AND PULLING EYES SHALL BE RATED FOR A MINIMUM 5,000 POUNDS EACH.
- LIFTING AND PULLING EYE SHAPES AND DIMENSIONS CAN VARY, SO LONG AS FORM, FIT AND FUNCTION ARE SATISFIED.
- ANCHORS IN SIDE WALLS OF VAULT SECTIONS FOR LIFTING CAN BE ANGLED AT 45° AS SHOWN OR STRAIGHT. THEY SHALL BE FLUSH WITH THE SIDE WALLS.

ITEM	DESCRIPTION	QTY
A	UPPER VAULT SECTION WITH CAST-IN-PLACE LIDS AND 4" x 4" x 1/2" SQUARE TUBE CENTER SUPPORT BEAM	1
B	MIDDLE VAULT SECTION WITH (INSTALL IF REQUIRED) CABLE SUPPORT PIPE AND GROUND BAR MOUNTING INSERTS	1
C	LOWER VAULT SECTION WITH (INSTALL IF REQUIRED) CABLE SUPPORT PIPE AND GROUND BAR MOUNTING INSERTS	2
D	4" x 4" x 1/2" STEEL SQUARE TUBE SWITCHGEAR SUPPORT BEAMS DRILLED TO MATCH SWITCHGEAR MOUNTING HOLES AS SHOWN ON PAGE 3	2
E	GROUND ROD 3/4" x 10' COPPER	1
F	GROUND ROD CLAMPING NUT 7/8" & GROUND WIRE	1
G	2" x 12" x 1/4" COPPER GROUND BAR DRILLED AS SHOWN ON PAGE 3	1
H	GROUND BAR MOUNTING INSULATORS	2
I	SWITCHGEAR UNDERGROUND SF6 GAS FILLED	1
J	CONNECTOR URD LOAD BREAK ELBOW 25kV	12
K	3" SCH 40 STEEL PIPE WITH COUPLING CUT AND DRILLED FOR RETAINING BOLTS AS SHOWN ON PAGE 3	AS REQ'D
* DENOTES "GRAB BAG" ITEM		

STATE OF TEXAS
MICHELLE M. GALLOWAY
85457
REGISTERED PROFESSIONAL ENGINEER

07/23/2020



LIFTING EYE AND CABLE PULLING EYE OPTIONS

UNDERGROUND INSTALLATION SPECIFICATIONS

REV	DATE	REVISION	BY	CHK	APR
B	07/23/2020	GROUND ROD TO 3/4" X 10'	RWC	SSS	MMG

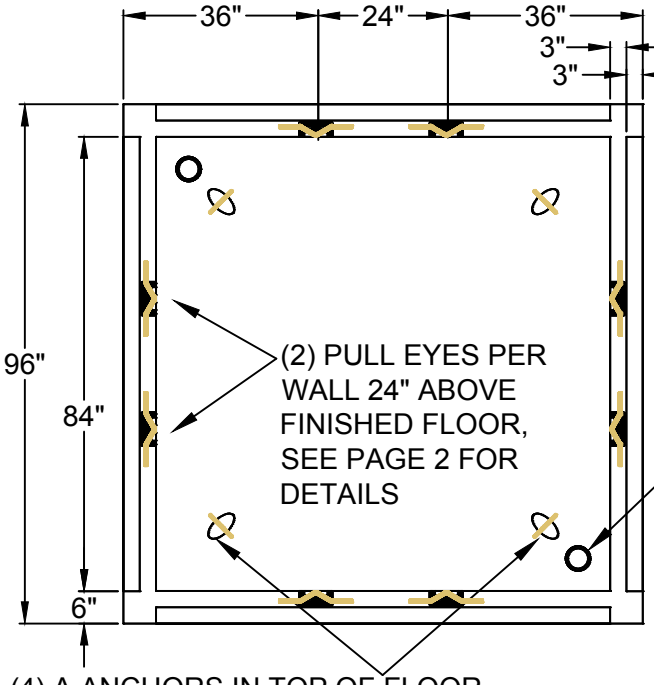
VAULT FOR SWITCHGEAR
STACKABLE SECTIONS WITH SQUARE STEEL TUBING FOR SWITCHGEAR SUPPORT AND TWO SETS DOUBLE DOOR CAST-IN-PLACE LIDS

drawn:	approved:	date:
RWC	MMG	07/23/2020

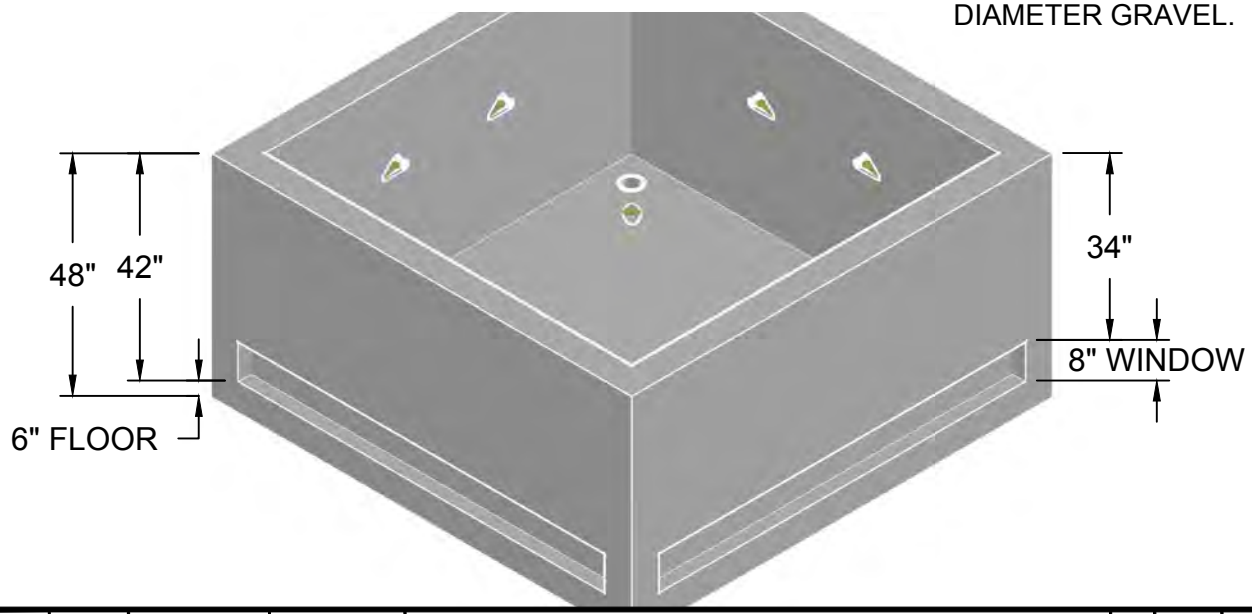
530-052

NOTES:

1) EACH SIDE WALL SHALL HAVE TWO PULLING EYES LOCATED 24" APART, EVENLY SPACED BETWEEN INSIDE WALLS, AND 24" FROM THE BOTTOM OF THE VAULT.
2) ALL PULLING IRONS SHALL BE RATED FOR A MINIMUM OF 5,000 POUNDS EACH.
3) 6" ABOVE THE BOTTOM OF THE VAULT, AN 8" KNOCKOUT SHALL EXTEND AROUND THE ENTIRE PERIMETER OF THE VAULT (EXCEPT FOR 6" FROM EACH CORNER) FOR CONDUIT TO BE BROUGHT IN. KNOCKOUTS SHOULD BE 3" THICK AND FLUSH WITH THE INSIDE OF THE VAULT. THE VAULT SHALL BE 48" DEEP.
4) THE VAULT SHALL BE INSTALLED ON A MINIMUM 6" DEEP BED OF 1/2" TO 3/4" DIAMETER GRAVEL.



5) EACH VAULT SHALL BE SUPPLIED WITH EITHER A 3/4" X 10' GROUND ROD DRIVEN IN THE VAULT FLOOR OR A MINIMUM 100 FEET OF #6 BARE COPPER WIRE BURIED NO LESS THAN 18" DEEP IN THE EARTH AND MEETING THE NATIONAL ELECTRICAL SAFETY CODE RULE #094B3.
6) ALL CONCRETE TO HAVE 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60. BAR BENDING AND PLACEMENT SHALL COMPLY WITH LATEST ACI STANDARDS. DESIGN BASED ON AASHTO HS 20-44 LOADING.
7) LIFTING AND PULLING EYE SHAPES AND DIMENSIONS CAN VARY, SO LONG AS FORM, FIT AND FUNCTION ARE SATISFIED.
8) VAULT CAN BE MADE WITH NO BOTTOM. IT WILL BE 48" TALL, WITH 4 WALLS ON A BED OF 1/2" TO 3/4" DIAMETER GRAVEL.

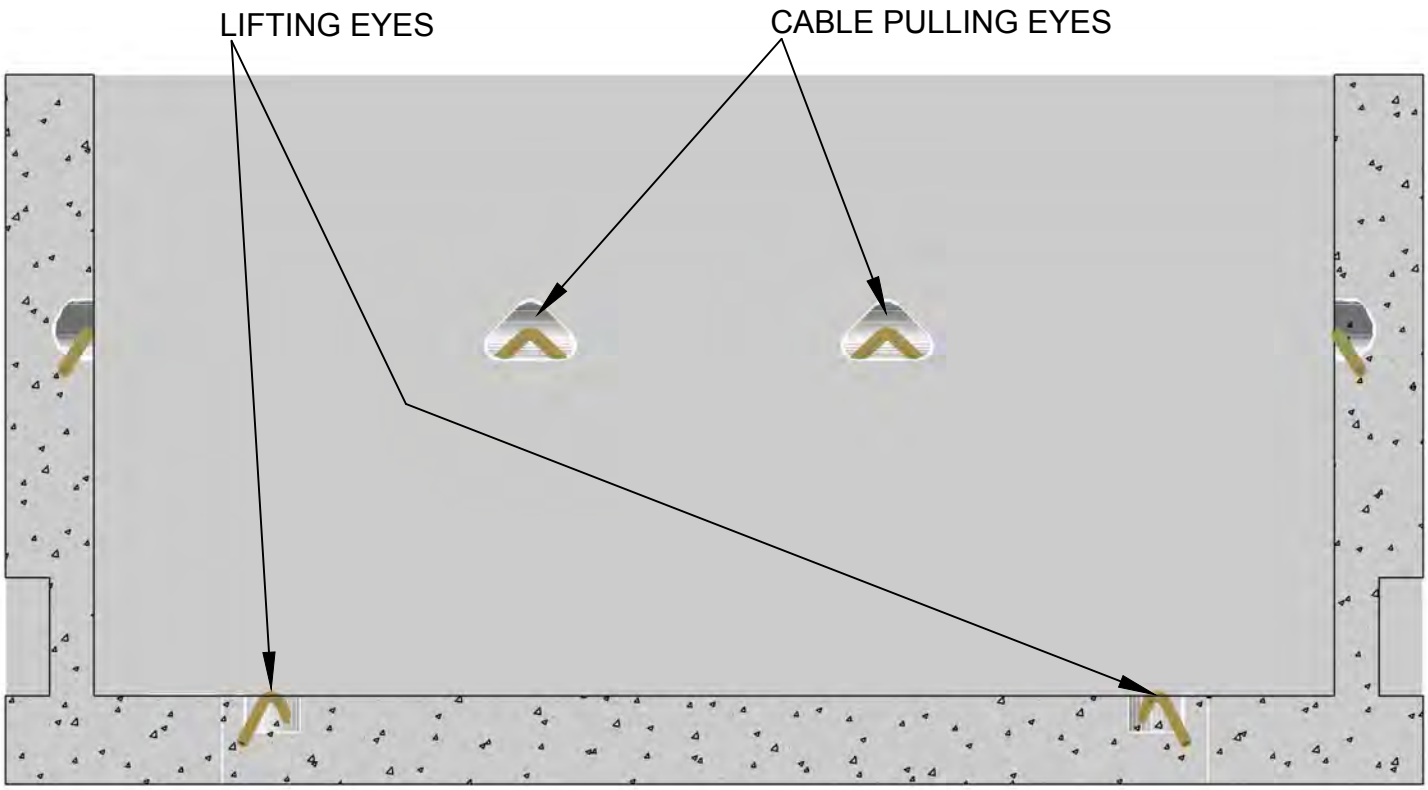


REV	C	DATE	07/23/2020	REVISION	NOTE 5: 3/4" X 10' GROUND ROD WAS 8' GROUND ROD	BY	RWC	CHK	SSS	APR	MMG

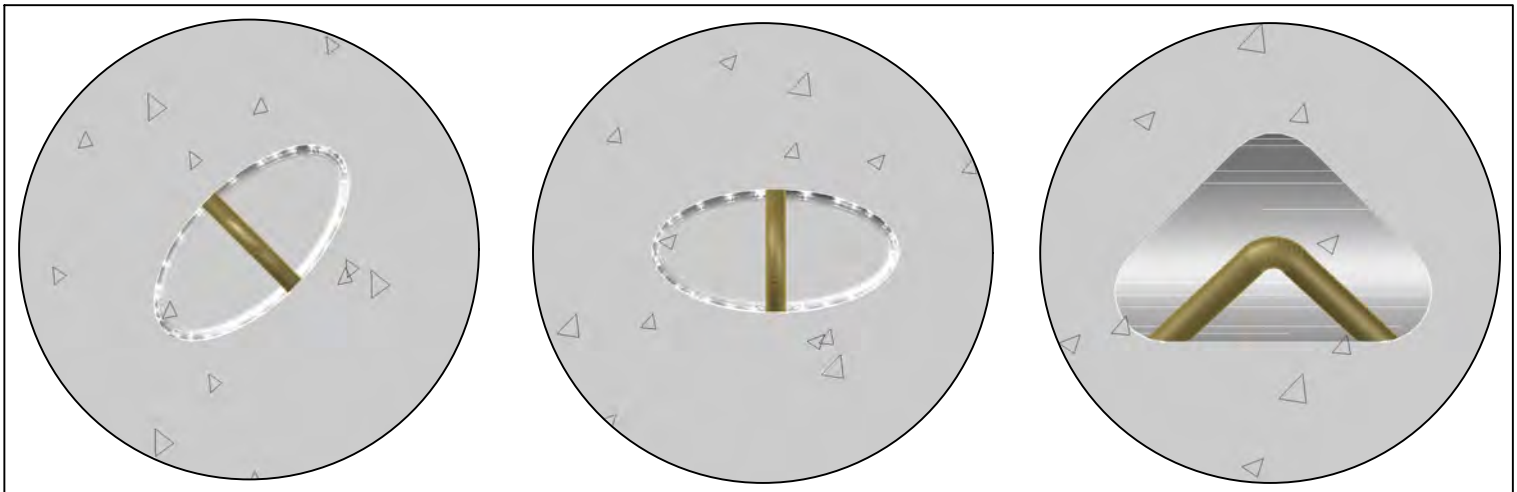
UNDERGROUND INSTALLATION SPECIFICATIONS

VAULT FOR DEAD FRONT, ABOVE-GROUND SWITCHGEAR
PAGE 1 OF 2

drawn:	approved:	date:	530-090
RWC	MMG	07/23/2020	



SECTION THROUGH LIFTING EYES AND CABLE PULLING EYES



LIFTING EYE AND CABLE PULLING EYE OPTIONS

REV	C	DATE	07/23/2020	REVISION	NOTE 5: 3/4" X 10' GROUND ROD WAS 8' GROUND ROD	BY	RWC	CHK	SSS	APR	MMG

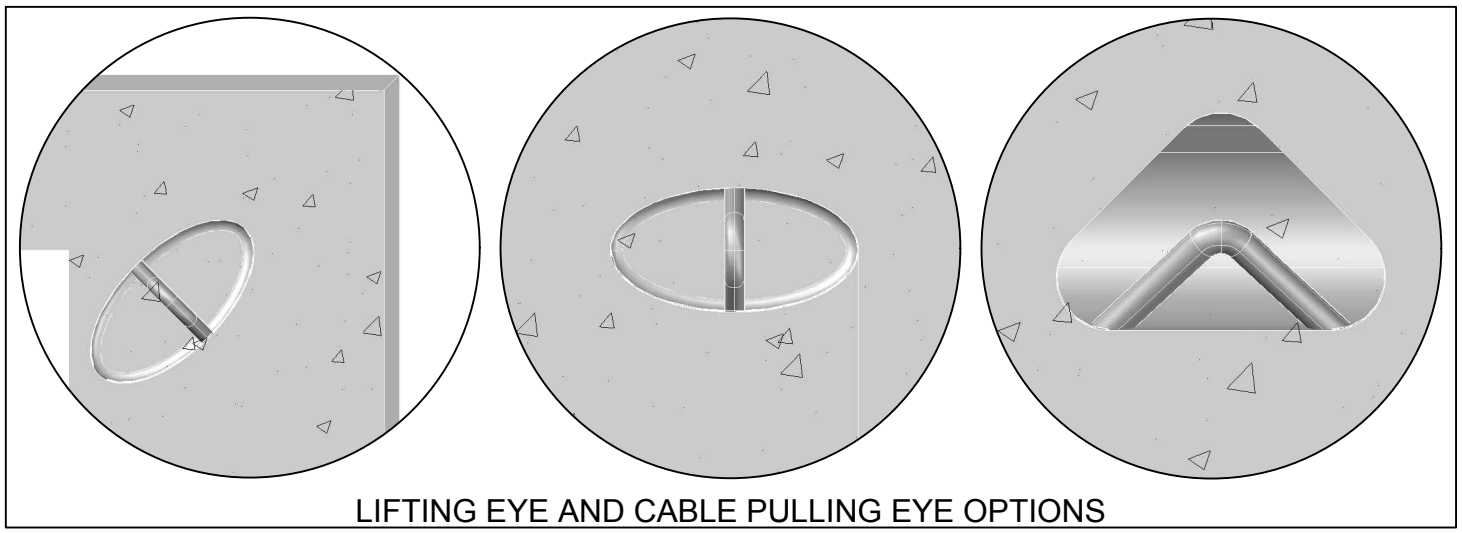
UNDERGROUND INSTALLATION SPECIFICATIONS

VAULT FOR DEAD FRONT, ABOVE-GROUND SWITCHGEAR
PAGE 2 OF 2

drawn:	approved:	date:	530-090
RWC	MMG	07/23/2020	

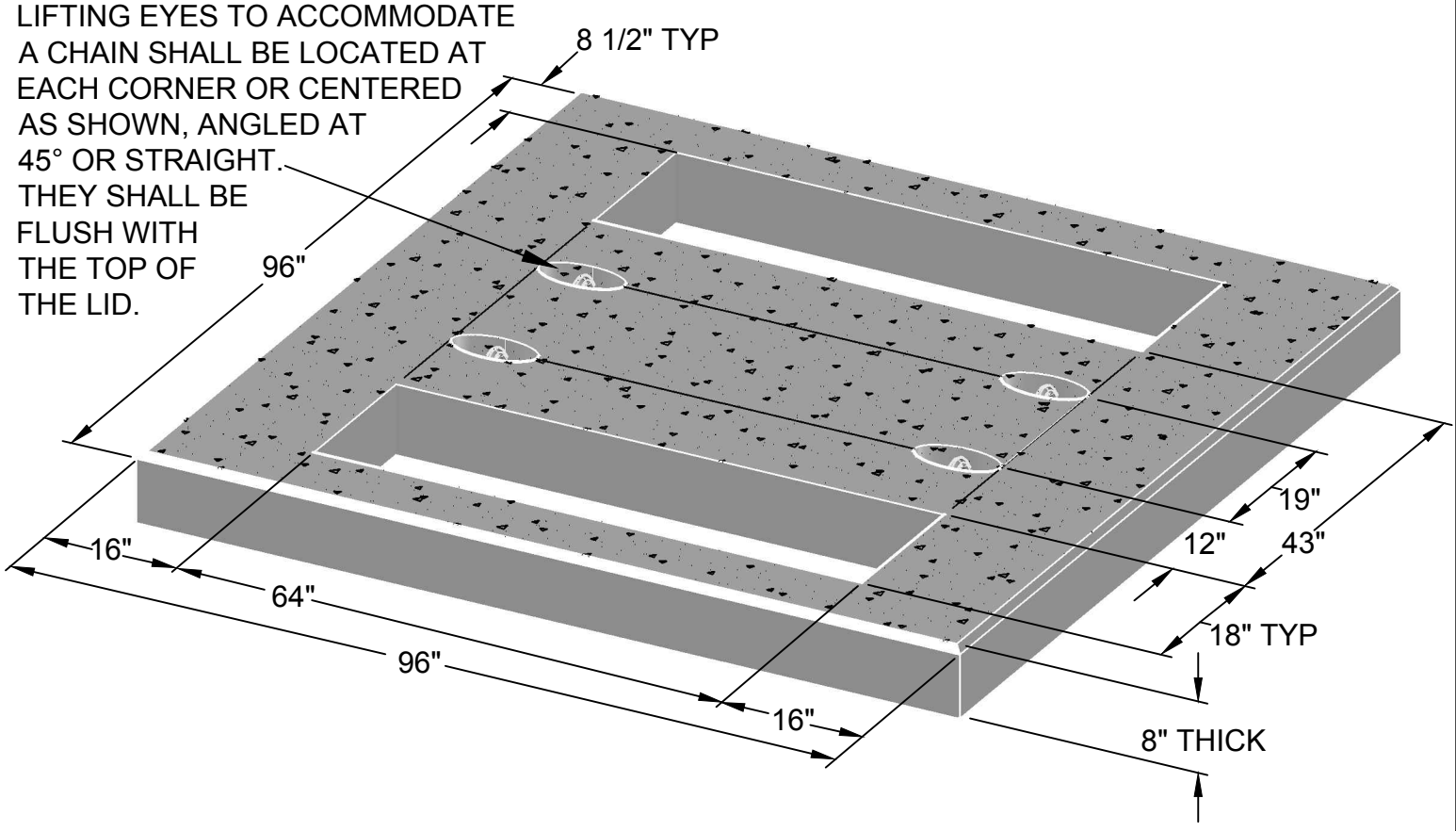
GENERAL NOTES:

- ALL CONCRETE TO HAVE 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60. BAR BENDING AND PLACEMENT SHALL COMPLY WITH LATEST ACI STANDARDS. DESIGN BASED ON AASHTO HS 20-44 LOADING.
- ALL LIFTING AND PULLING EYES SHALL BE RATED FOR A MINIMUM 5,000 POUNDS EACH.
- LIFTING AND PULLING EYE SHAPES AND DIMENSIONS CAN VARY, SO LONG AS FORM, FIT AND FUNCTION ARE SATISFIED.



LIFTING EYE AND CABLE PULLING EYE OPTIONS

LIFTING EYES TO ACCOMMODATE A CHAIN SHALL BE LOCATED AT EACH CORNER OR CENTERED AS SHOWN, ANGLED AT 45° OR STRAIGHT. THEY SHALL BE FLUSH WITH THE TOP OF THE LID.



REV	B	DATE	02/05/2019	REVISION	CHANGED POSITION OF ANCHORS	BY	RWC	CHK	EJD	APR	MMG

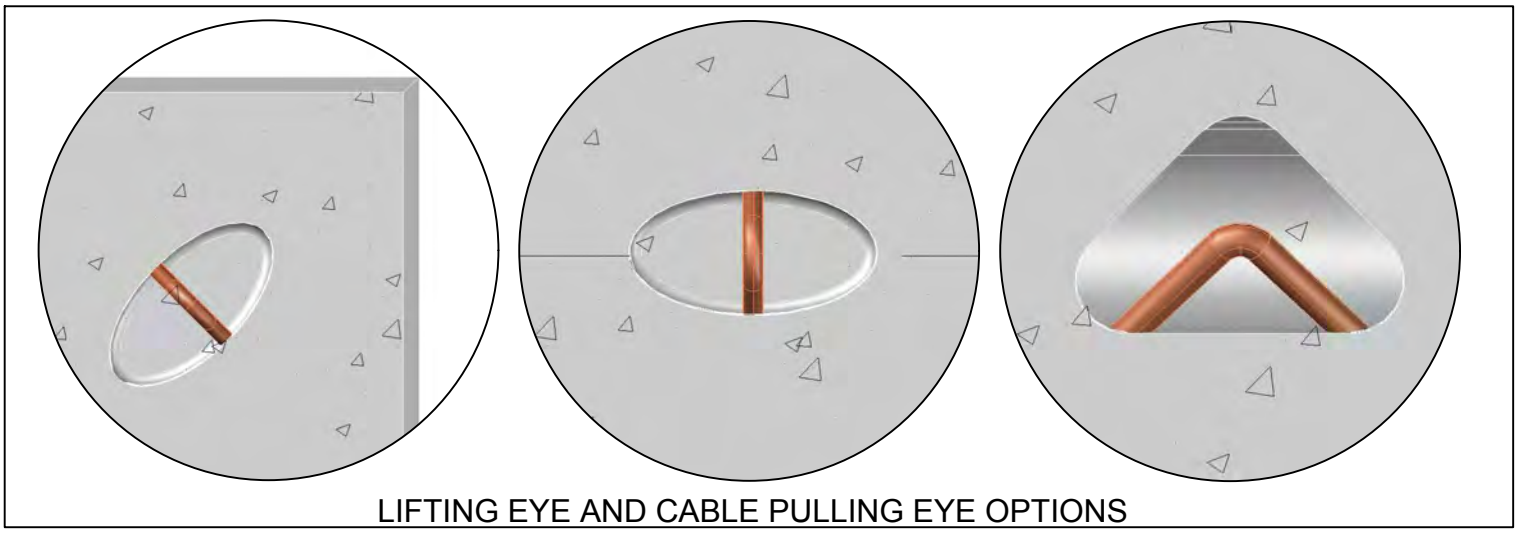
UNDERGROUND INSTALLATION SPECIFICATIONS

LID FOR DEAD FRONT AND ABOVE GROUND SWITCHGEAR (FOR USE ON VAULT 530-090)

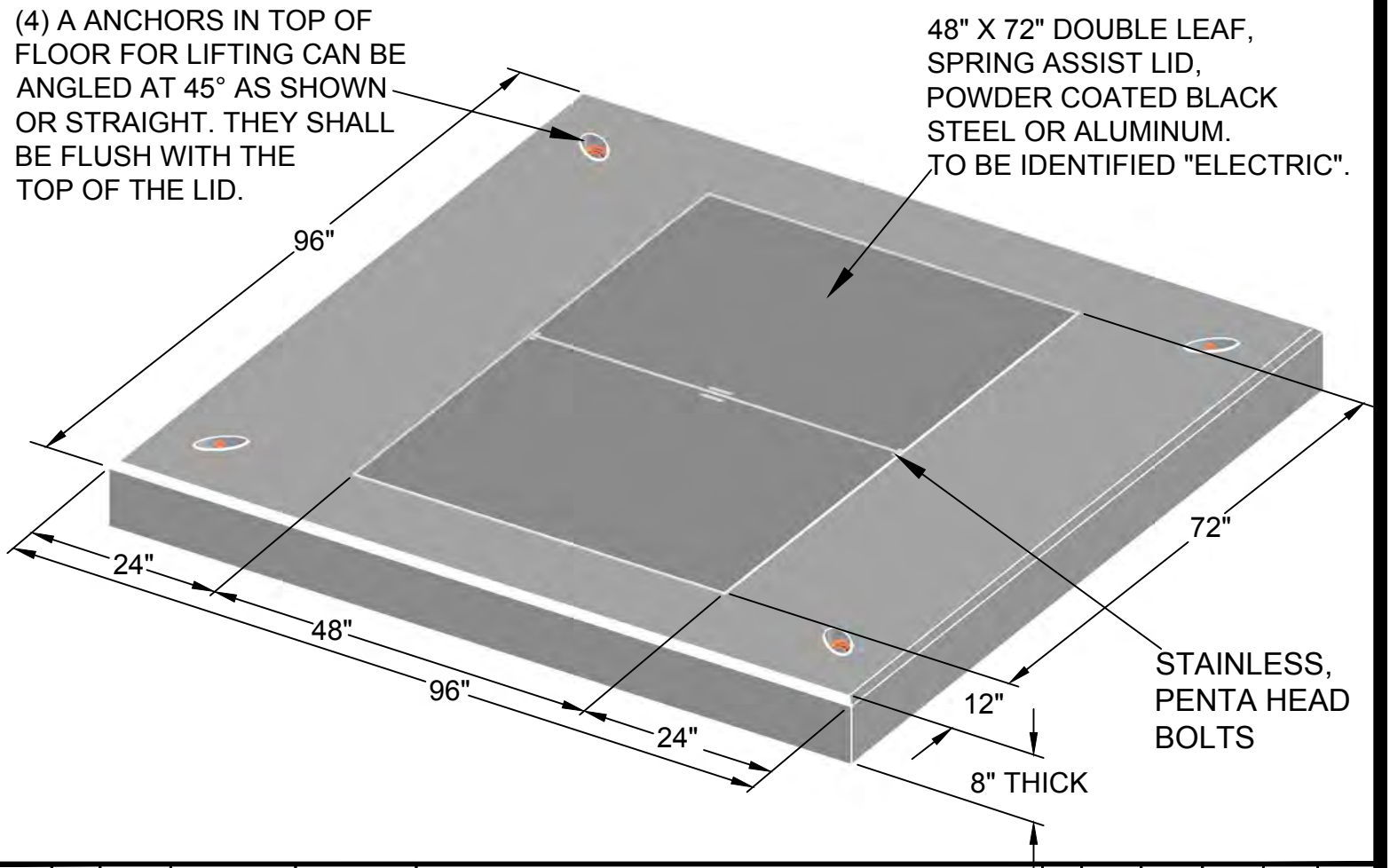
drawn:	approved:	date:	530-091
RWC	MMG	02/05/2019	

GENERAL NOTES:

- ALL CONCRETE TO HAVE 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60. BAR BENDING AND PLACEMENT SHALL COMPLY WITH LATEST ACI STANDARDS. DESIGN BASED ON AASHTO HS 20-44 LOADING.
- ALL LIFTING AND PULLING EYES SHALL BE RATED FOR A MINIMUM 5,000 POUNDS EACH.
- LIFTING AND PULLING EYE SHAPES AND DIMENSIONS CAN VARY, SO LONG AS FORM, FIT AND FUNCTION ARE SATISFIED.



LIFTING EYE AND CABLE PULLING EYE OPTIONS



REV	B	DATE	02/12/2019	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

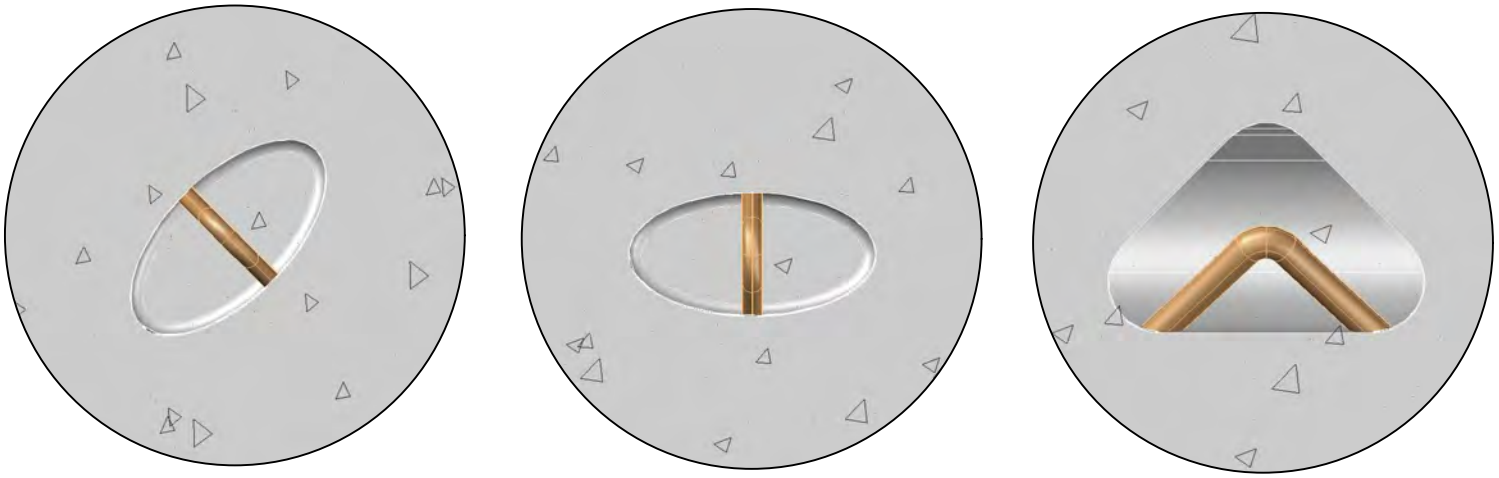
UNDERGROUND INSTALLATION SPECIFICATIONS

LID FOR SUBMERSIBLE SWITCHGEAR AND SPLICE BOX (FOR USE WITH VAULT 530-090)

drawn:	approved:	date:	530-092
RWC	MMG	02/12/2019	

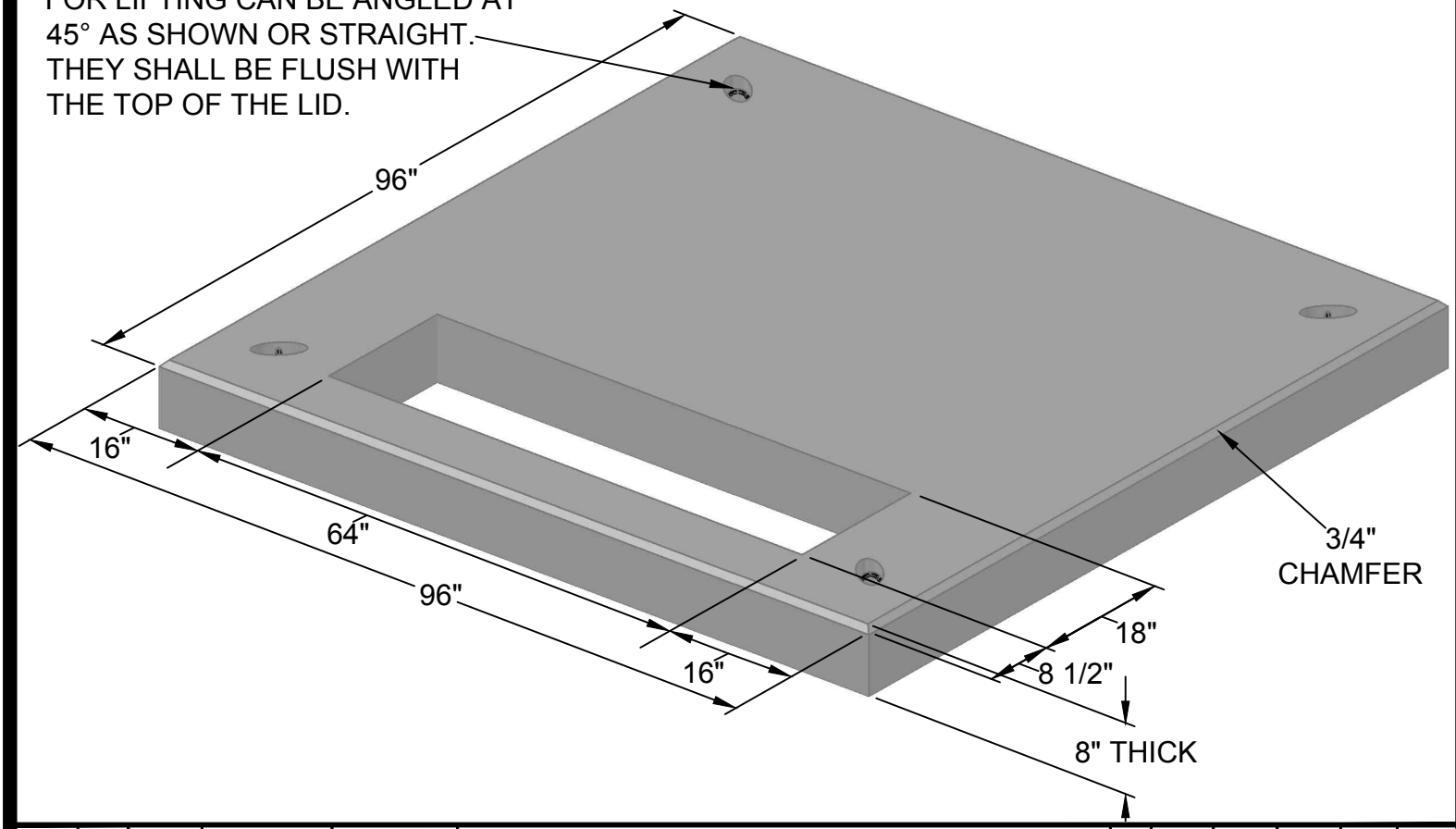
GENERAL NOTES:

- ALL CONCRETE TO HAVE 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI. REINFORCING STEEL SHALL COMPLY WITH ASTM A615 GRADE 60. BAR BENDING AND PLACEMENT SHALL COMPLY WITH LATEST ACI STANDARDS. DESIGN BASED ON AASHTO HS 20-44 LOADING.
- ALL LIFTING AND PULLING EYES SHALL BE RATED FOR A MINIMUM 5,000 POUNDS EACH.
- LIFTING AND PULLING EYE SHAPES AND DIMENSIONS CAN VARY, SO LONG AS FORM, FIT AND FUNCTION ARE SATISFIED.



LIFTING EYE AND CABLE PULLING EYE OPTIONS

(4) A ANCHORS IN TOP OF FLOOR FOR LIFTING CAN BE ANGLED AT 45° AS SHOWN OR STRAIGHT. THEY SHALL BE FLUSH WITH THE TOP OF THE LID.



REV	A	DATE	02/15/2019	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	EJD	APR	MMG

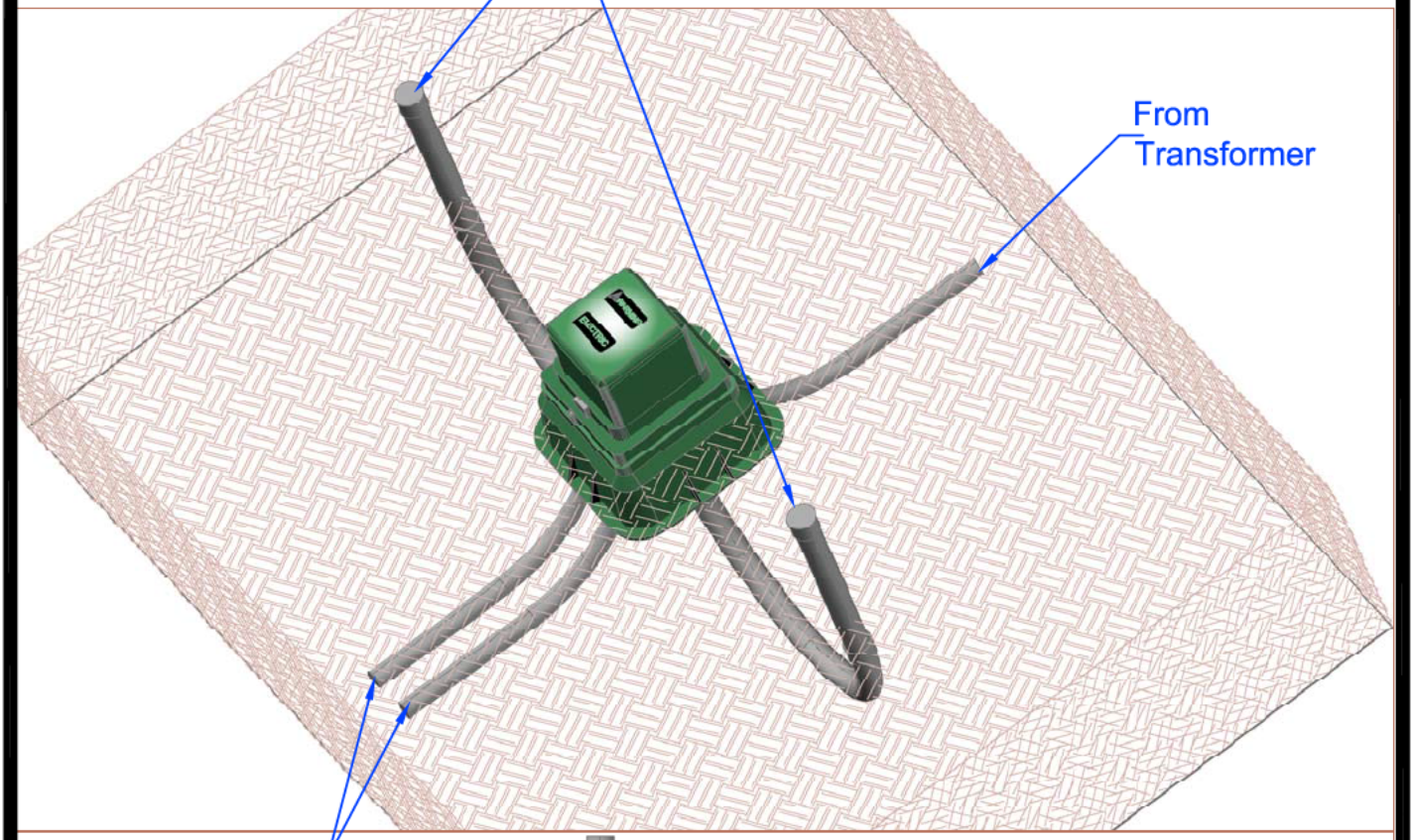
UNDERGROUND INSTALLATION SPECIFICATIONS

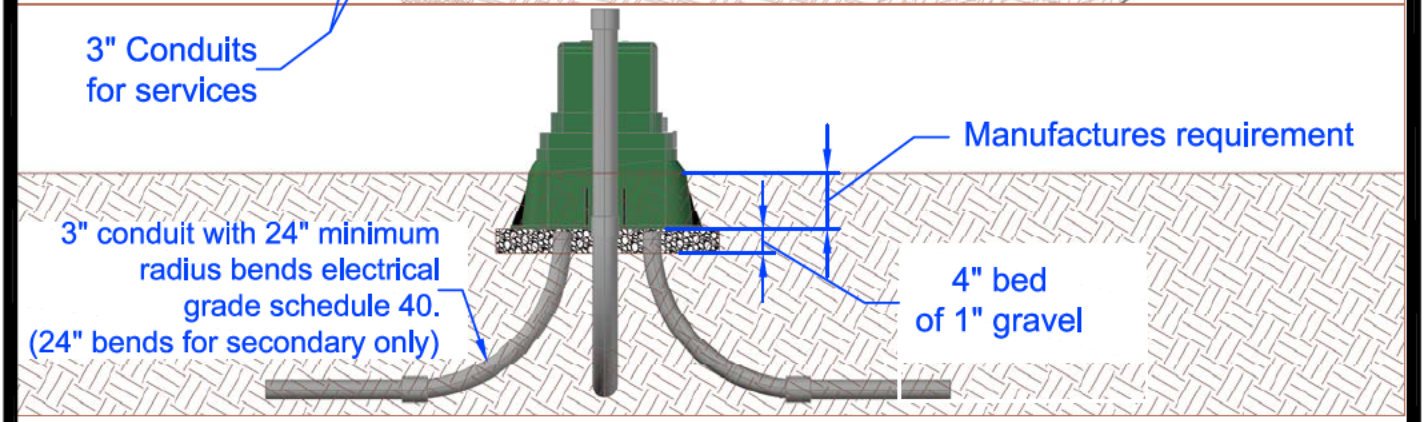
LID FOR DEAD-FRONT AND ABOVE-GROUND SWITCHGEAR SINGLE WINDOW (FOR USE ON VAULT 530-090)

drawn:	approved:	date:	530-093
RWC	MMG	02/15/2019	

Approved Enclosures:
Nordic PSP-151530-MG
Pencell AG18HDX-PECEWB

2-2" x 24" Radius Bends with Cap end. For each temporary hookup (two places). As required by Member. All conduits to enter vertically thru gravel bed in bottom of enclosure.





Secondary Enclosure Installation Instructions

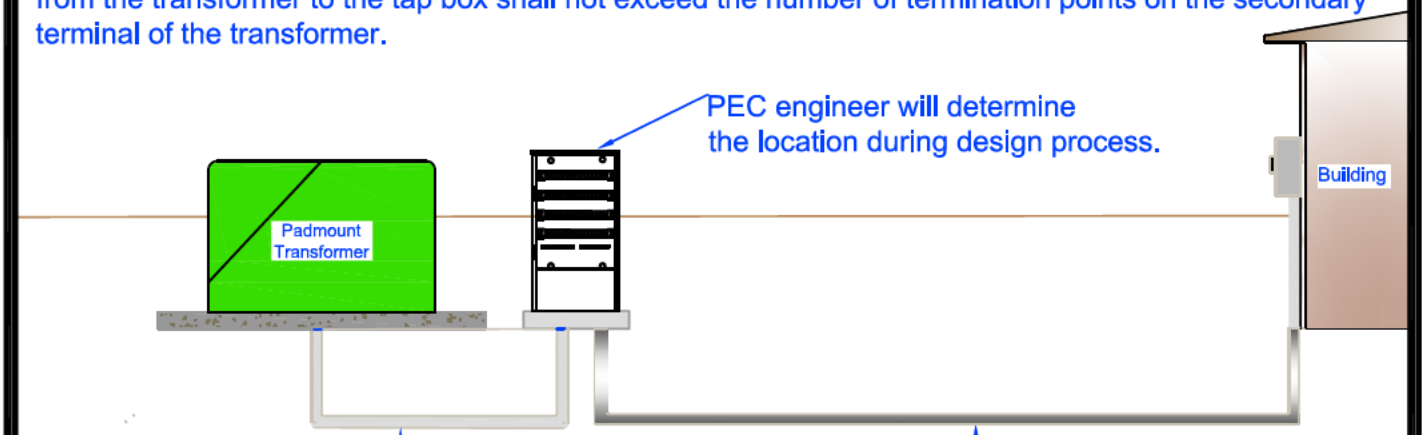
1) Excavate the hole approximately four inches deeper than the suggested pedestal Burial Depth.
2) Compact the soil.
3) Add approximately four inches of 1" gravel to the bottom of the hole.
4) Compact and level the ground.
5) Place the pedestal into the hole.
6) Level the pedestal.
7) Back-fill with loose earth material.
8) Do not back-fill with chunks of frozen material or large rocks next to the pedestal.
9) Pack the back-fill material by foot tamping.

PEDERNALES ELECTRIC COOPERATIVE, INC.
URD DEVELOPER'S SPECIFICATIONS

Secondary Enclosure

drawn:	approved	date:	drawing number:
JBS	MJB	March 8, 2013	550-020-0911

For Commercial/Industrial/multi-family residential underground services where the meter or a bank of meters is to be located on the building or adjacent to the load, the service (cable, conduit, and trench) from the transformer to the load will be provided by the Member/developer.
In those cases where the number of service cables will exceed the number of the termination points on the secondary terminal of the transformer, a tap box (per PEC Specifications) is to be provided by the Member/developer. The Member/developer will provide the service, from the transformer to the tap box to the load. With mutual agreement between PEC and the member/develper, PEC can provide the cable from the transformer to the tap box at the member/developer's expense. The number of cables from the transformer to the tap box shall not exceed the number of termination points on the secondary terminal of the transformer.

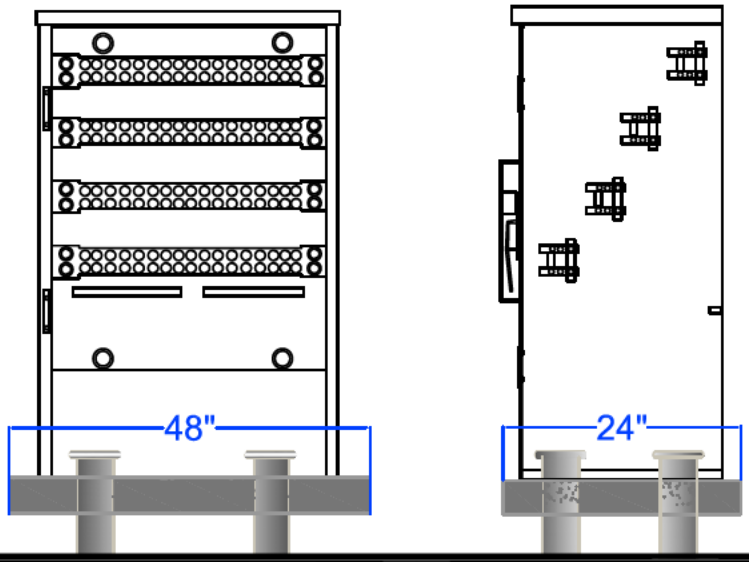


Ditch, conduit, and secondary cable will be provided by Developer. PEC can provide the cable at member/developer expense. Note: Cable expense is not part of the CIAC allowance.

Ditch, conduit, and secondary cable will be provided by Developer.

Tap Box

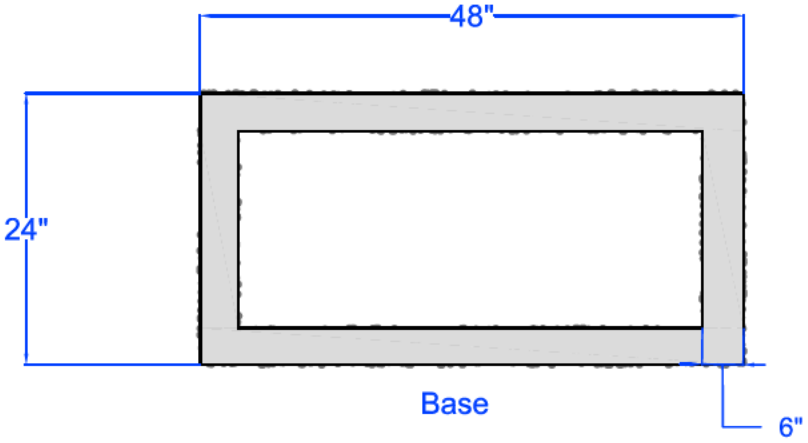
Manufacturer	Part Number
Mllbank 500kcmll 22 posltlon	UAP6095-O-NES
Barfield/Hubbell Up to 500kcmil 19 position	LWTE19-500LI

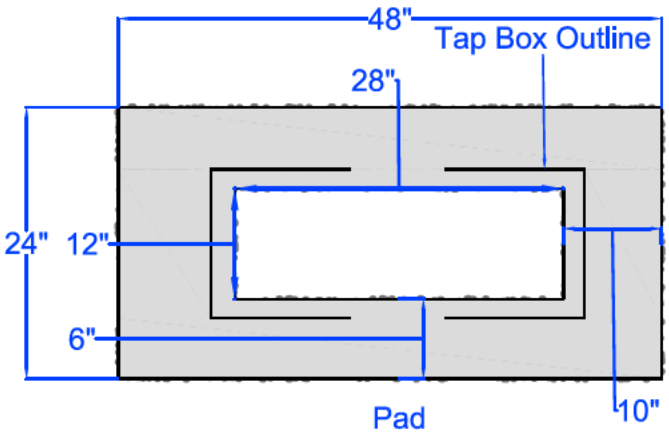


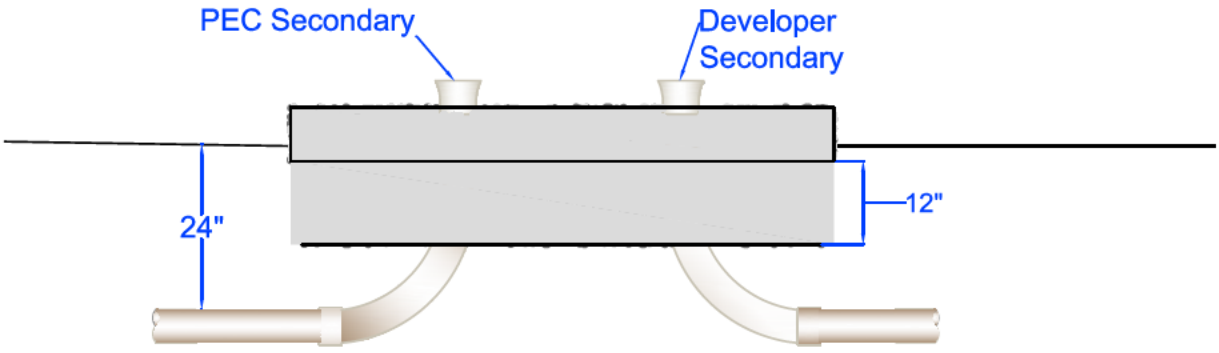
PEDERNALES ELECTRIC. COOPERATIVE, INC.

Tap Box

drawn:	approved	date:	
REB	MJB	November 20, 2015	550-021-0702







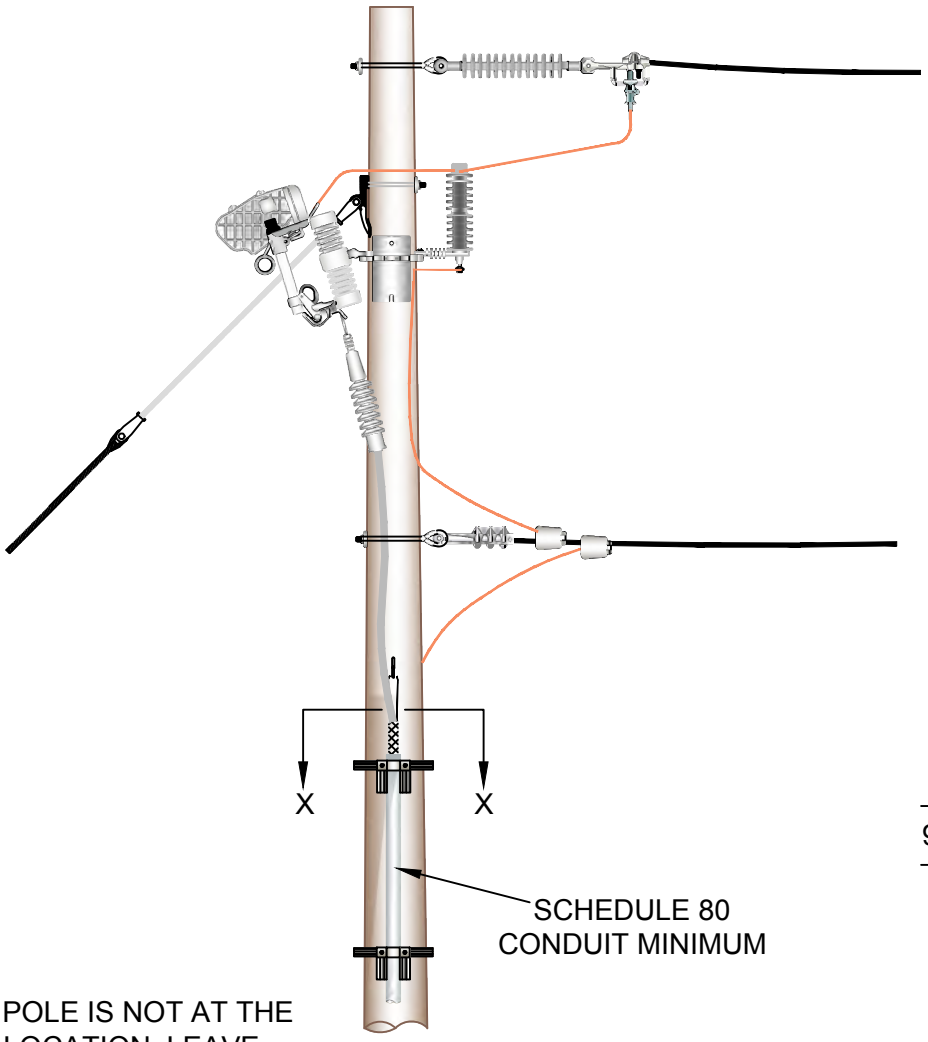
Side View

Pad to extend 4" above grade and 1½" below grade.
Number of Developer Secondaries to be determined by electrician.

PEDERNALES ELECTRIC. COOPERATIVE, INC.

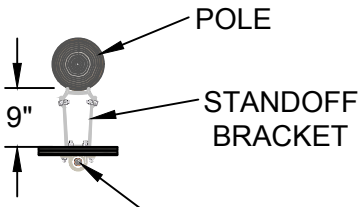
Tap Box Pad

drawn:	approved	date:	
REB	MJB	July 2, 2015	550-022-0702



RISER SHALL BE MOUNTED
AS DIRECTED BY A
PEC REPRESENTATIVE

SCHEDULE 80
CONDUIT MINIMUM



SECTION X-X

IF POLE IS NOT AT THE
LOCATION, LEAVE
CONDUIT 12" ABOVE
FINAL GRADE AND 10"
FROM POLE STAKE IF
AVAILABLE

GRADE LEVEL

RED ELECTRICAL
WARNING TAPE

SCHEDULE 80
SWEEPS

SEE TRENCH DETAIL
(DRAWINGS: 510-010, 510-012)

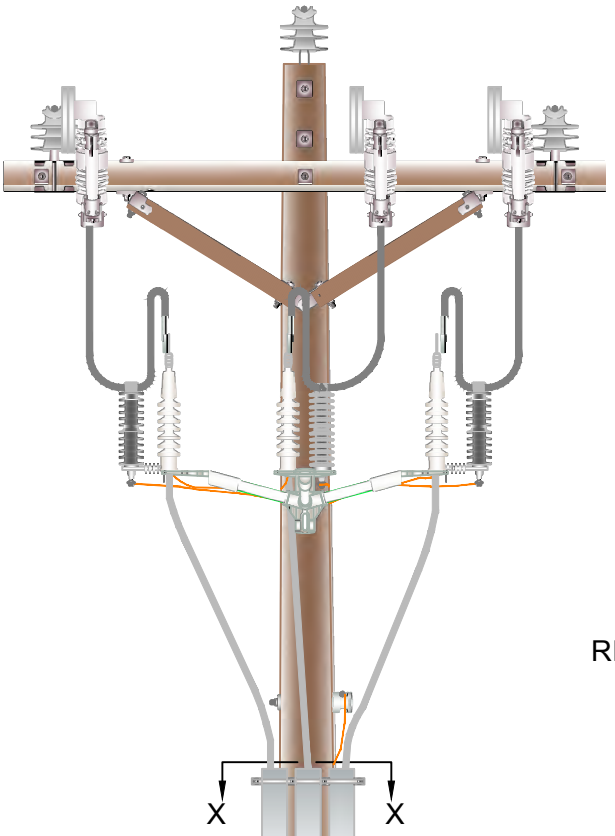
4" 3,000-PSI CONCRETE OR
300-PSI FLOWABLE FILL

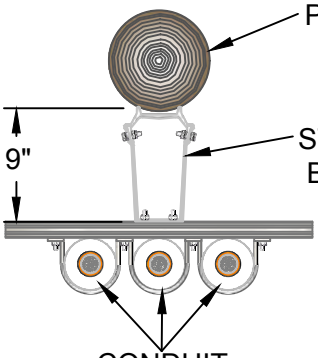
REV	A	DATE	07/09/2020	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND
INSTALLATION
SPECIFICATIONS

1Ø RISER POLE
USING STANDOFF BRACKETS

drawn:	approved:	date:	
RWC	MMG	07/09/2020	560-015





SECTION X-X

RISER SHALL BE MOUNTED
AS DIRECTED BY A
PEC REPRESENTATIVE

SCHEDULE 80
ELECTRICAL GRADE
CONDUIT MINIMUM

IF POLE IS NOT AT THE
LOCATION, LEAVE
CONDUIT 12" ABOVE
FINAL GRADE AND 10"
FROM POLE STAKE IF
AVAILABLE

GRADE LEVEL

4" 3,000-PSI CONCRETE OR
300-PSI FLOWABLE FILL

RED ELECTRICAL
WARNING TAPE

SCHEDULE 80
SWEEPS

SEE TRENCH DETAIL
(DRAWINGS: 510-020, 510-022)

REV	A	DATE	07/09/2020	REVISION	ISSUE FOR CONSTRUCTION	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND
INSTALLATION
SPECIFICATIONS

3Ø RISER POLE
USING STANDOFF BRACKETS

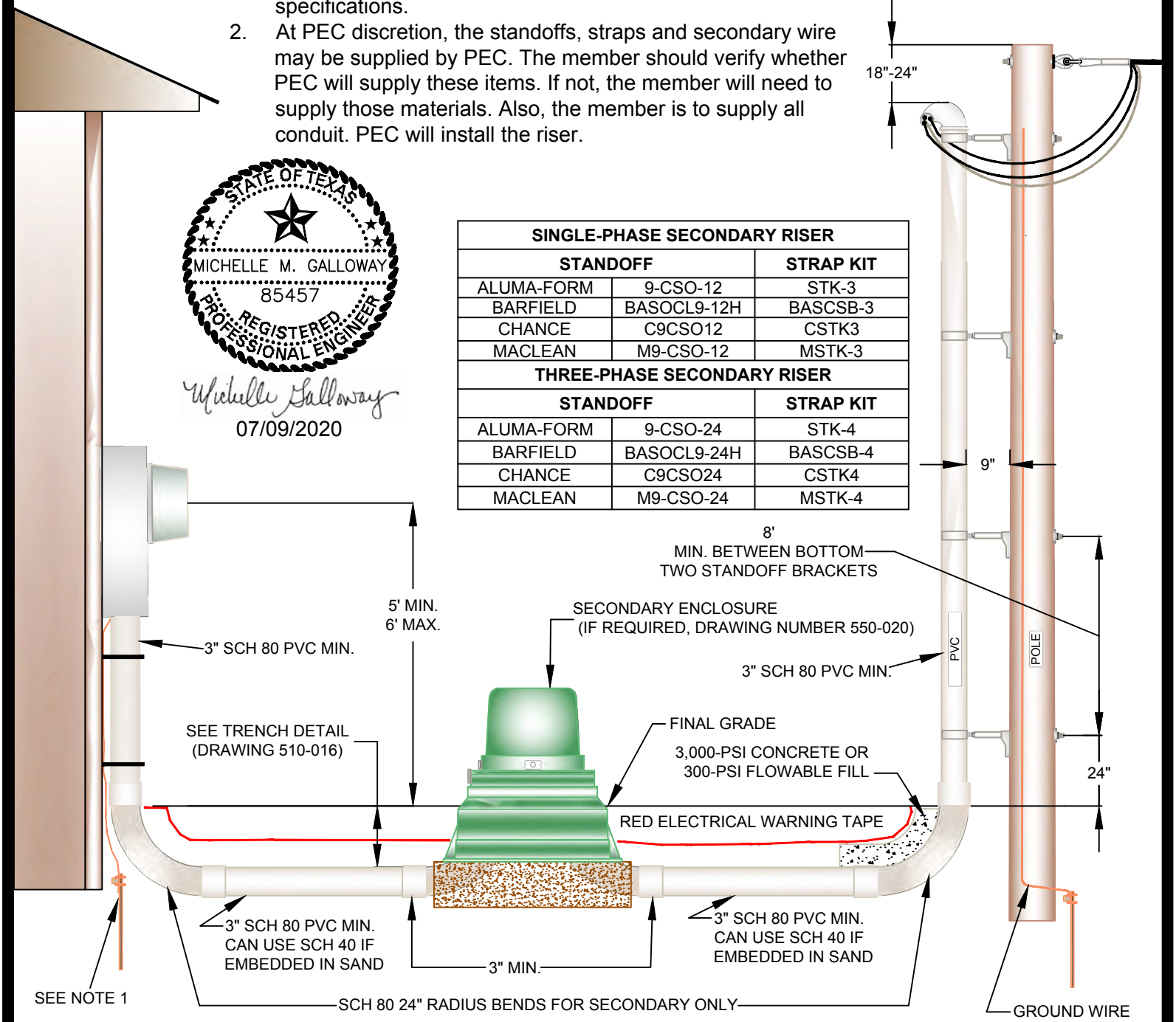
drawn:	approved:	date:	
RWC	MMG	07/09/2020	560-025

NESC Rule 217A2C: Standoff brackets on supporting structures shall be arranged so that there is not less than 2.45 M (8 FT) between either: (1) The lowest bracket and ground or other accessible surface, or (2) The two lowest brackets. Exception: This rule does not apply where supporting structures are isolated.

For 30' or 35' meter pole, install 4 standoffs: First at 2' above ground, second at 10' above ground, and remaining two standoffs evenly spaced above second standoff.

NOTES TO MEMBERS:

1. Select and install ground rod according to meter loop specifications.
2. At PEC discretion, the standoffs, straps and secondary wire may be supplied by PEC. The member should verify whether PEC will supply these items. If not, the member will need to supply those materials. Also, the member is to supply all conduit. PEC will install the riser.



STATE OF TEXAS
MICHELLE M. GALLOWAY
85457
REGISTERED PROFESSIONAL ENGINEER

Michelle Galloway
07/09/2020

SINGLE-PHASE SECONDARY RISER		
STANDOFF		**STRAP KIT**
ALUMA-FORM	9-CSO-12	STK-3
BARFIELD	BASOCL9-12H	BASCSB-3
CHANCE	C9CSO12	CSTK3
MACLEAN	M9-CSO-12	MSTK-3
THREE-PHASE SECONDARY RISER		
STANDOFF		**STRAP KIT**
ALUMA-FORM	9-CSO-24	STK-4
BARFIELD	BASOCL9-24H	BASCSB-4
CHANCE	C9CSO24	CSTK4
MACLEAN	M9-CSO-24	MSTK-4

REV	C	DATE	07/09/2020	REVISION	ADD FLOWABLE FILL TO CONCRETE NOTE	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

SECONDARY RISER WITH STANDOFFS

drawn:	approved:	date:	560-050
RWC	MMG	07/09/2020	

NESC Rule 217A2C: Standoff brackets on supporting structures shall be arranged so that there is not less than 2.45 M (8 FT) between either: (1) The lowest bracket and ground or other accessible surface, or (2) The two lowest brackets. Exception: This rule does not apply where supporting structures are isolated.

For 30' or 35' meter pole, install 4 standoffs: First at 2' above ground, second at 10' above ground, and remaining two standoffs evenly spaced above second standoff.

STATE OF TEXAS
MICHELLE M. GALLOWAY
85457
REGISTERED PROFESSIONAL ENGINEER

Michelle Galloway

07/09/2020

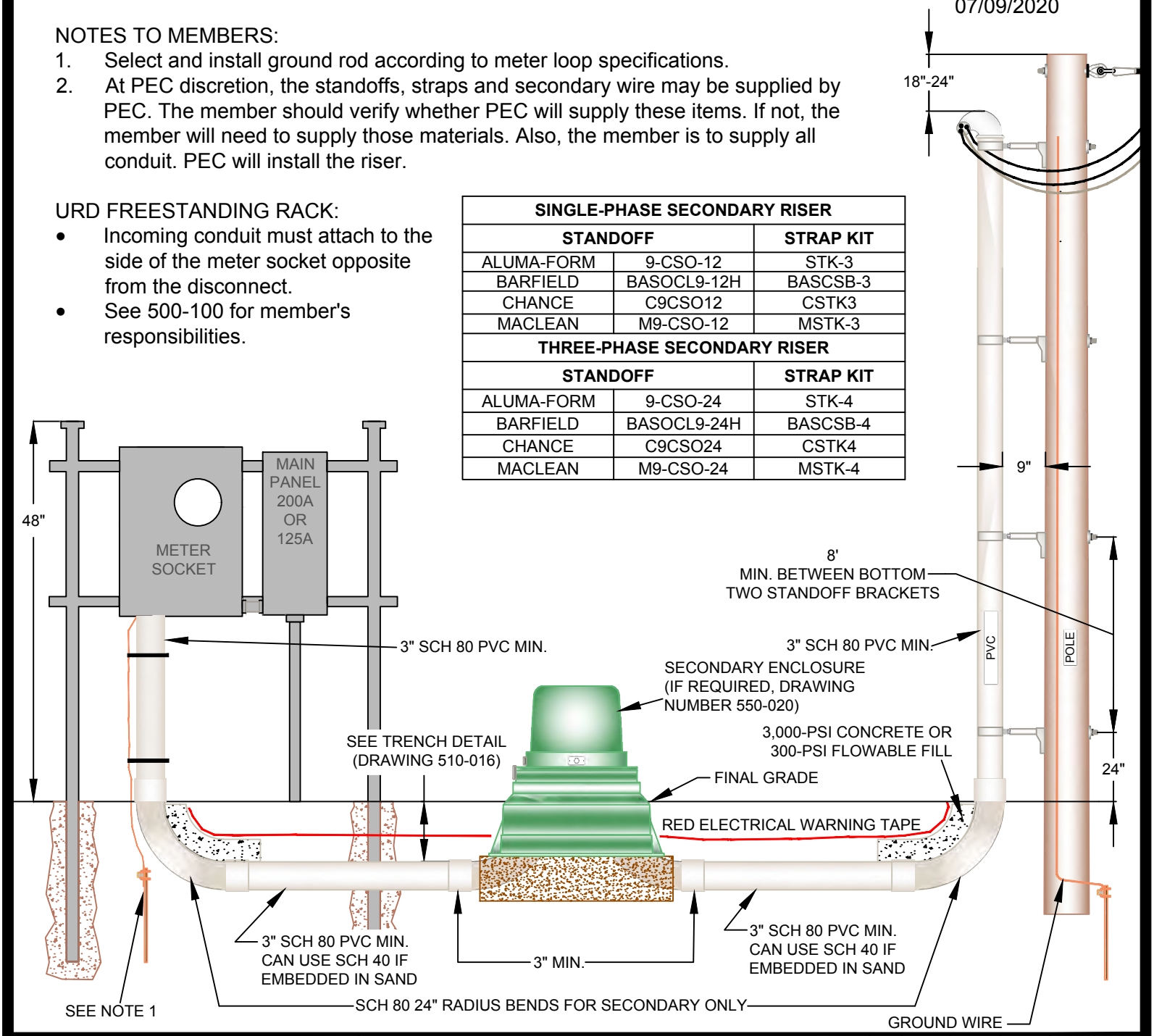
NOTES TO MEMBERS:

1. Select and install ground rod according to meter loop specifications.
2. At PEC discretion, the standoffs, straps and secondary wire may be supplied by PEC. The member should verify whether PEC will supply these items. If not, the member will need to supply those materials. Also, the member is to supply all conduit. PEC will install the riser.

URD FREESTANDING RACK:

- Incoming conduit must attach to the side of the meter socket opposite from the disconnect.
- See 500-100 for member's responsibilities.

SINGLE-PHASE SECONDARY RISER		
STANDOFF		**STRAP KIT**
ALUMA-FORM	9-CSO-12	STK-3
BARFIELD	BASOCL9-12H	BASCSB-3
CHANCE	C9CSO12	CSTK3
MACLEAN	M9-CSO-12	MSTK-3
THREE-PHASE SECONDARY RISER		
STANDOFF		**STRAP KIT**
ALUMA-FORM	9-CSO-24	STK-4
BARFIELD	BASOCL9-24H	BASCSB-4
CHANCE	C9CSO24	CSTK4
MACLEAN	M9-CSO-24	MSTK-4



REV	C	DATE	07/09/2020	REVISION	ADD FLOWABLE FILL TO CONCRETE NOTE	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

SECONDARY RISER WITH STANDOFFS TO A METER RACK

drawn:	approved:	date:	
RWC	MMG	07/09/2020	560-051

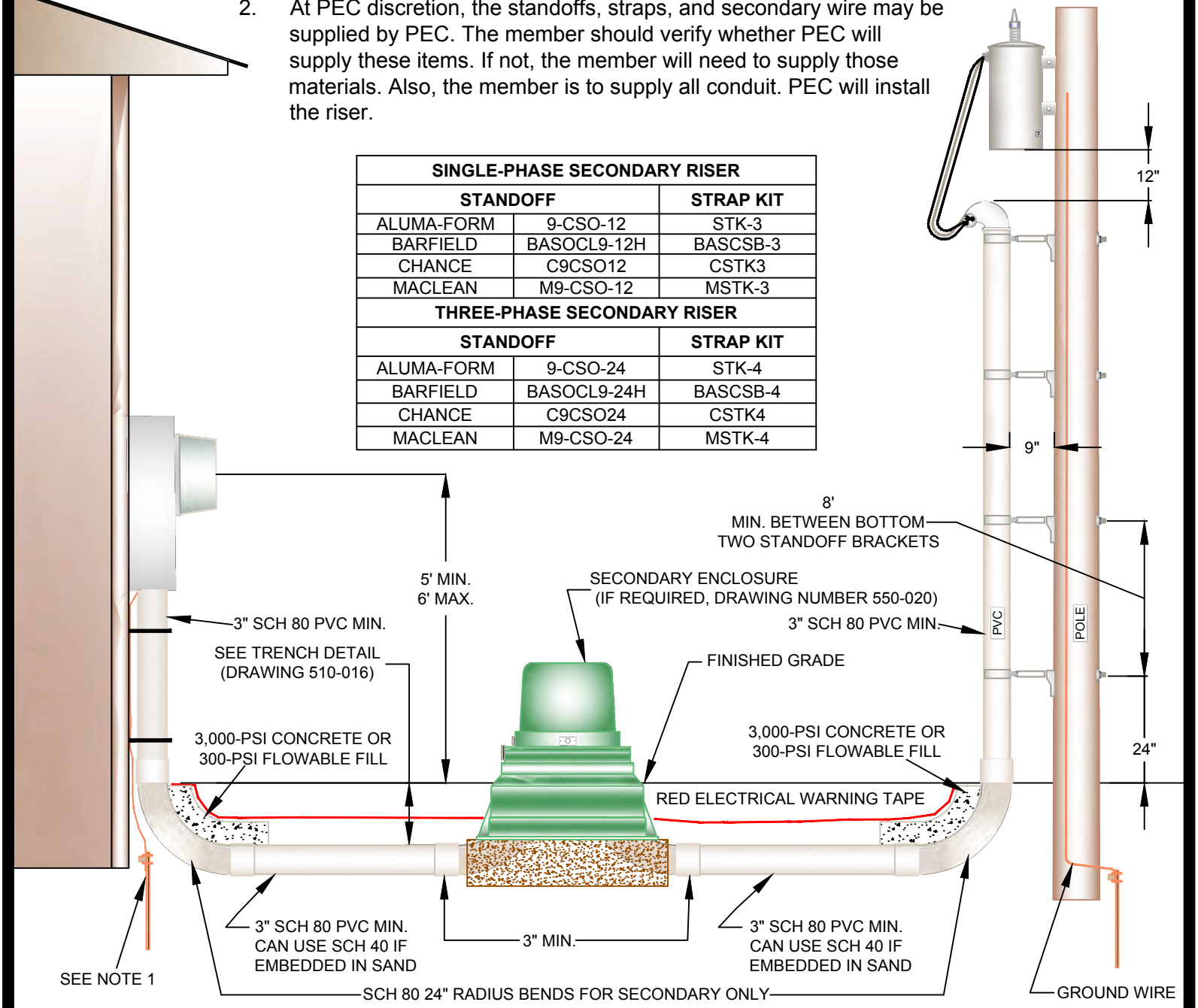
NESC Rule 217A2C: Standoff brackets on supporting structures shall be arranged so that there is not less than 2.45 M (8 FT) between either: (1) The lowest bracket and ground or other accessible surface, or (2) The two lowest brackets. Exception: This rule does not apply where supporting structures are isolated.

For 30' or 35' meter poles, install four standoffs: The first at 2' above ground, the second at 10' above ground, and the remaining two evenly spaced above the second standoff.

NOTES TO MEMBERS:

1. Select and install a ground rod according to meter loop specifications.
2. At PEC discretion, the standoffs, straps, and secondary wire may be supplied by PEC. The member should verify whether PEC will supply these items. If not, the member will need to supply those materials. Also, the member is to supply all conduit. PEC will install the riser.

SINGLE-PHASE SECONDARY RISER		
STANDOFF		**STRAP KIT**
ALUMA-FORM	9-CSO-12	STK-3
BARFIELD	BASOCL9-12H	BASCSB-3
CHANCE	C9CSO12	CSTK3
MACLEAN	M9-CSO-12	MSTK-3
THREE-PHASE SECONDARY RISER		
STANDOFF		**STRAP KIT**
ALUMA-FORM	9-CSO-24	STK-4
BARFIELD	BASOCL9-24H	BASCSB-4
CHANCE	C9CSO24	CSTK4
MACLEAN	M9-CSO-24	MSTK-4



REV	D	DATE	08/13/2021	REVISION	ADD CONCRETE TO BOTH SWEEPS	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

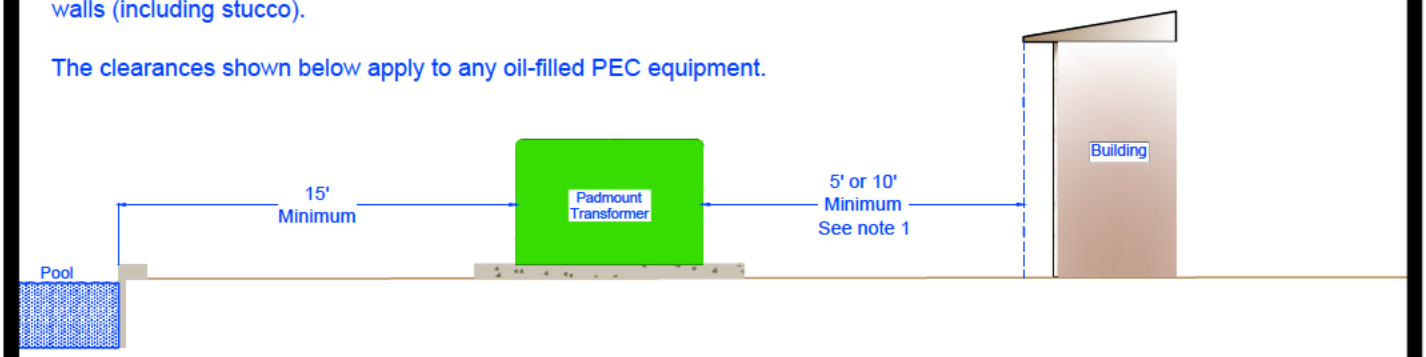
600-VOLT UNDERGROUND SERVICE FROM OVERHEAD TRANSFORMER

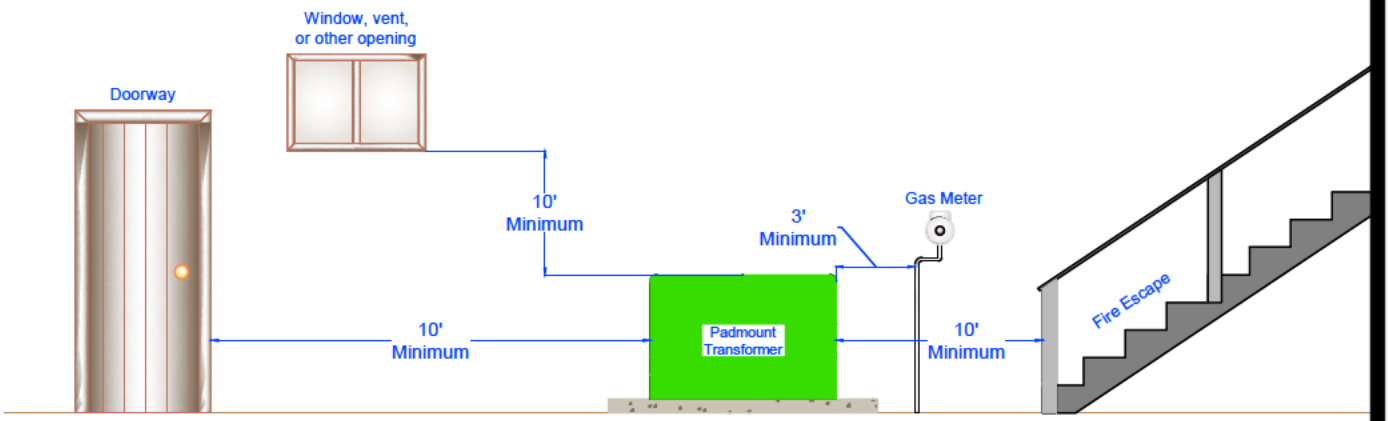
drawn:	approved:	date:	560-052
RWC	MMG	08/13/2021	

Note 1: Clearance from padmount transformers to structures measured from the nearest metal portion of the transformer, to the structure or any overhang.

The clearance from a building is five feet if the building has non-combustible walls (brick, concrete, steel, or stone), ten feet if the building has combustible walls (including stucco).

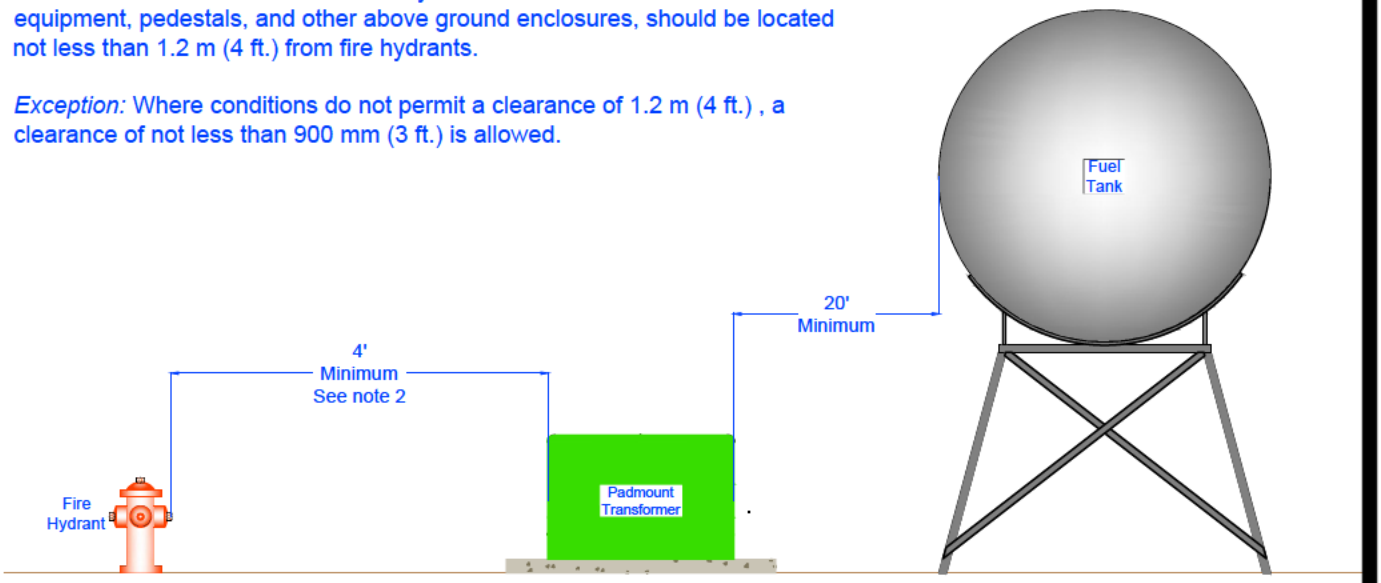
The clearances shown below apply to any oil-filled PEC equipment.





Note 2: Per the National Electric Safety Code rule 380D Pad mounted equipment, pedestals, and other above ground enclosures, should be located not less than 1.2 m (4 ft.) from fire hydrants.

Exception: Where conditions do not permit a clearance of 1.2 m (4 ft.) , a clearance of not less than 900 mm (3 ft.) is allowed.



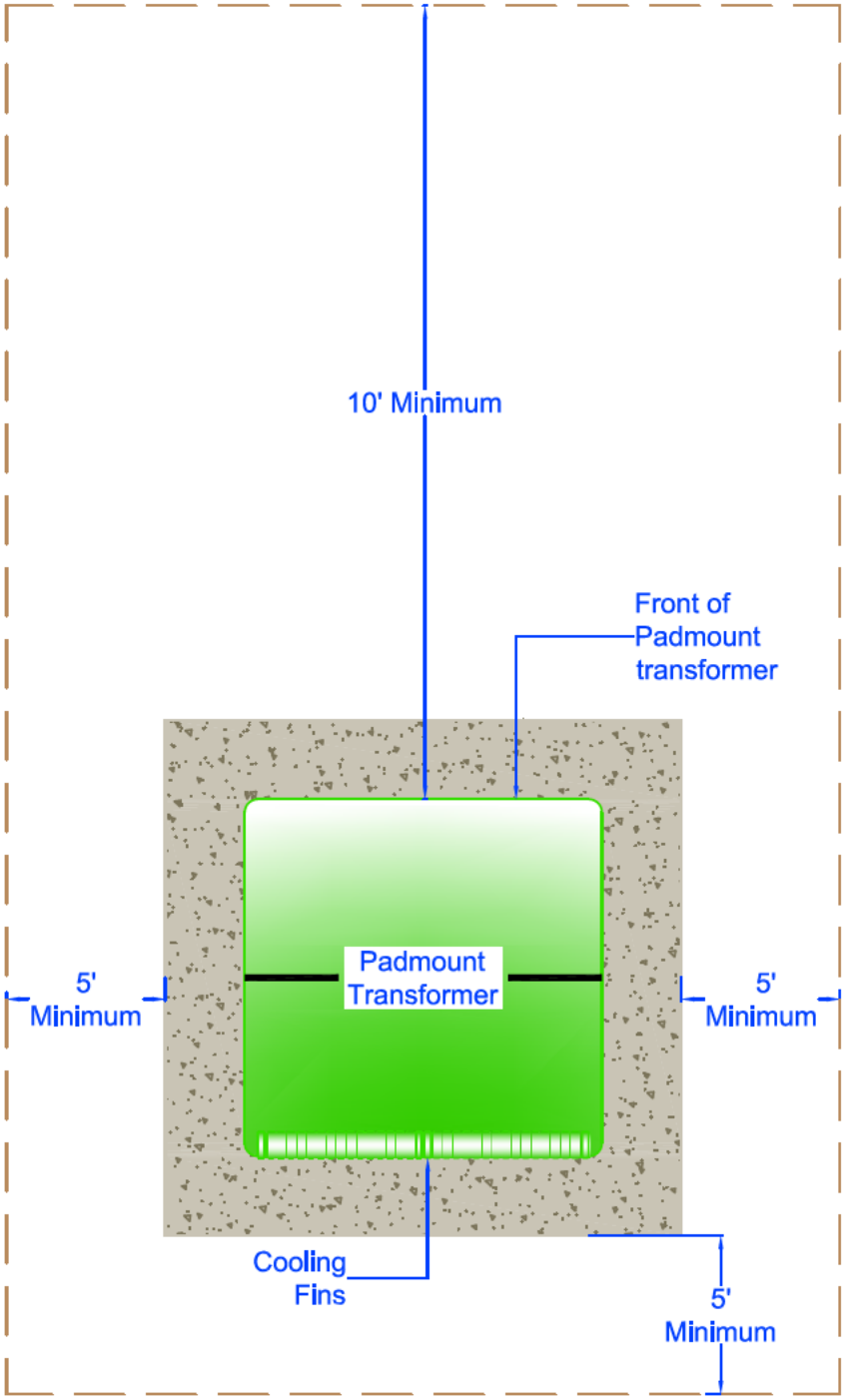
PEDERNALES ELECTRIC COOPERATIVE, INC.

URD DEVELOPER'S SPECIFICATIONS

Safety Clearances around Padmount Transformers

drawn:	approved	date:	drawing number:
JBS	MJB	March 11, 2015	570-010-0911

A minimum clearance of ten feet of clear, level, unobstructed working space is required in front of a padmount transformer, to allow use of hot sticks. OSHA Rule 1910.303(h)(5)(V1)



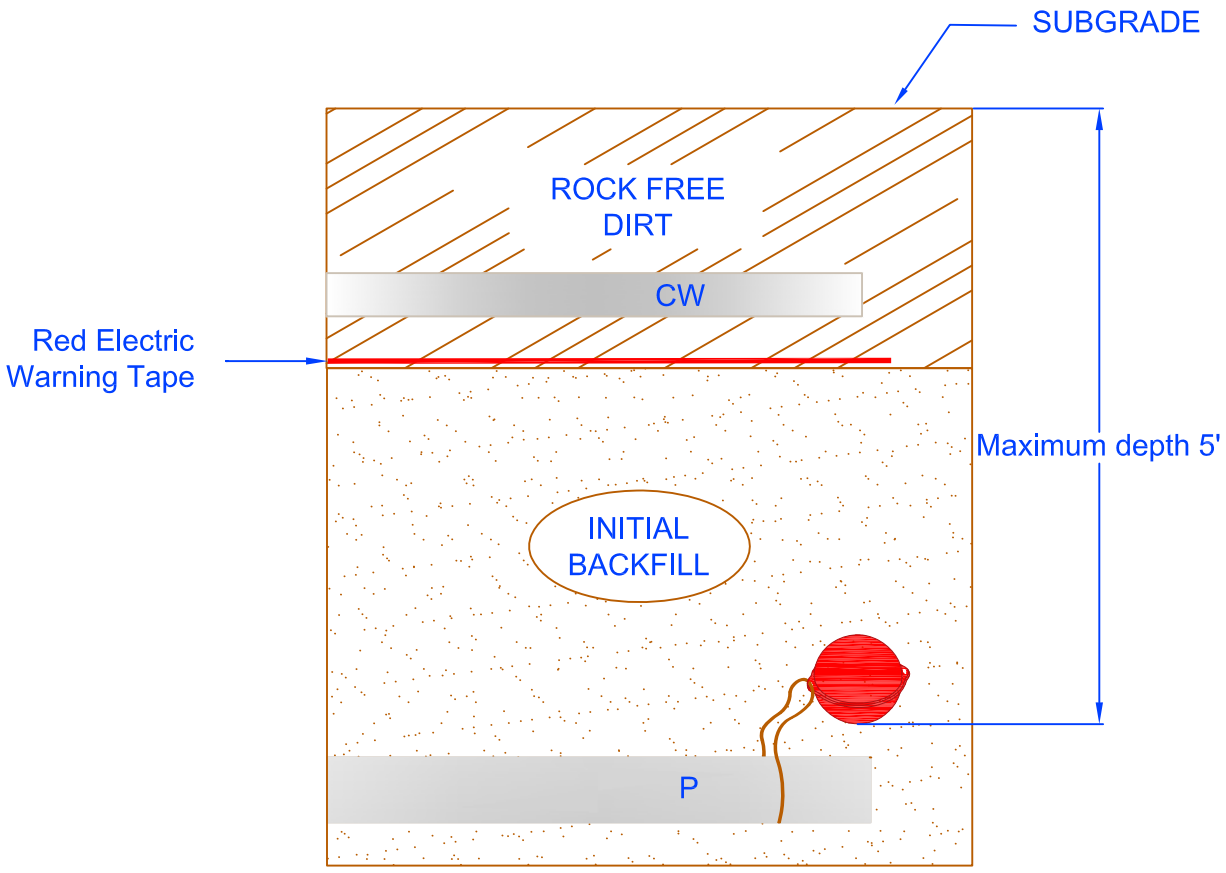
The clearances shown above applies to all PEC padmounted electrical equipment over 600 volts PEC equipment.

PEDERNALES ELECTRIC COOPERATIVE, INC.

URD DEVELOPER'S SPECIFICATIONS

Working Clearances around Padmount Transformers

drawn:	approved	date:	drawing number:
JBS	MJB	February 28, 2013	570-015-0911



Model Number # 1402-XR

Stock # 80611161144

NOTES:

1) 3M Electronic Marking System Extended Range Ball Marker's are required at locations deemed necessary by PEC.

2) PEC inspector will deliver marker balls to developer's contractor for installation.

3) Ball markers must be tied to the conduit ends using the tie down tabs provided.

4) The XR Ball Marker cannot reliably re-radiate the locator's signal at a depth greater than 5 feet, this is the maximum allowable distance between ball marker and subgrade.

5) Hand fill at least 6 inches of soil over the marker to prevent movement or damage during backfill.

Pedernales Electric Cooperative, Inc.

PEDERNALES ELECTRIC COOPERATIVE, INC.

URD DEVELOPER'S SPECIFICATIONS

3M Electronic Marking System Extended Range Ball Marker

drawn:	approved	date:	drawing number:
DBS	MJB	July 18, 2016	580-010-0911

DEVELOPER/APPLICANT APPROVED MANUFACTURER LIST

TYPE OF MATERIAL	MANUFACTURERS	PHONE NUMBERS	ADDRESS	EMAIL
CONDUIT SPACERS	CANTEX	(817) 215-7000 (817) 215-7001 FAX	301 COMMERCE ST. STE. 2700 FORT WORTH, TX 76102	
GROUND ROD CLAMPS	PENN UNION	(814) 734-1631 (814) 734-4946 FAX	229 WATERFORD ST. EDINBORO, PA 16412	sales@penn-union.com
MANHOLES	FORTERRA	(469) 458-7973	511 E. JOHN W CARPENTER FWY. IRVING, TX 75062	info@forterrabp.com
SECONDARY ENCLOSURES	NORDIC FIBERGLASS, INC.	(218) 745-5095 (218) 745-4990 FAX	21415 HIGHWAY 75 NW. WARREN, MN 56762	sales@nordicfiberglass.com
SECONDARY ENCLOSURES	PENCELL	(800) 257-9448 (252) 467-2210 (252) 467-2212 FAX	546 ENGLISH RD. ROCKY MOUNT, NC 27804	info@pencell.com
SECONDARY ENCLOSURES	CHANNELL COMMERCIAL	(214) 277-9663 (210) 865-7748	WESCO SAN ANTONIO	info@channell.com cpedrosa@channell.com
SECONDARY ENCLOSURES	DURHAM	(417) 532-7121 (417) 532-2366 FAX	722 DURHAM RD. LEBANON, MO 65536	
SECONDARY ENCLOSURES	ALUMA-FORM	(512) 635-8177 (512) 787-8288	IRBY CO. 509 W. STATE HWY. 71 BASTROP, TX 78602	tboyd@irby.com ryan.johnson@irby.com
SECONDARY ENCLOSURES	APS	(512) 635-8177 (512) 787-8288	IRBY CO. 509 W. STATE HWY. 71 BASTROP, TX 78602	tboyd@irby.com ryan.johnson@irby.com
SECONDARY ENCLOSURES	BARFIELD	(513) 860-4455	3501 SYMMES RD. HAMILTON, OH 45015-1369	cmcorders@cmclugs.com
SECONDARY ENCLOSURES	TECHLINE	(512) 809-6930	9609 BECK CIRCLE AUSTIN, TX 78758	billy.lunsford@techline-inc.com
SECTIONALIZING TERMINALS	MALTON ELECTRIC CO.	(218) 741-8252	1505 W. CHESTNUT ST. VIRGINIA, MN 55792	mainoffice@maltonelectric.com
SECTIONALIZING TERMINALS	MAYSTEEL	(262) 599-6494 (262) 629-1612 FAX	6199 COUNTY RD. W. ALLENTON, WI 53002	info@maysteel.com
SECTIONALIZING TERMINALS	POWERGRID SOLUTIONS, INC.	(800) 843-0051 (920) 232-8977 FAX	3100 PROGRESS DR. OSHKOSH, WI 54901	
VAULTS AND LIDS	HUBBELL POWER SYSTEMS (CDR)	(386) 615-9510 (386) 615-9606 FAX	210 N. ALLEN CENTRALIA, MO 65240	cdrsales@hps.hubbell.com
VAULTS AND LIDS	CAPITAL PRECAST, LLC.	(830) 606-6200	6905 S. OLD BASTROP HWY. SAN MARCOS, TX 78666	info@capitalprecastllc.com
VAULTS AND LIDS	HALLIDAY PRODUCTS	(800) 298-1027	6401 EDGEWATER DR. ORLANDO, FL 32810	sales@hallidayproducts.com
VAULTS AND LIDS	OLDCASTLE INFRASTRUCTURE	(210) 923-4523	1900 RILLING RD. SAN ANTONIO, TX 78214	contact@oldcastleprecast.com
VAULTS AND MANHOLES	THE TURNER COMPANY	(210) 560-7577 (817) 638-9053	11049 S. HWY. 287 RHOME, TX 76078	sharon@theturnerco.com

REV	C	DATE	02/23/2022	REVISION	ADDED TECHLINE	BY	RWC	CHK	SSS	APR	MMG

UNDERGROUND INSTALLATION SPECIFICATIONS

APPROVED MANUFACTURERS

drawn:	approved:	date:	500-103
RWC	MMG	02/23/2022	