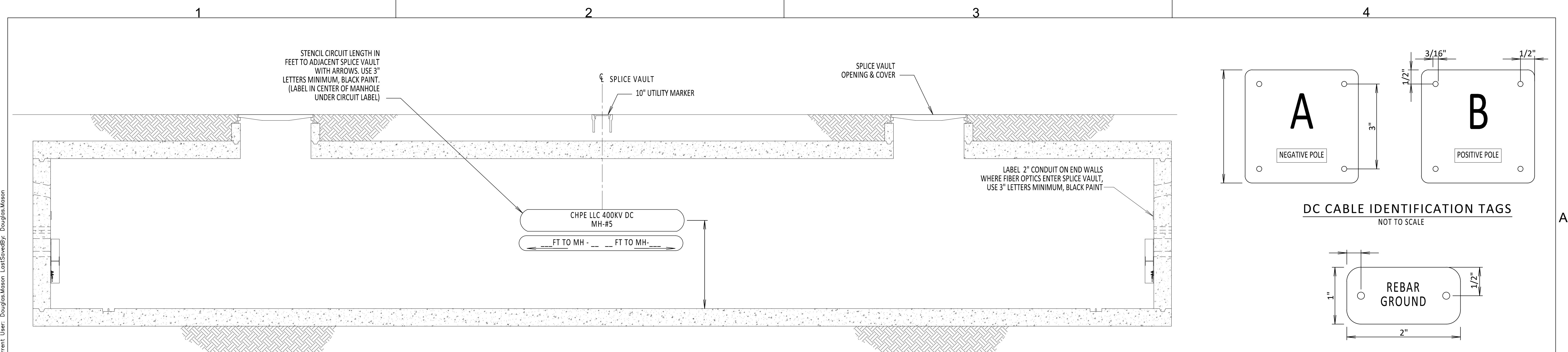
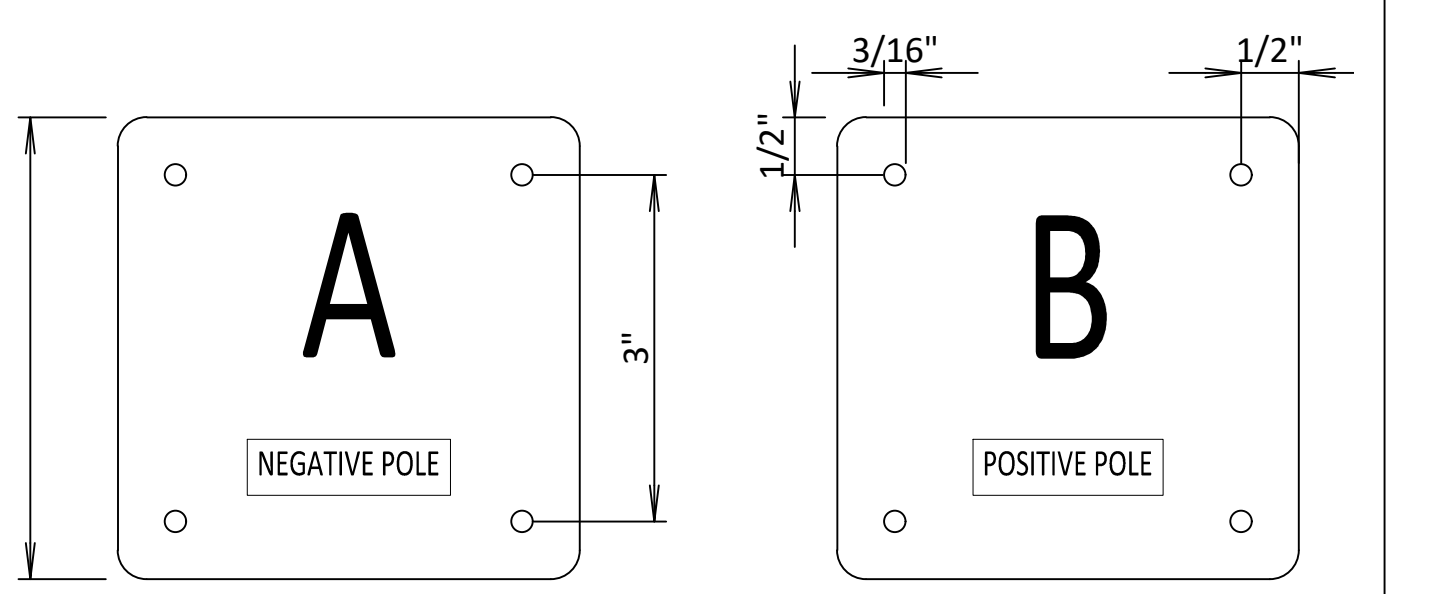


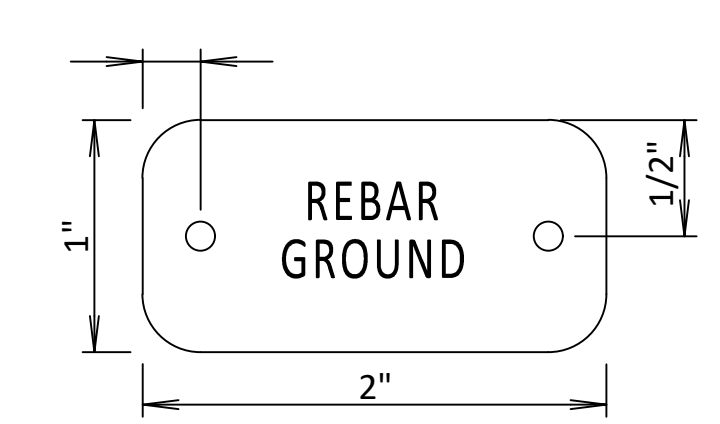
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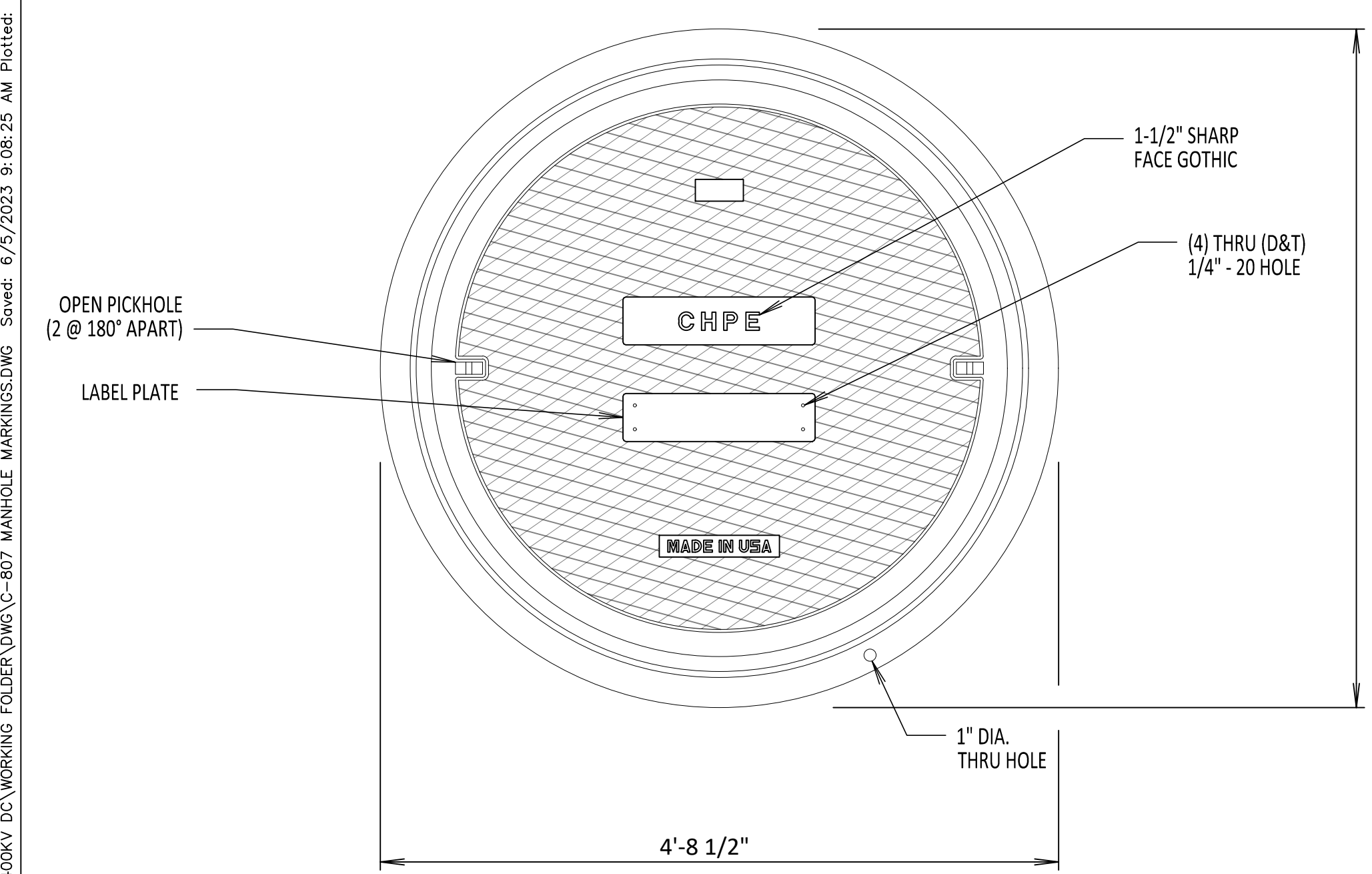
INSIDE SPLICE VAULT
NOT TO SCALE



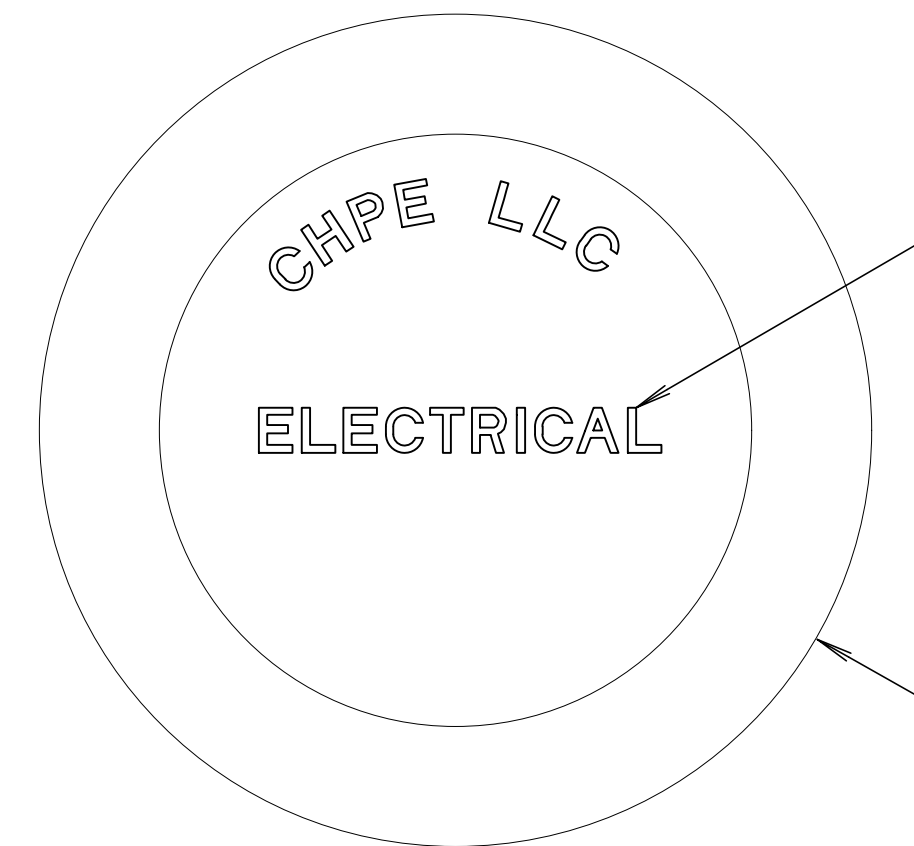
DC CABLE IDENTIFICATION TAGS
NOT TO SCALE



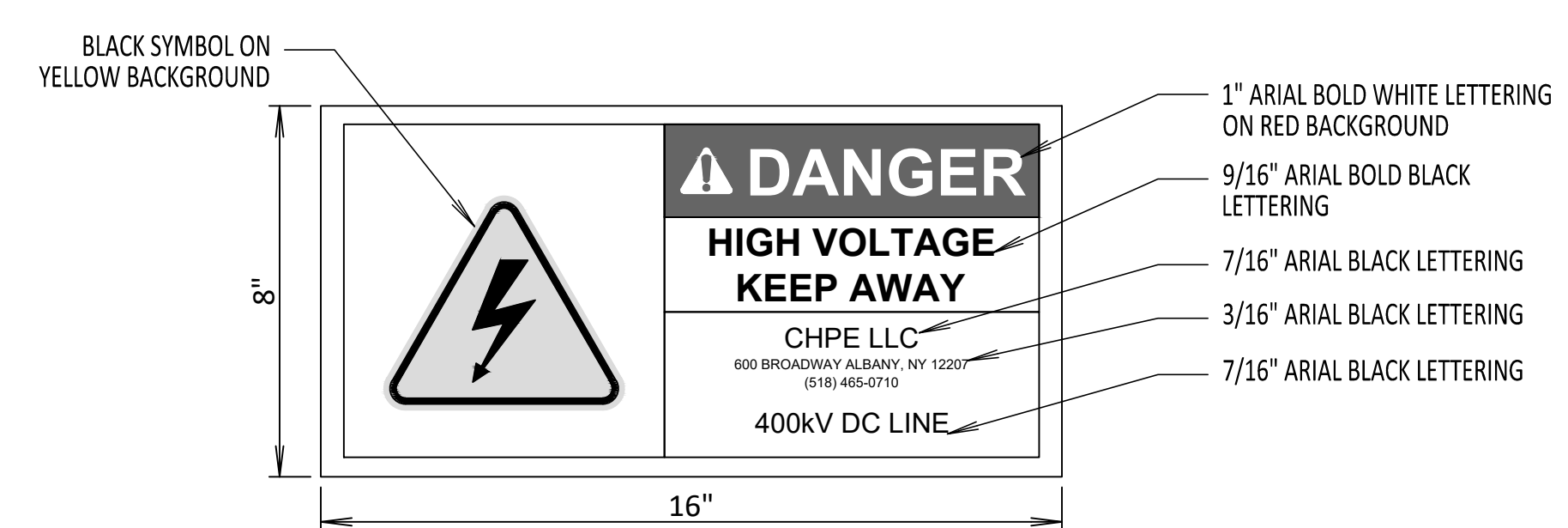
IDENTIFICATION TAGS
NOT TO SCALE



SPLICE VAULT LID MARKINGS PLAN VIEW
NOT TO SCALE

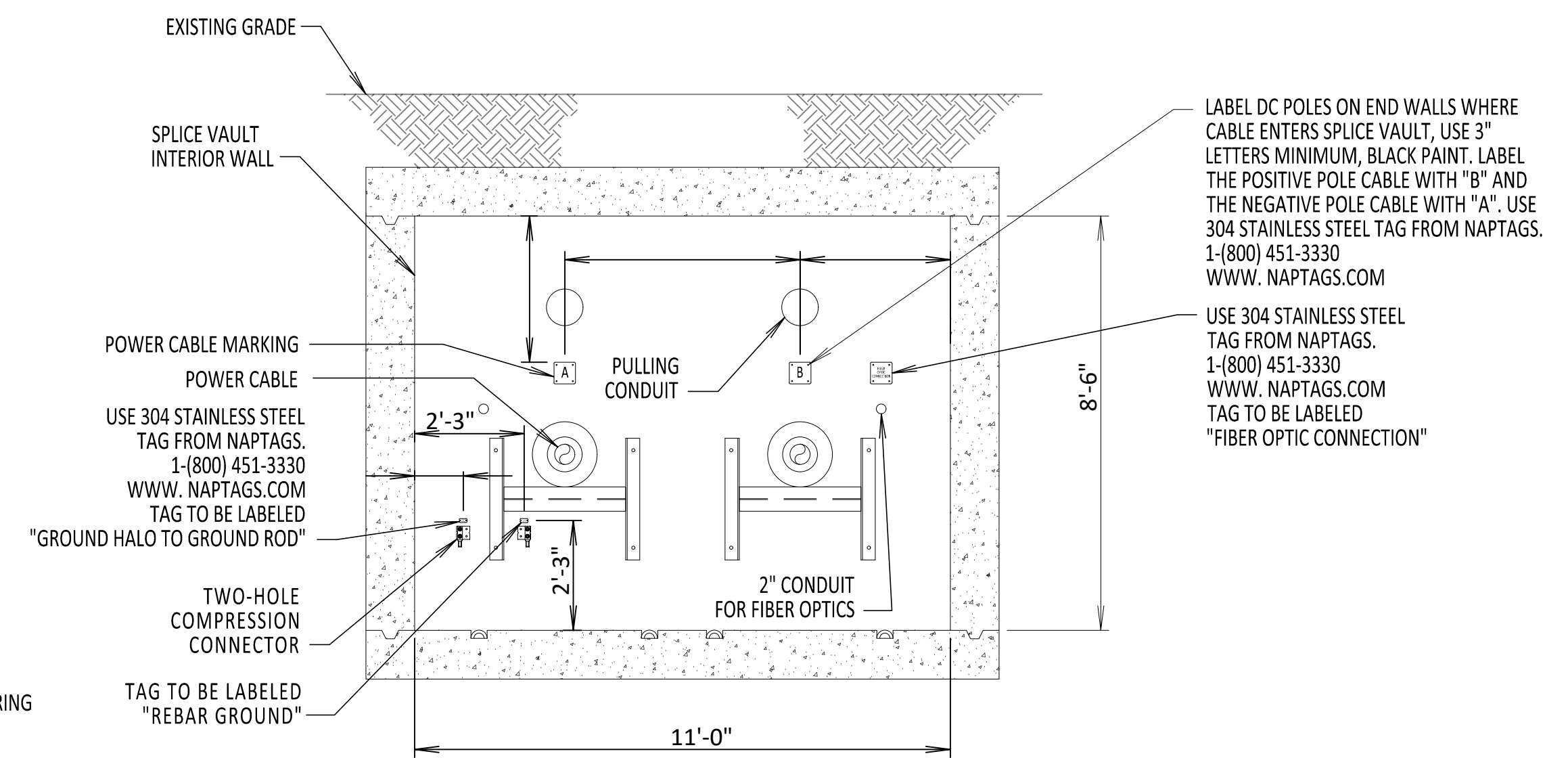


UTILITY MARKER DETAIL
NOT TO SCALE



DETAIL 1 - CABLE TRAY WARNING LABEL
NOT TO SCALE

- NOTE:
1. AFFIX DETAIL 1 LABEL TO THE CABLE TRAY BRIDGE ATTACHMENT AND AT 10-FOOT INTERVALS ALONG THE ENTIRE LENGTH OF THE CABLE TRAY ON THE BRIDGE



INSIDE ENDWALL VIEW
NOT TO SCALE

- NOTE:
1. SEE PLAN AND PROFILES FOR LOCATION SPECIFIC LABELING INSTRUCTIONS OF WHICH SIDES RECEIVE EACH POLARITY LABEL.



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0	06/08/2023	ISSUED FOR CONSTRUCTION SUBMISSION		DLM	ASM
No.	DATE	SUBMITTAL / REVISION DESCRIPTION		DB	APP

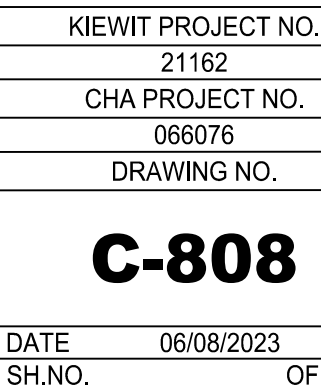
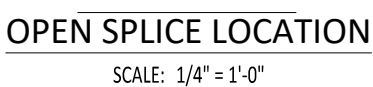
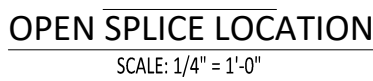
CHAMPLAIN HUDSON POWER EXPRESS

SPLICE VAULT AND CABLE MARKING DETAILS

DRAWN BY:	DLM	DESIGNED BY:	SD	APPROVED BY:	ASM	SCALE	REV. NO.	0	DATE	06/08/2023	SH.NO.	OF
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KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-807
DATE	06/08/2023
SH.NO.	OF

- A



File: R:\INFO\IPD\USG STANDARDS\UNDERGROUND SHAREPOINT\PROJECTS\CHPE 400KV DC WORKING FOLDER\DWG\C-809_OPEN PIT SPLICE GROUNDING.DWG Saved: 6/9/2023 3:25:25 PM Plotted: 6/9/2023 6:45:00 AM Current User: Douglas.Mason LastSavedBy: Douglas.Mason

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NOTES:

- FOR ADDITIONAL DESIGN PARAMETERS SEE SPECIFICATIONS.
- ALL GROUND CONNECTIONS SHALL BE IRREVERSIBLE COMPRESSION CONNECTION UNLESS OTHERWISE NOTED.
- LINK BOX WILL CONTAIN FOUR DISCONNECTING LINKS, AS PROVIDED BY VENDOR.
- BONDING CABLE CONNECTION BETWEEN HIGH VOLTAGE DC CABLE SPLICE AND LINK BOX SHALL BE NO LONGER THAN 30 FEET. FIELD FIT EXACT LOCATION.
- RESISTANCE OF GROUND GRID MEASURED RELATIVE TO DEEP EARTH SHALL BE 10 OHMS OR LESS. LENGTH AND NUMBER OF GROUND RODS TO BE DETERMINED BASED ON MEASURED GROUND ROD RESISTANCE.
- KIEWIT HAS PROVIDED GROUNDING AS PER NKT REQUIREMENTS. NO OTHER ELECTRICAL SYSTEM DESIGN HAS BEEN INCLUDED BY KIEWIT.
- WHERE THERE IS DIFFICULTY INSERTING GROUND RODS DUE TO SOIL CONDITIONS. REFER TO GROUNDING COMPONENTS AND INSTALLATION SPECIFICATION FOR ALTERNATIVE GROUND ROD INSTALLATION METHODS.

BILL OF MATERIALS

ITEM NO.	ITEM DESCRIPTION	MANUFACTURER & CATALOG NO.	PROVIDER	INSTALLER
1	LINK BOX	AS REQUIRED	NKT	KIEWIT
2	INSULATED GROUND CABLE	AS REQUIRED	NKT	NKT
3	BARE 4/0 GROUND CABLE	AS REQUIRED	KIEWIT	KIEWIT
4	COMPRESSION C CONNECTOR	BURNDY YGHC29C29	KIEWIT	KIEWIT
5	COMPRESSION CONNECTION TO GROUND ROD	BURNDY YGHR29C34	KIEWIT	KIEWIT
6	3/4" X 10'-0" GROUND ROD	NVENT ERICO 613400	KIEWIT	KIEWIT
7	3/4" STUD RING TERMINAL	BURNDY YAD28M20E34	KIEWIT	KIEWIT

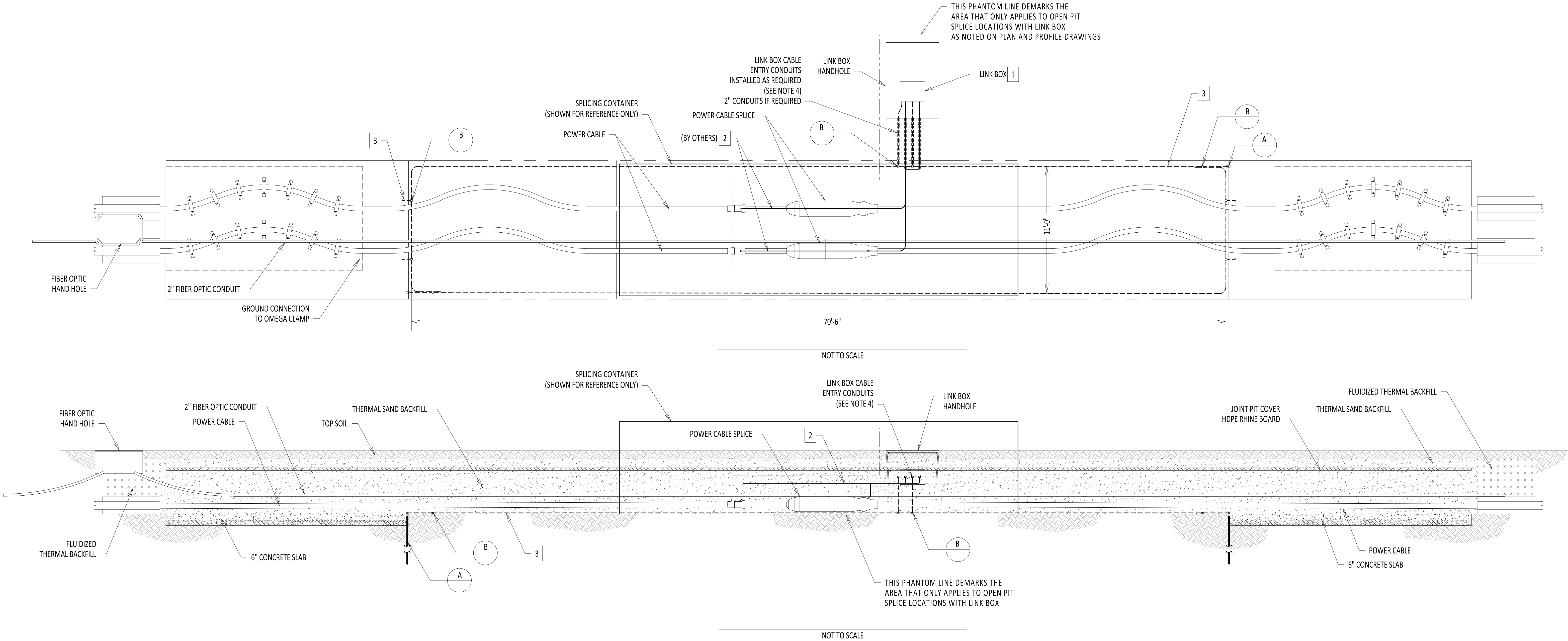
APPROVED EQUAL MATERIAL MAYBE SUBMITTED FOR REVIEW AND APPROVAL.
QUANTITIES ARE MINIMUM - PROVIDER IS RESPONSIBLE FOR ALL MATERIAL ITEMS AND QUANTITIES.

REFERENCE DRAWINGS

LIST NO.	DRAWING NAME	DRAWING NO.
1	STRUCTURAL VAULT DRAWINGS	S-700
2	TYPICAL OPEN PIT SPLICE DETAILS	C-808
3	GROUNDING SPECIFICATIONS	260526.01

DETAIL A
NOT TO SCALE

DETAIL B
NOT TO SCALE



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

OPEN PIT SPLICE
GROUNDING DETAILS

DRAWN BY:	DLM	DESIGNED BY:	SD	APPROVED BY:	ASM	SCALE	NOT TO SCALE	DATE	06/08/2023
						REV. NO.	0	SH.NO.	OF

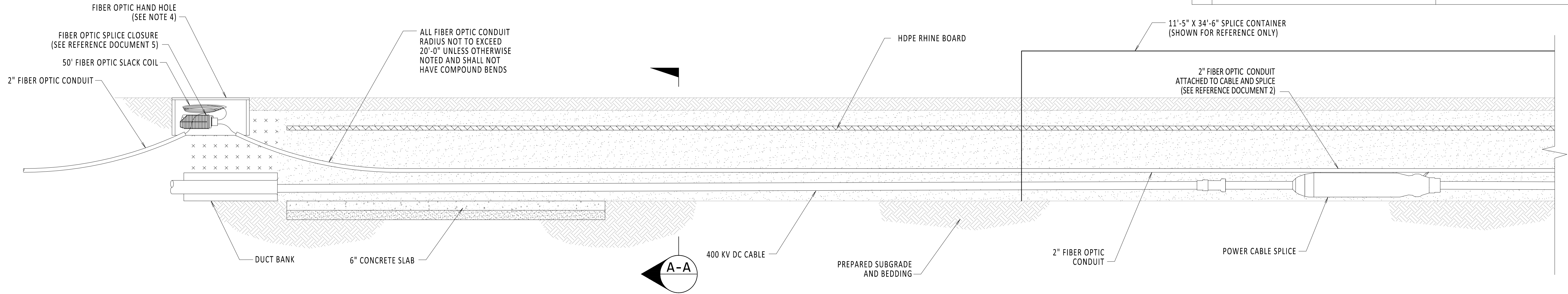
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-809
DATE	06/08/2023
SH.NO.	OF

File: R:\INFO\PD\USG STANDARDS\UNDERGROUND SHAREPOINT\PROJECTS\CHPE 400KV DC WORKING FOLDER\DWG\C-853-OPEN_VAULT.DWG Saved: 6/5/2023 9:52:32 AM Plotted: 6/6/2023 1:53:20 PM Current User: Douglas.Mason LastSavedBy: Douglas.Mason

1. ADD HAND HOLE TO ALL OPEN SPLICE LOCATIONS.
2. FIBER OPTIC SPLICE CLOSURE ONLY AT SPECIFIC LOCATIONS. SEE PLAN AND PROFILE FOR DETAILS.
3. SEE REFERENCE DOCUMENTS 2 FOR HAND HOLE LOCATION DETAILS.
4. SEE REFERENCE DOCUMENT 4 FOR FIBER OPTIC HAND HOLE DETAILS.
5. MAINTAIN A MINIMUM FIBER OPTIC CABLE BEND RADIUS OF 8" UNLESS OTHERWISE STATED (WHEN BENDING THE CABLE).

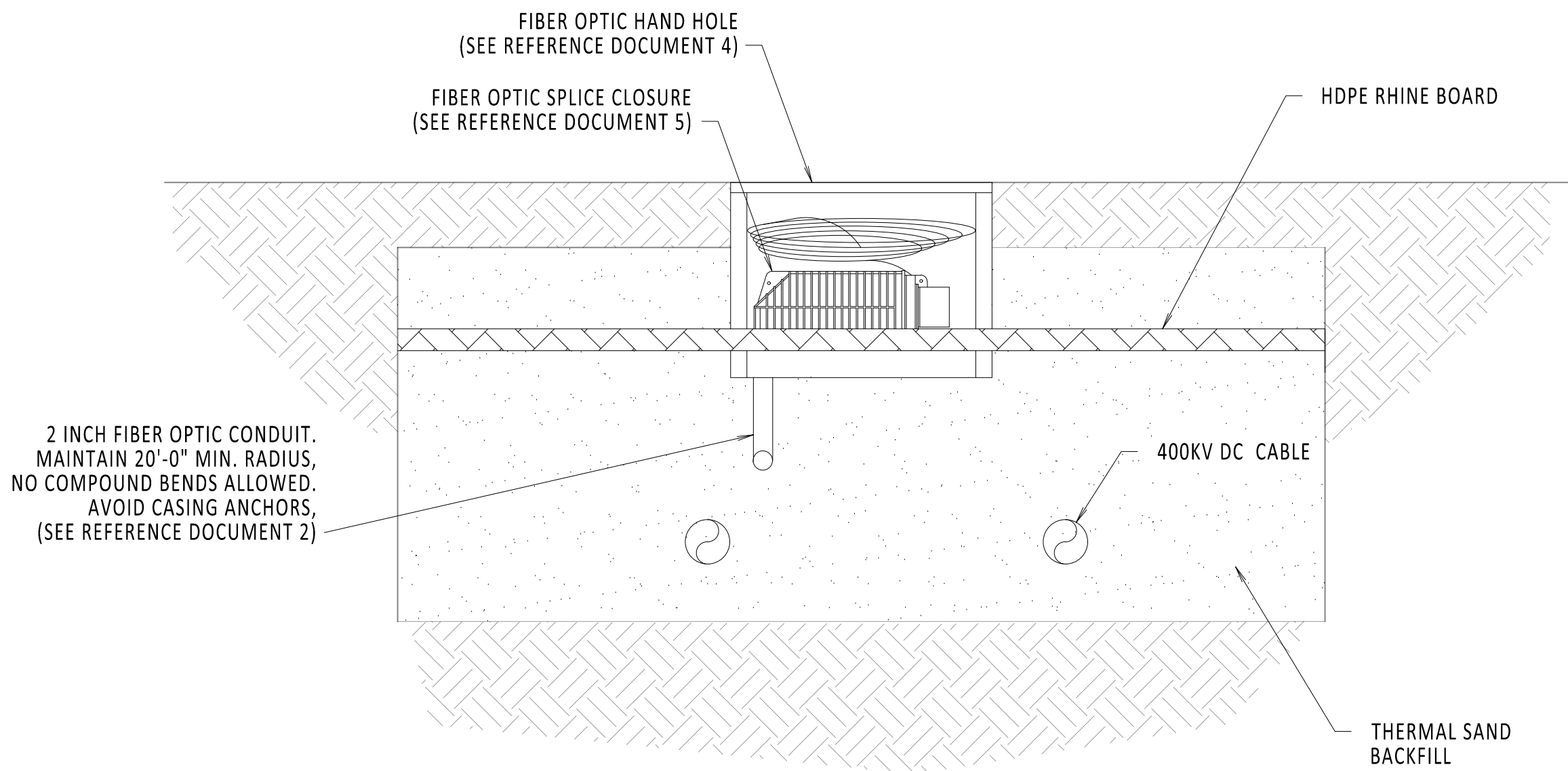
REFERENCE DOCUMENTS

LIST NO.	DOCUMENT NAME	DOCUMENT NO.
1	FRP FIBER COMMUNICATION HAND HOLE	S-771
2	TYPICAL OPEN PIT SPLICE DETAILS	C-808
3	DTS HUT CONNECTION FIBER OPTIC SPLICE AND HAND HOLE	C-851
4	FIBER OPTIC HAND HOLE DETAILS	C-854
5	FIBER OPTIC SPLICE DETAILS	C-855



OPEN SPLICE w/ HAND HOLE PROFILE VIEW

SCALE: 3/8" = 1'-0"



SECTION A-A

SCALE: 3/4" = 1'-0"



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

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OPEN SPLICE w/ FIBER OPTICS
HAND HOLE

DRAWN BY:	TJM	DESIGNED BY:	MK	APPROVED BY:	XX	SCALE		DATE	06/08/2023
						REV. NO.	0	SH.NO.	OF

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-853
DATE	06/08/2023
SH.NO.	OF

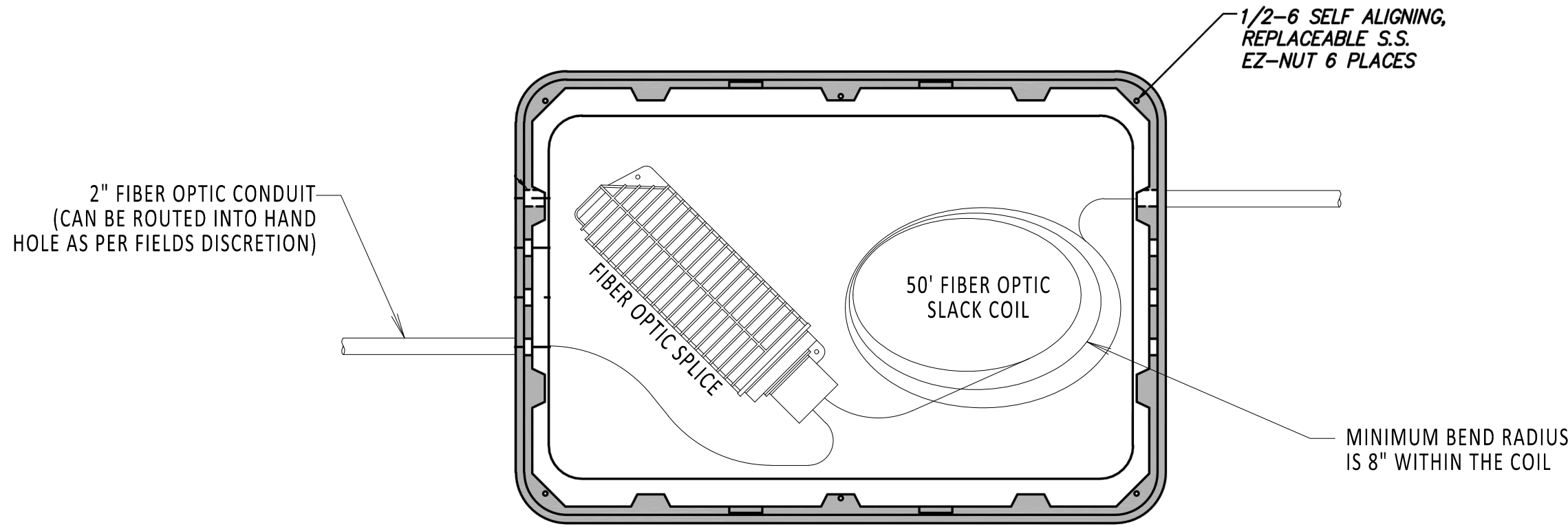
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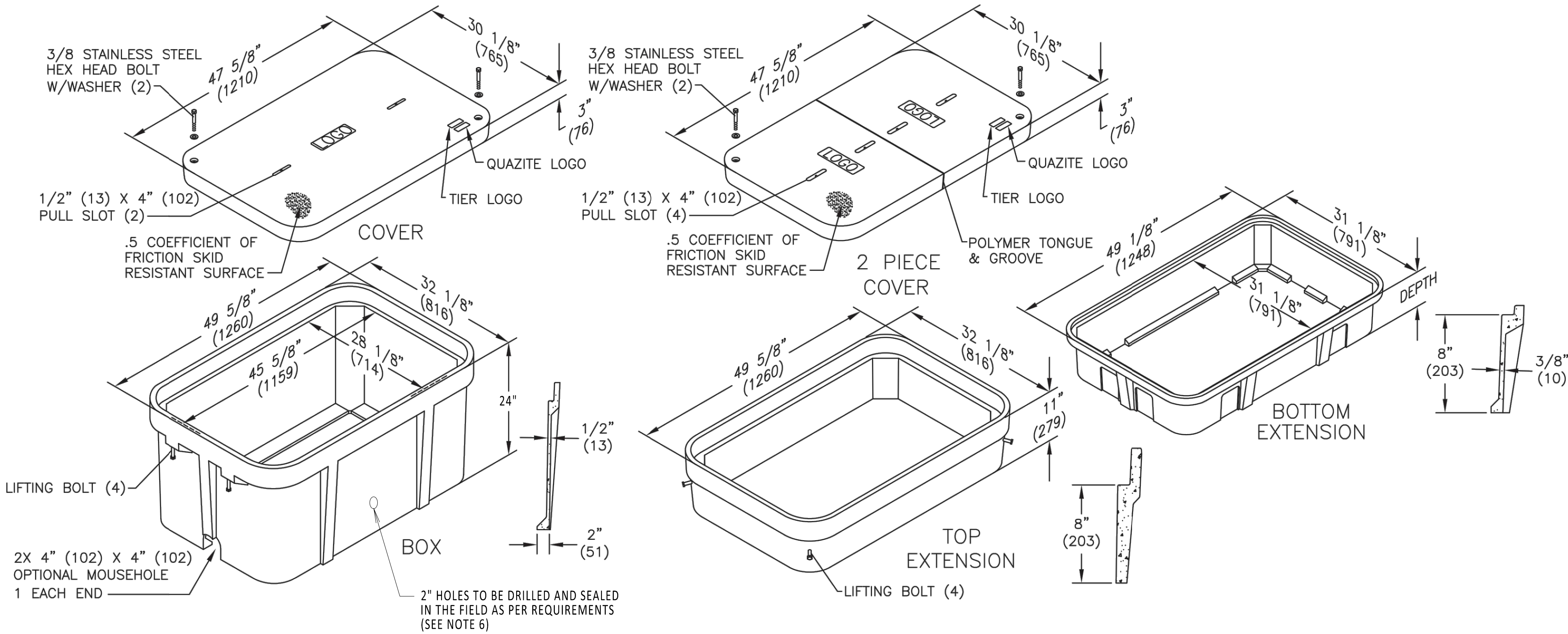


HAND HOLE
TOP VIEW
NOT TO SCALE

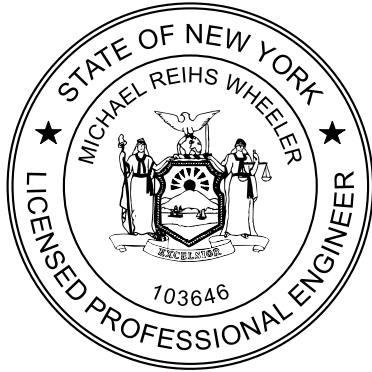
1. FIBER OPTIC COIL TO BE PLACED IN BOTTOM OF HAND HOLE. OBSERVE MINIMUM BEND RADIUS.
2. SPLICE ALL FIBERS STRAIGHT THROUGH.
3. FIBER OPTIC SPLICE CLOSURE ONLY AT SPECIFIC LOCATIONS. SEE PLAN AND PROFILE FOR DETAILS.
4. GROUNDING REQUIREMENTS TO BE DETERMINED.
5. HAND HOLE AT ALL OPEN SPLICE LOCATIONS. SEE REFERENCE DOCUMENTS 1 AND 2 FOR DETAILS ON HAND HOLE PLACEMENT IN OPEN PIT.
6. DRILLED HOLES ARE INTENDED TO ROUTE FIBER OPTIC CONDUIT AND CAN BE DRILLED AND SEALED ON ANY SIDE OF HAND HOLE AS REQUIRED BY THE FIELD.

REFERENCE DOCUMENTS

LIST NO.	DOCUMENT NAME	DOCUMENT NO.
1	TYPICAL OPEN PIT SPLICE DETAILS	C-808
2	OPEN VAULT w/FIBER OPTIC HAND HOLE	C-853
3	FIBER OPTIC SPLICE DETAILS	C-855
4	HUBBELL QUAZITE (HAND HOLE)	MODEL NO. PG3048BA24



ISOMETRIC VIEW
NOT TO SCALE



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0	06/08/2023	ISSUED FOR CONSTRUCTION SUBMISSION	DLM	ASM	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

FIBER OPTIC HAND HOLE DETAILS

DRAWN BY:	DLM	DESIGNED BY:	NM	APPROVED BY:	MK	SCALE		DATE	06/08/2023
						REV. NO.	0	SH.NO.	OF

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-854
DATE	06/08/2023
SH.NO.	OF

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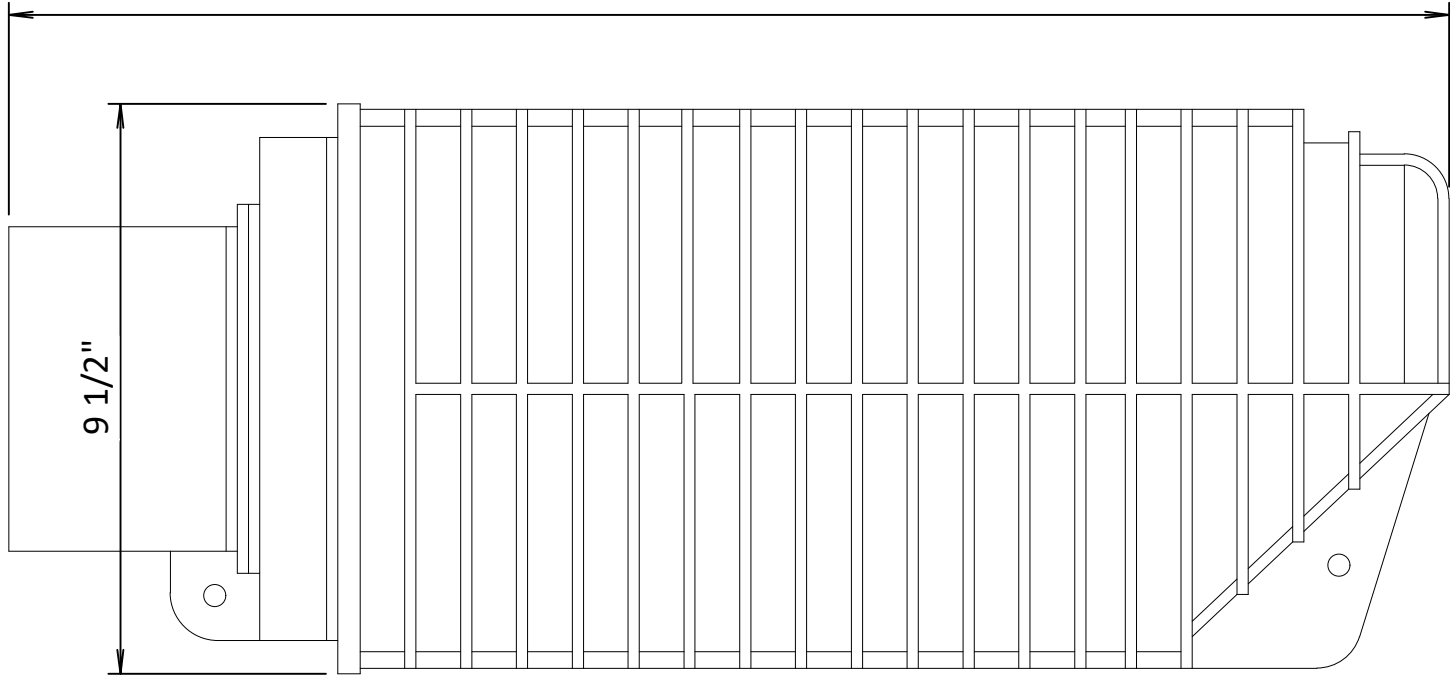
3

4

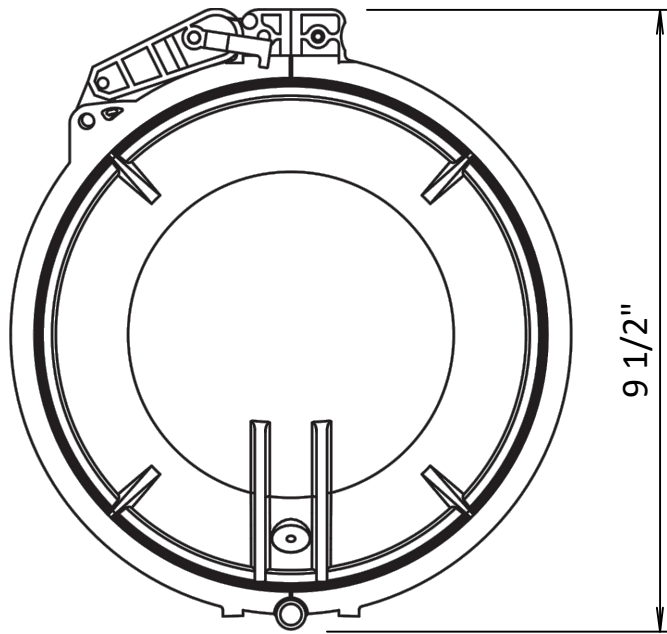
1. MAINTAIN 18" SWEEPS ON ALL CONDUITS.
2. DTS HUT FIBERS WILL SPLICE TO BLUE TUBE FIBER COLORS BLUE, ORANGE, GREEN AND BROWN.
3. SEE REFERENCE DOCUMENTS 2, 3, 4 AND 5 FOR PLACEMENT DETAILS.
4. FIBER OPTIC SPLICE CLOSURE ONLY IN SPECIFIC LOCATIONS. SEE PLAN AND PROFILES FOR DETAILS.

REFERENCE DOCUMENTS

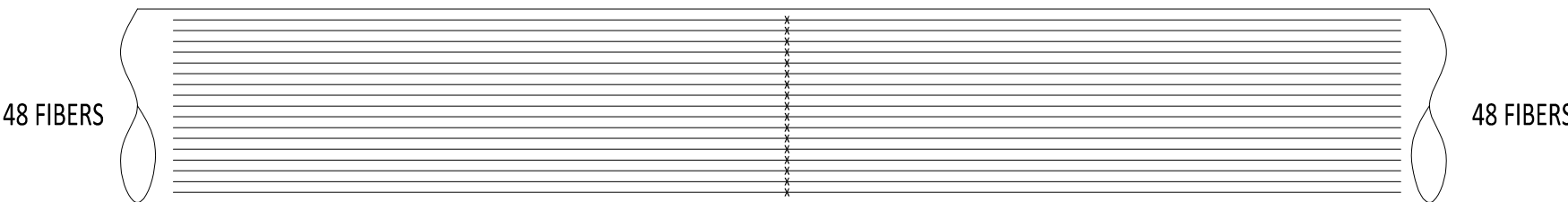
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1	FIBER OPTIC SPLICE CLOSURE	COMMSCOPE: MODEL NO. FOSC450-B6-6-24-1-B3V
2	TRANSITION VAULT FIBER OPTIC DETAIL	C-850
3	DTS HUT CONNECTION FIBER OPTIC SPLICE AND HANDHOLE	C-851
4	ENCLOSED VAULT w/FIBER OPTICS	C-852
5	OPEN VAULT w/FIBER OPTICS HAND HOLE	C-853



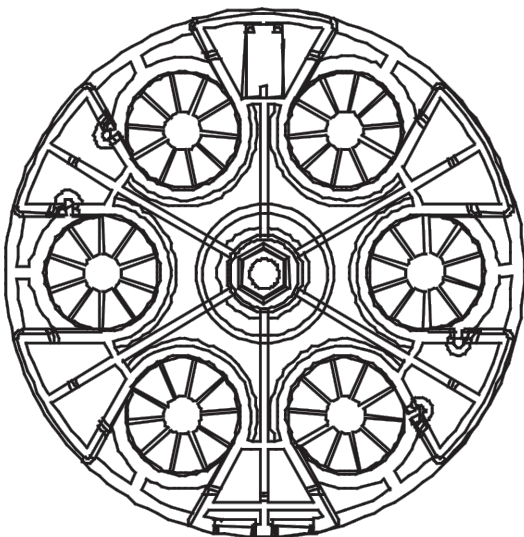
FIBER OPTIC SPLICE CLOSURE
NOT TO SCALE



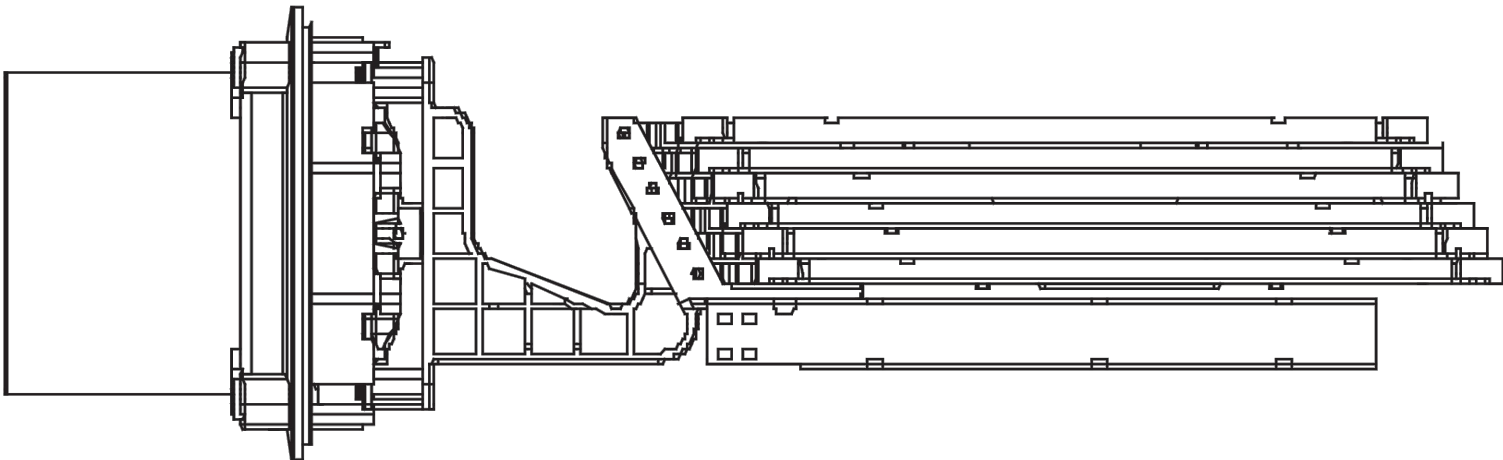
FIBER OPTIC SPLICE CLOSURE
NOT TO SCALE



FIBER OPTIC CABLE SPLICE
DIAGRAM TYPICAL
NOT TO SCALE



FIBER OPTIC SPLICE CLOSURE
GEL-BLOCK PROFILE
NOT TO SCALE



FIBER OPTIC SPLICE CLOSURE
INSIDE DIAGRAM
NOT TO SCALE



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0	06/08/2023	ISSUED FOR CONSTRUCTION SUBMISSION	DLM	ASM	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

FIBER OPTIC SPLICE DETAILS

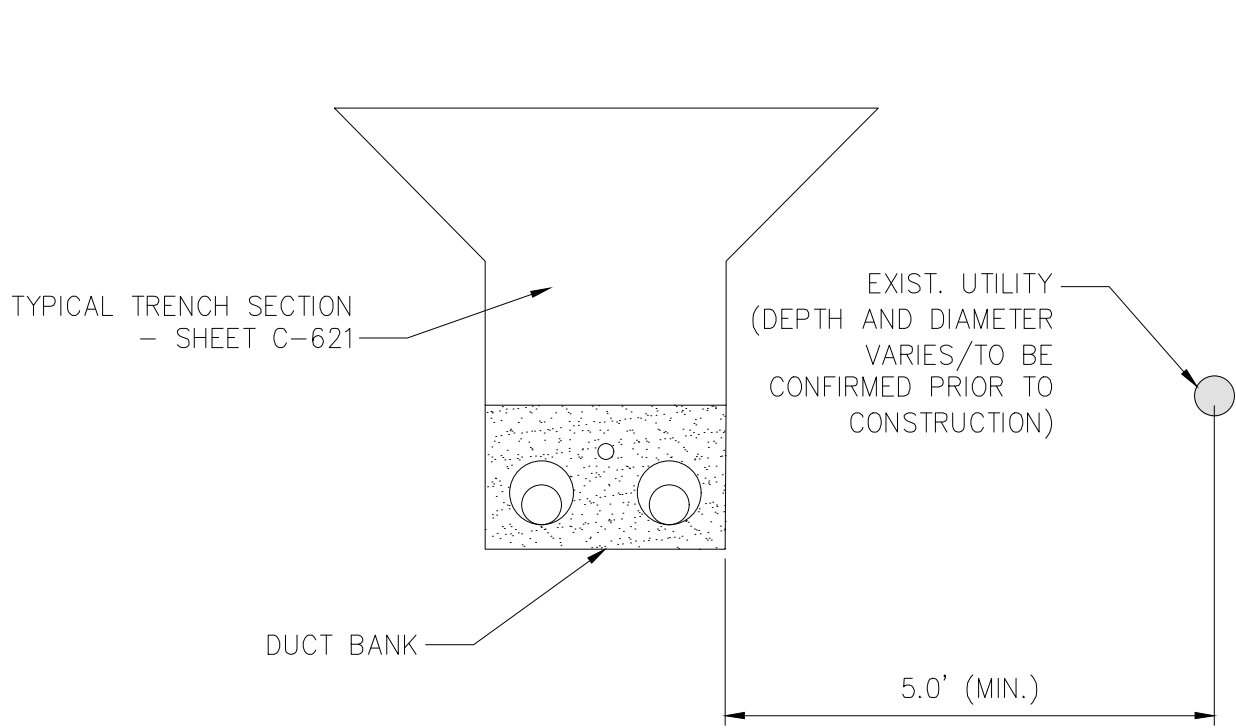
DRAWN BY: DLM DESIGNED BY: NM APPROVED BY: MK SCALE REV. NO. 0

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-855
DATE	06/08/2023
SH.NO.	OF

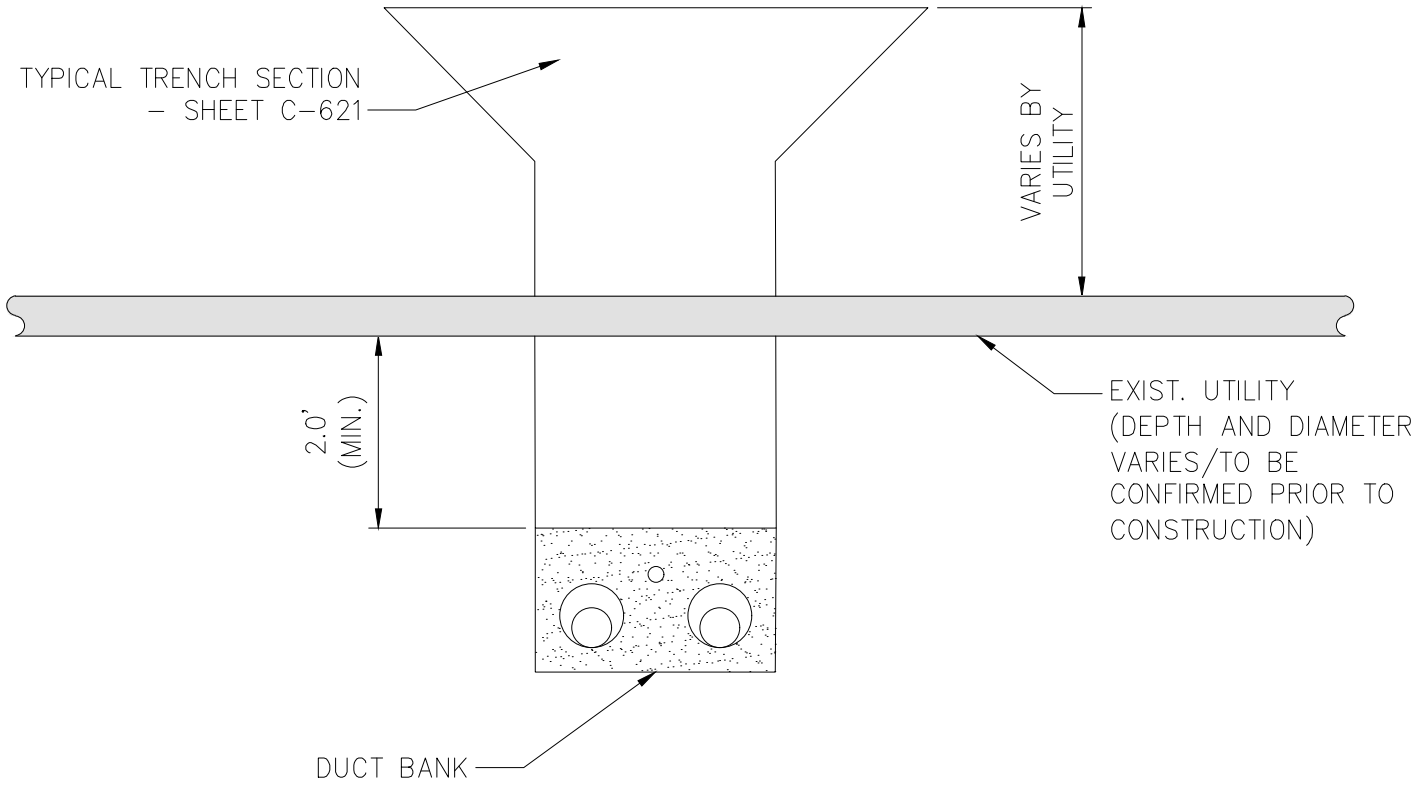
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NATIONAL GRID NOTES

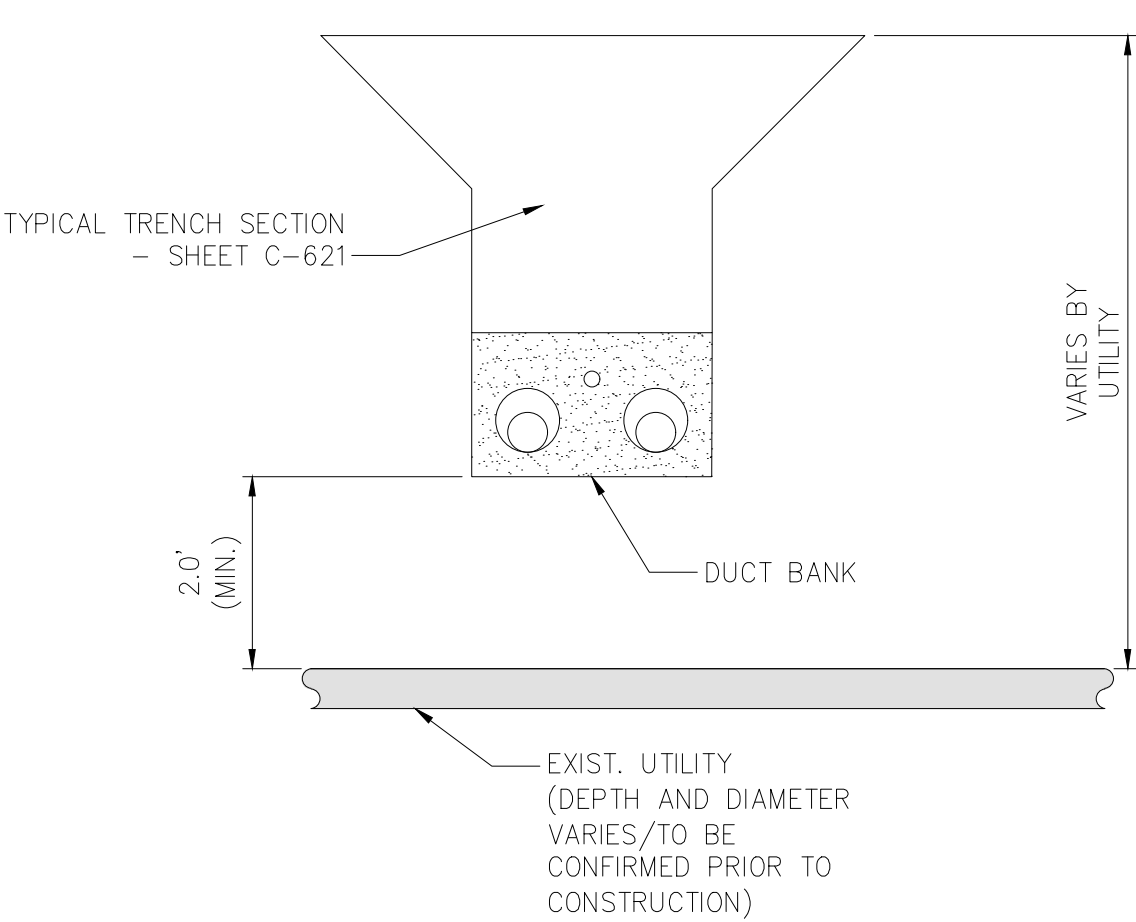
1.
- THE CONTRACTOR SHALL OBSERVE AND ABIDE BY THE APPLICABLE POWER LINE SAFETY REGULATIONS 29 C.F.R. § 1926.1406 – 1926.1411.
2.
- THE CONTRACTOR SHALL TRAIN EMPLOYEES WORKING AS DEDICATED SPOTTERS IN ACCORDANCE WITH 29 C.F.R. § 1926.1408(G)(2).
3.
- CONSTRUCTION UNDER TRANSMISSION LINES REQUIRES A DEDICATED SPOTTER, AS APPLICABLE.



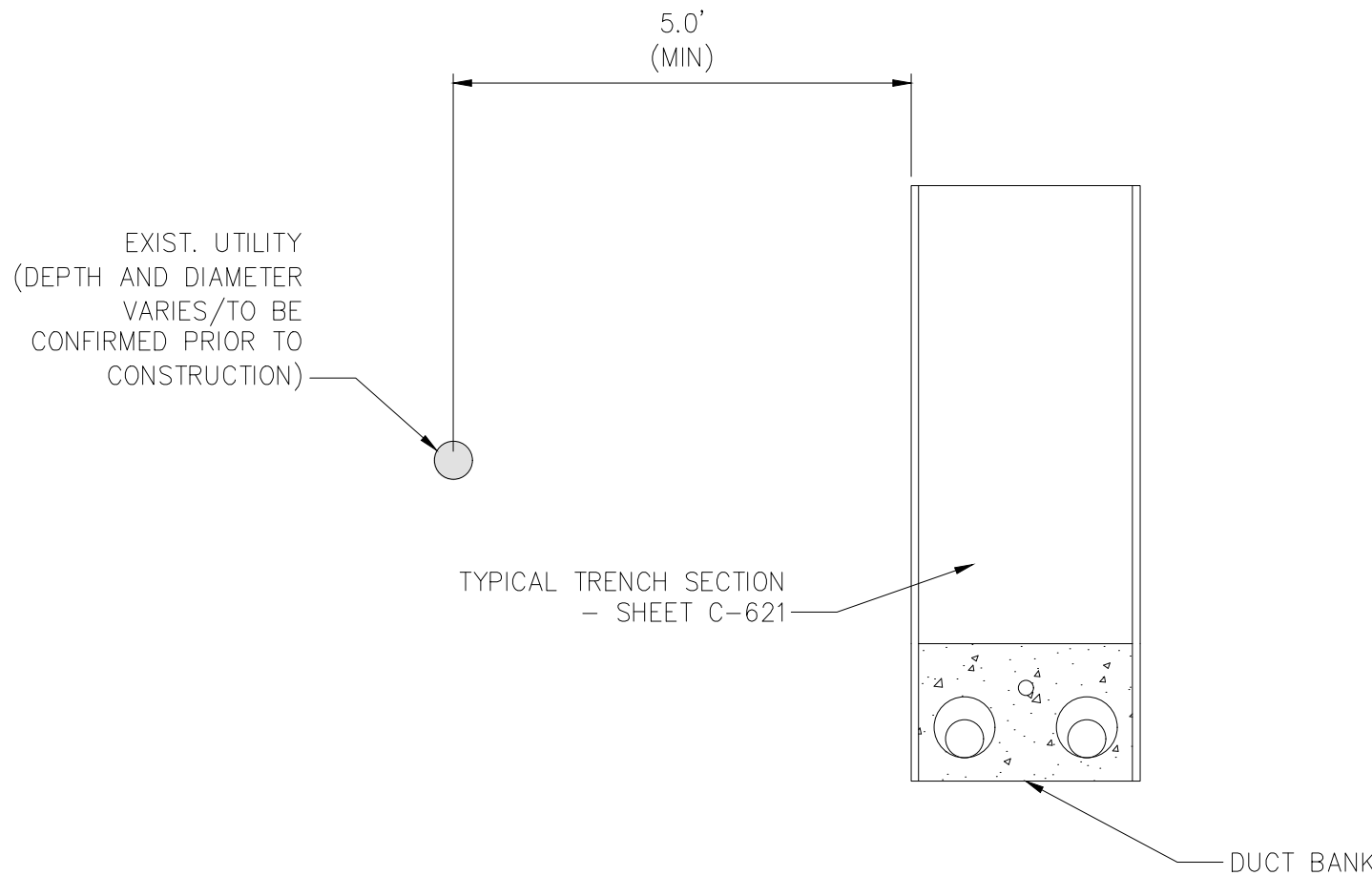
1 OPEN TRENCH – HORIZONTAL SEPARATION
NOT TO SCALE



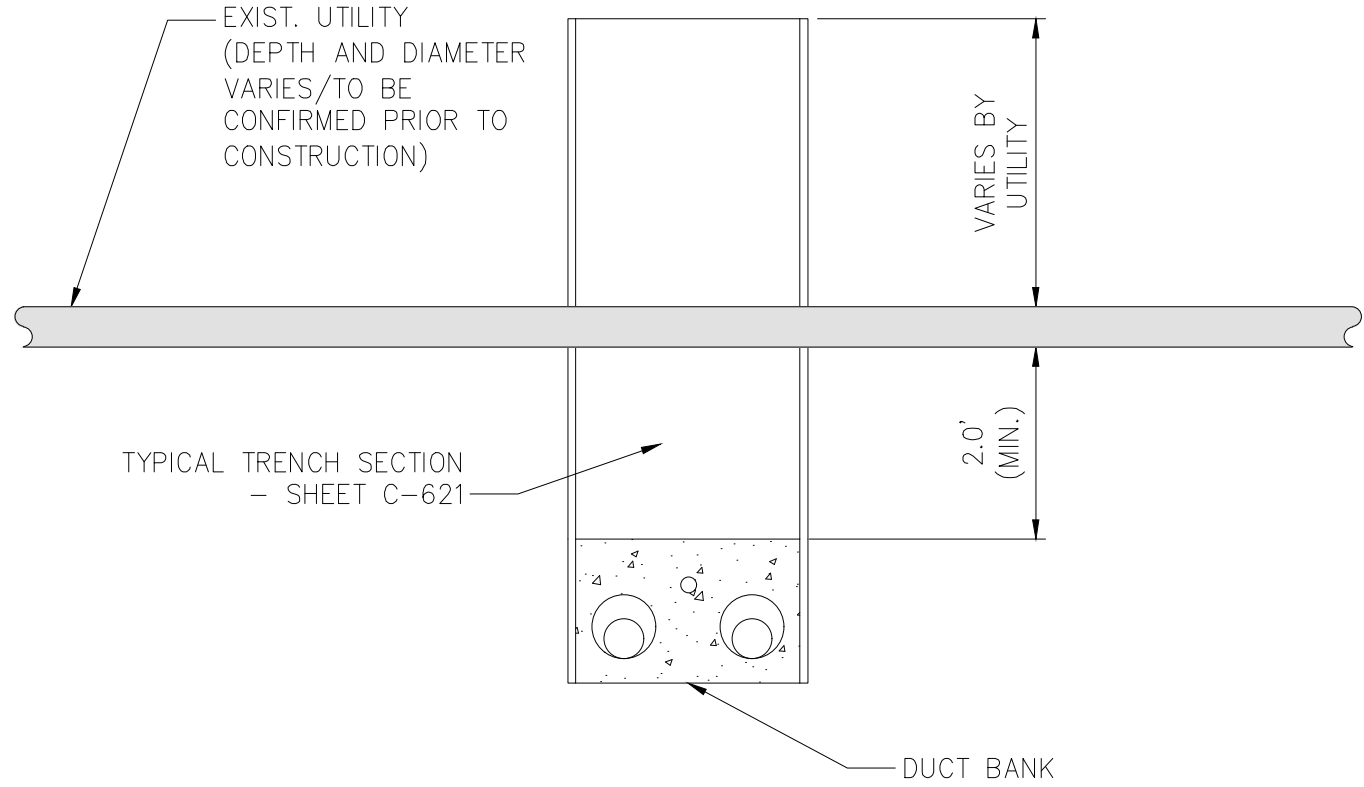
2 OPEN TRENCH – VERTICAL SEPARATION (UNDER)
NOT TO SCALE



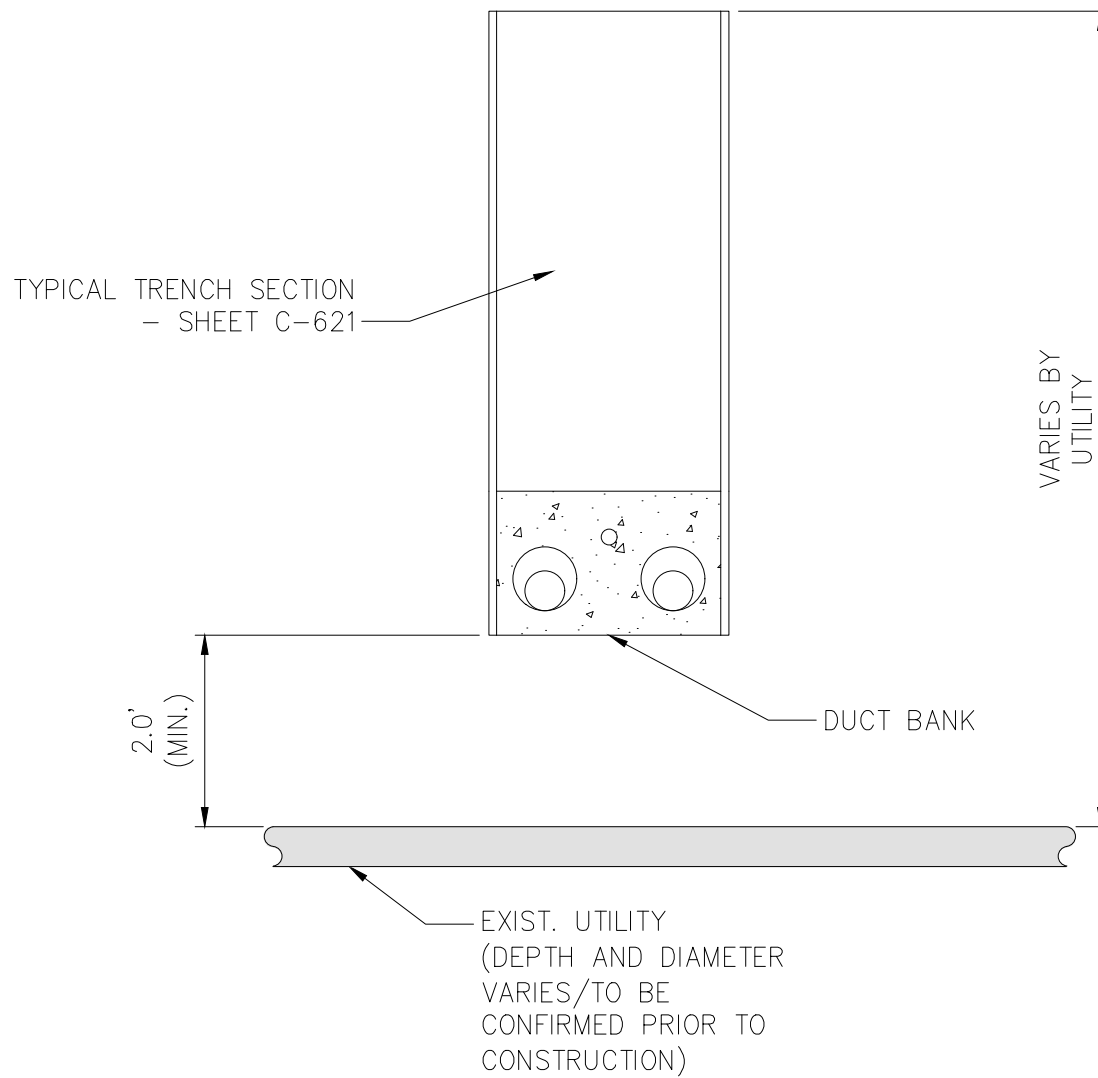
3 OPEN TRENCH – VERTICAL SEPARATION (OVER)
NOT TO SCALE



4 TYPICAL DUCTBANK IN ROADWAY – HORIZONTAL SEPARATION
NOT TO SCALE



5 TYPICAL DUCTBANK IN ROADWAY – VERTICAL SEPARATION (UNDER)
NOT TO SCALE



6 TYPICAL DUCTBANK IN ROADWAY – VERTICAL SEPARATION (OVER)
NOT TO SCALE



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1	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	BV	TK	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
UTILITY TYPICAL SEPARATION DETAILS

DRAWN BY:	AR	DESIGNED BY:	BV	APPROVED BY:	TK	SCALE	AS SHOWN	DATE	07/28/2023
						REV. NO.		SH. NO.	OF XXX

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-901
DATE	07/28/2023
SH. NO.	OF XXX