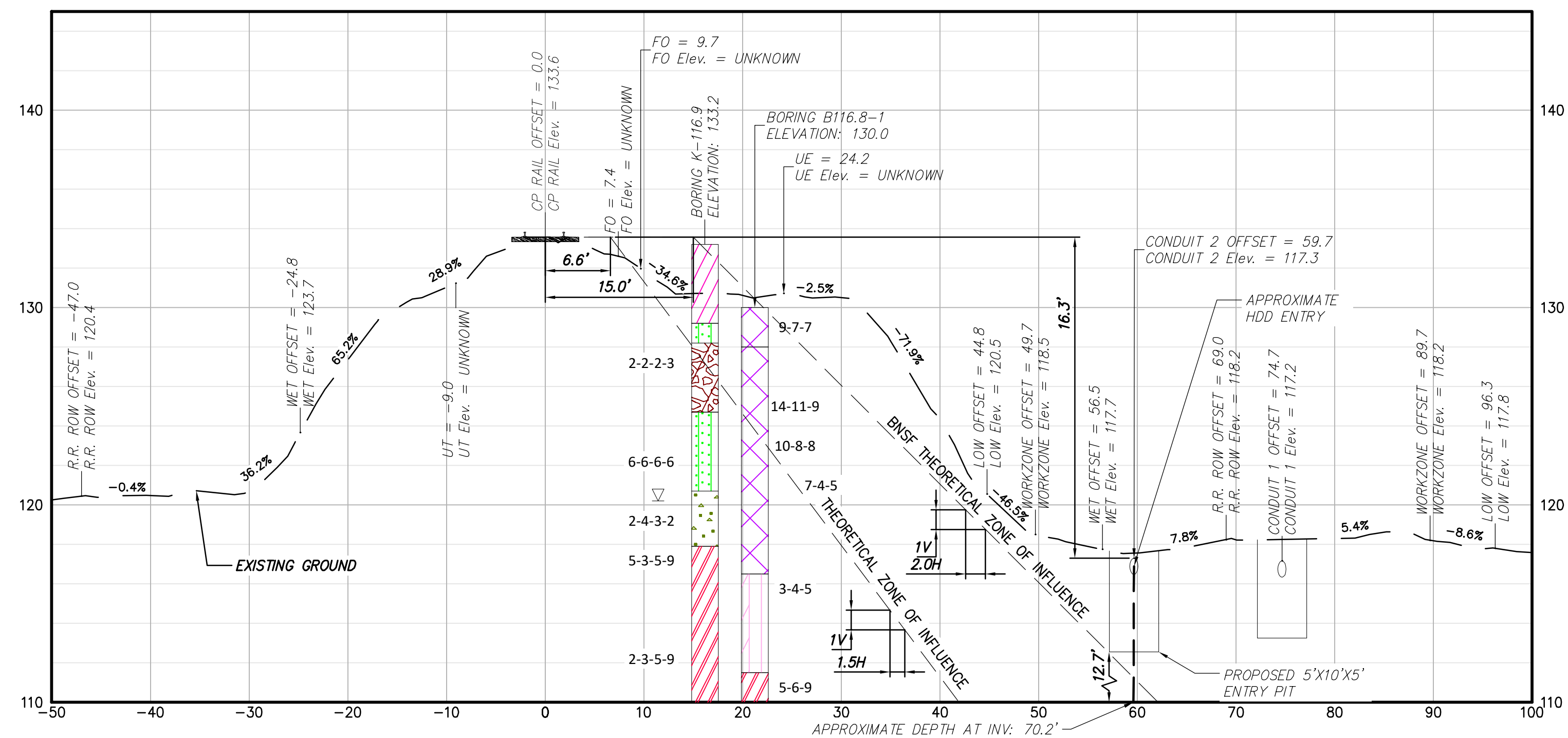



2	HDD #7 CONDUIT 2 EXIT PIT CUT SECTION; STA. 15269+04 CP RAIL CANADIAN MAINLINE MP: 73.12
---	---



1 HDD #7 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 15256+14  
CP RAIL CANADIAN MAINLINE MP: 73.36

### BORING LOG STRIP LEGEND



B101





































11000psi = UCS

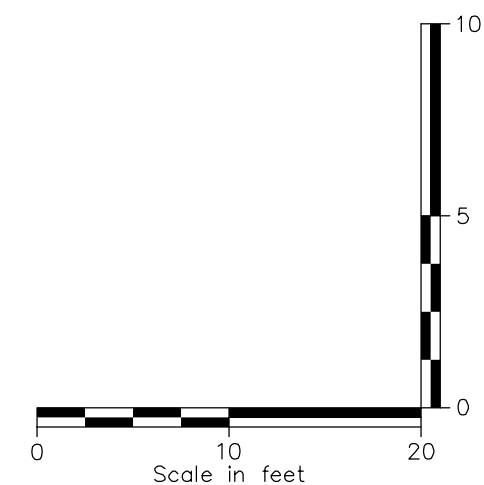
2D strip logs shown at 10x exaggeration

2D strip logs have no exaggeration

Blow Counts per 6" = 10-10-10


Recovery %/RQD % = 95%/90%

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	Boulder
	CH	Fat CLAY
	CH-MH	SILTY Fat CLAY
	CL	Lean CLAY
	CL-ML	SILTY CLAY
	CONCRETE	Concrete
	FILL	Fill
	GC	CLAYEY GRAVEL
	GC-GM	SILTY CLAYEY GRAVEL
	GM	SILTY GRAVEL
	GP	Poorly Graded GRAVEL
	GP-GC	Poorly Graded Gravel with CLAY
	GP-GM	Poorly Graded GRAVEL with SILT
	GW	Well Graded GRAVEL
	GW-GC	Well Graded GRAVEL with CLAY
	GW-GM	Well Graded GRAVEL with SILT
	Limestone	Limestone
	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
	SP	Poorly Graded SAND
	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
	Water Table	Water Table during drilling
	Delayed Water Table	Water Table after drilling





### BORING LOG STRIP LEGEND



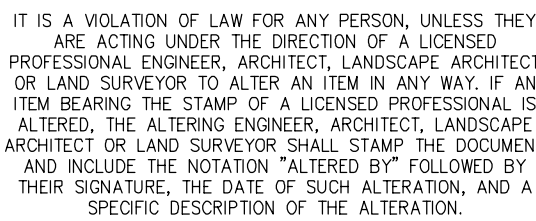
B101

11000psi = UCS

2D strip logs shown at 10x exaggeration  
3D strip logs have no exaggeration



Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	Boulder
	OH	Fat CLAY
	CH-MH	SILTY Fat CLAY
	CL	Lean CLAY
	CL-ML	SILTY CLAY
	CONCRETE	Concrete
	FILL	FILL
	GC	CLAYEY GRAVEL
	GC-GM	SILTY CLAYEY GRAVEL
	GM	SILTY GRAVEL
	GP	Poorly Graded GRAVEL
	GP-GC	Poorly Graded Gravel with CLAY
	GP-GM	Poorly Graded GRAVEL with SILT
	GW	Well Graded GRAVEL
	GW-GC	Well Graded GRAVEL with CLAY
	GW-GM	Well Graded GRAVEL with SILT
	Limestone	Limestone
	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
	SP	Poorly Graded SAND
	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgyroscopic
	USGS 702	Interbedded Sandstone and Shale
	USGS 770	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
	Water Table	Water Table during drilling
	Delayed Water Table	Water Table after drilling



0	12/16/2022	FINAL EM&CP SUBMISSION	MCS	JEO
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP

KIEWIT PROJECT NO.
21162
CHA PROJECT NO.
066076
DRAWING NO.

DATE	12/16
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




### BORING LOG STRIP LEGEND

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%



B101

11000psi = UCS

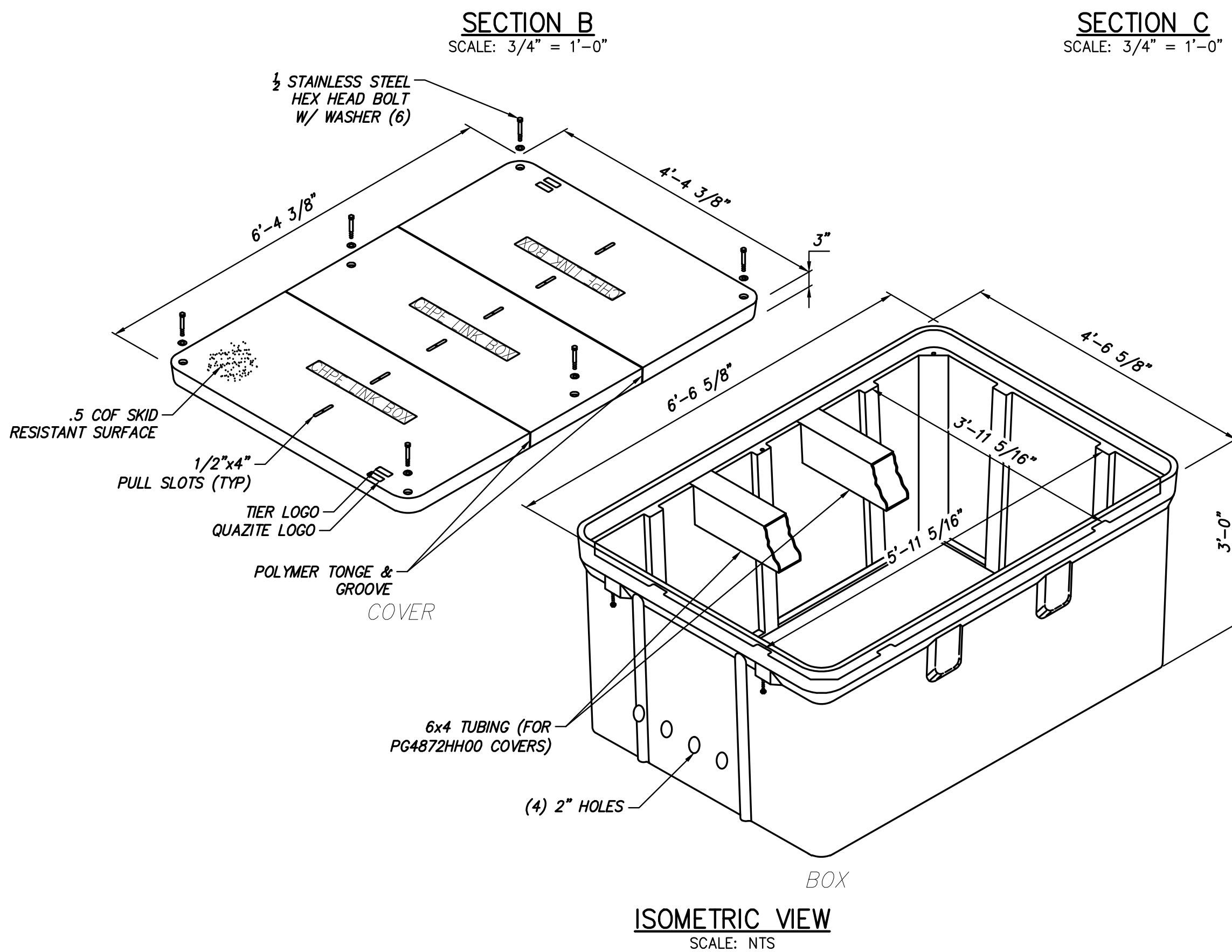
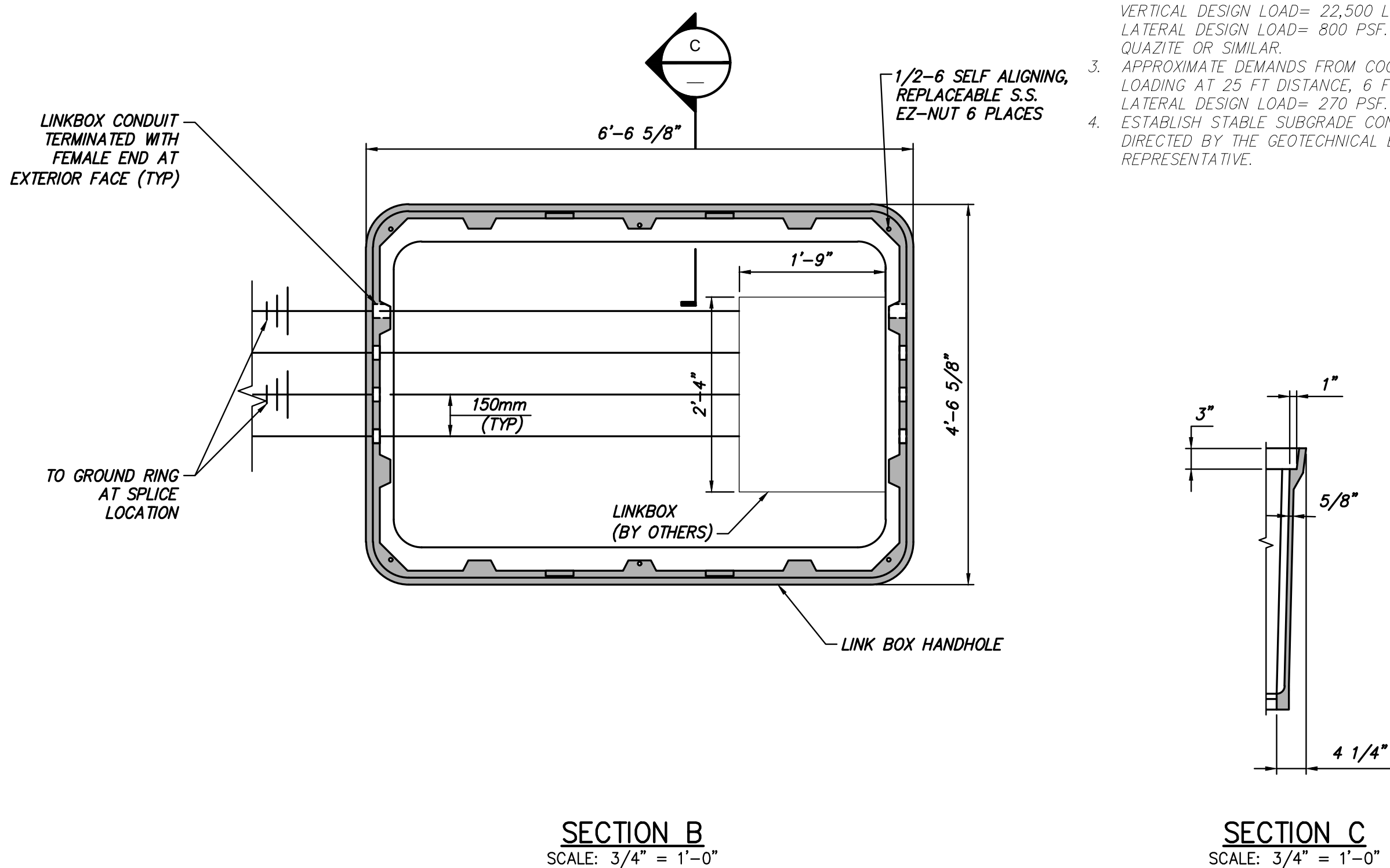
2D strip logs shown at 10x exaggeration  
3D strip logs have no exaggeration



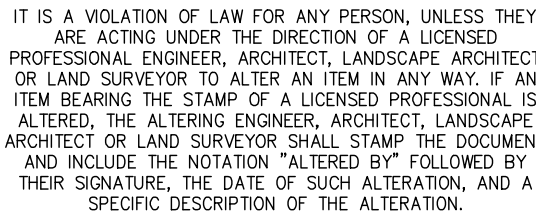
Legend		
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	Bedrock	Bedrock
	Boulder	Boulder
	OH	Fat CLAY
	OH-MH	SILTY Fat CLAY
	CL	Lean CLAY
	CL-ML	SILTY CLAY
	CONCRETE	Concrete
	Fill	Fill
	GC	CLAYEY GRAVEL
	GC-GM	SILTY CLAYEY GRAVEL
	GM	SILTY GRAVEL
	GP	Poorly Graded GRAVEL
	GP-GC	Poorly Graded Gravel with CLAY
	GP-GM	Poorly Graded GRAVEL with SILT
	GW	Well Graded GRAVEL
	GW-GC	Well Graded GRAVEL with CLAY
	GW-GM	Well Graded GRAVEL with SILT
	Limestone	Limestone
	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
	SP	Poorly Graded SAND
	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgravel
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
	Water Table	Water Table during drilling
	Delayed Water Table	Water Table after drilling

[illegible]

1. FOR LINK BOX DETAILS SEE ELECTRICAL DRAWINGS.
2. DESIGN LINE LOAD: ANSI TIER 22 (OCCASIONAL NON-DEBURATE HEAVY VEHICULAR TRAFFIC).  
VERTICAL DESIGN LOAD = 22,500 LBS;  
LATERAL DESIGN LOAD = 800 PSF.  
QUAZITE OR SIMILAR.
3. APPROXIMATE DEMANDS FROM COPER E-80 LIVE LOADING AT 25 FT DISTANCE, 6 FT BELOW GROUND:  
LATERAL DESIGN LOAD = 270 PSF
4. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.



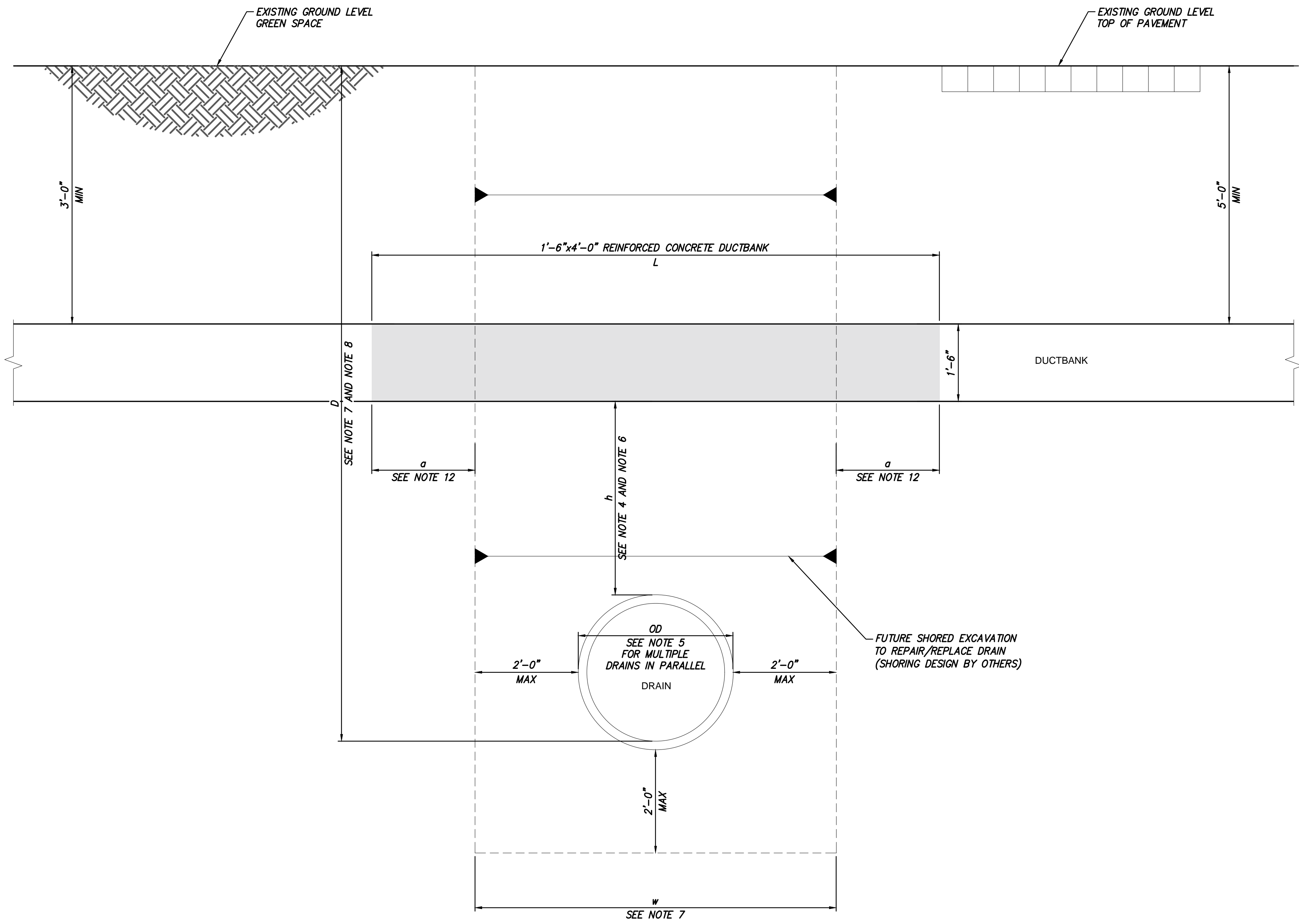
NOT FOR CONSTRUCTION,  
FOR PERMIT APPROVAL ONLY



					CHAMPLAIN HUDSON POWER EXPRESS					KIEWIT PROJECT NO. 21162	
					FRP LINK BOX HANDHOLES					DRAWING NO.  S-711	
0	12/16/2022	FINAL EM&CP SUBMISSION	JNK	OO							
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	DRAWN BY: DRH	DESIGNED BY: JNK	APPROVED BY: OO	SCALE REV. NO.	AS SHOWN 0	DATE SH.NO.	12/16/2022



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TYPICAL DUCT BANK SECTION OVER UTILITIES  
(FOR D < 14FT)  
SCALE: NTS

- NOTES:
1. TYPICAL SECTION AND FOLLOWING NOTES PROVIDED PROPOSED DESIGN CRITERIA TO BE APPLIED FOR DRAINS LOCATED BELOW THE DUCT BANK WITHIN THE NYSDOT RIGHT OF WAY, PENDING APPROVAL.
  2. EXCAVATION FOR / CONSTRUCTION OF FUTURE DRAIN REPAIRS/REPLACEMENTS, AND RELATED SHORING CALCULATIONS BY OTHERS.
  3. D = DISTANCE FROM EXISTING GROUND LEVEL TO DRAIN INVERT.
  4. h = DISTANCE FROM BOTTOM OF TRENCH PROTECTIVE CONCRETE/BOTTOM OF BRIDGING SUPPORT, TO TOP OF EXISTING DRAINAGE PIPE.
  5. FOR SINGLE PIPE, OD = OUTSIDE DIAMETER OF PIPE; FOR MULTIPLE PIPES IN PARALLEL, OD = DISTANCE BETWEEN OUTSIDE EDGES OF EXTERIOR PIPES.
  6. REFER TO CIVIL PLAN & PROFILE DRAWINGS FOR VALUE OF "h".
  7. FOR D≤14FT, ALL FUTURE EXCAVATIONS TO REPAIR/REPLACE EXISTING DRAINAGE PIPES WILL BE SHORED EXCAVATION, WITH MAXIMUM EXCAVATION WIDTH OF w=2FT+OD+2FT (DESIGN/CONSTRUCTION BY OTHERS).
  8. FOR D>14FT, TRENCH-LESS METHOD WILL BE USED TO REPAIR/REPLACE EXISTING DRAINAGE PIPES (DESIGN/CONSTRUCTION BY OTHERS).
  9. BRIDGING SUPPORT IS PROVIDED OVER LENGTH L = w+2a.
  10. BRIDGING SUPPORT IS NOT PROVIDED WHEN D>14FT.
  11. BRIDGING SUPPORT IS DESIGNED TO CARRY DUCT BANK WEIGHT, ONLY. SOIL ABOVE THE DUCT BANK IS REMOVED BEFORE EXCAVATING UNDER THE DUCT BANK.
  12. "a" DIMENSION IS 2'-0" MINIMUM.

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1	12/05/2022	REVISED NYSDOT HWP SUBMISSION	JNK	OO	
0	09/21/2022	FINAL EM&CP SUBMISSION	JNK	OO	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

REINFORCING TRAY OVER UTILITIES

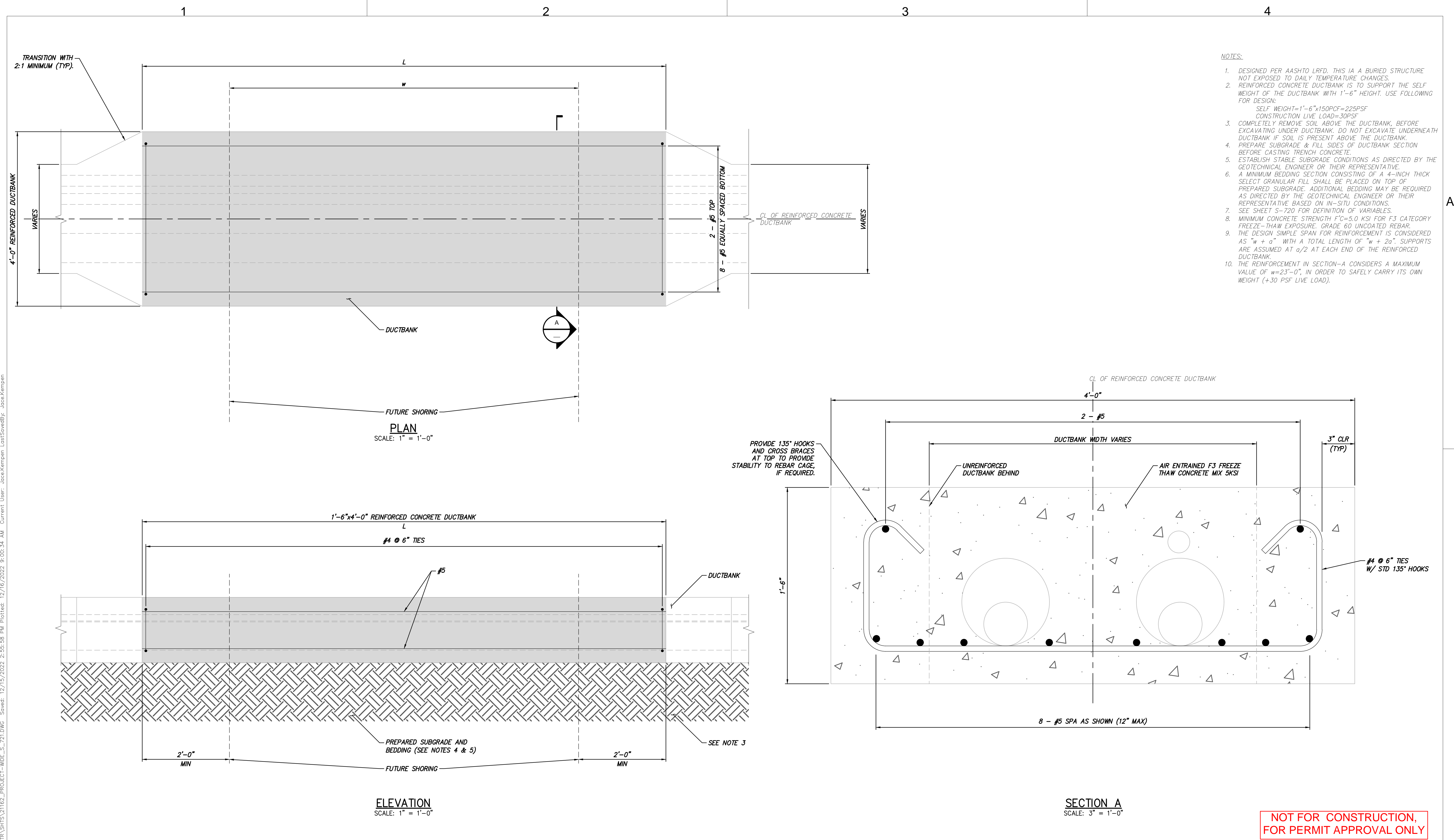
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			REV. NO.	SH.NO. XX OF XXX


KIEWIT PROJECT NO.  
21162

DRAWING NO.


S-720

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Champlain Hudson  
Power Express



Kiewit



ANDREA F. GRUNLI  
094103  
LICENSED PROFESSIONAL ENGINEER

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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1	12/05/2022	REVISED NYSDOT HWP SUBMISSION	JNK	OO
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## CHAMPLAIN HUDSON POWER EXPRESS

### REINFORCING TRAY DETAILS

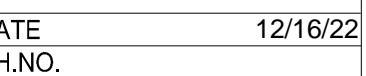
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REV. NO.							

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DRAWING NO.	S-721
DATE	XX

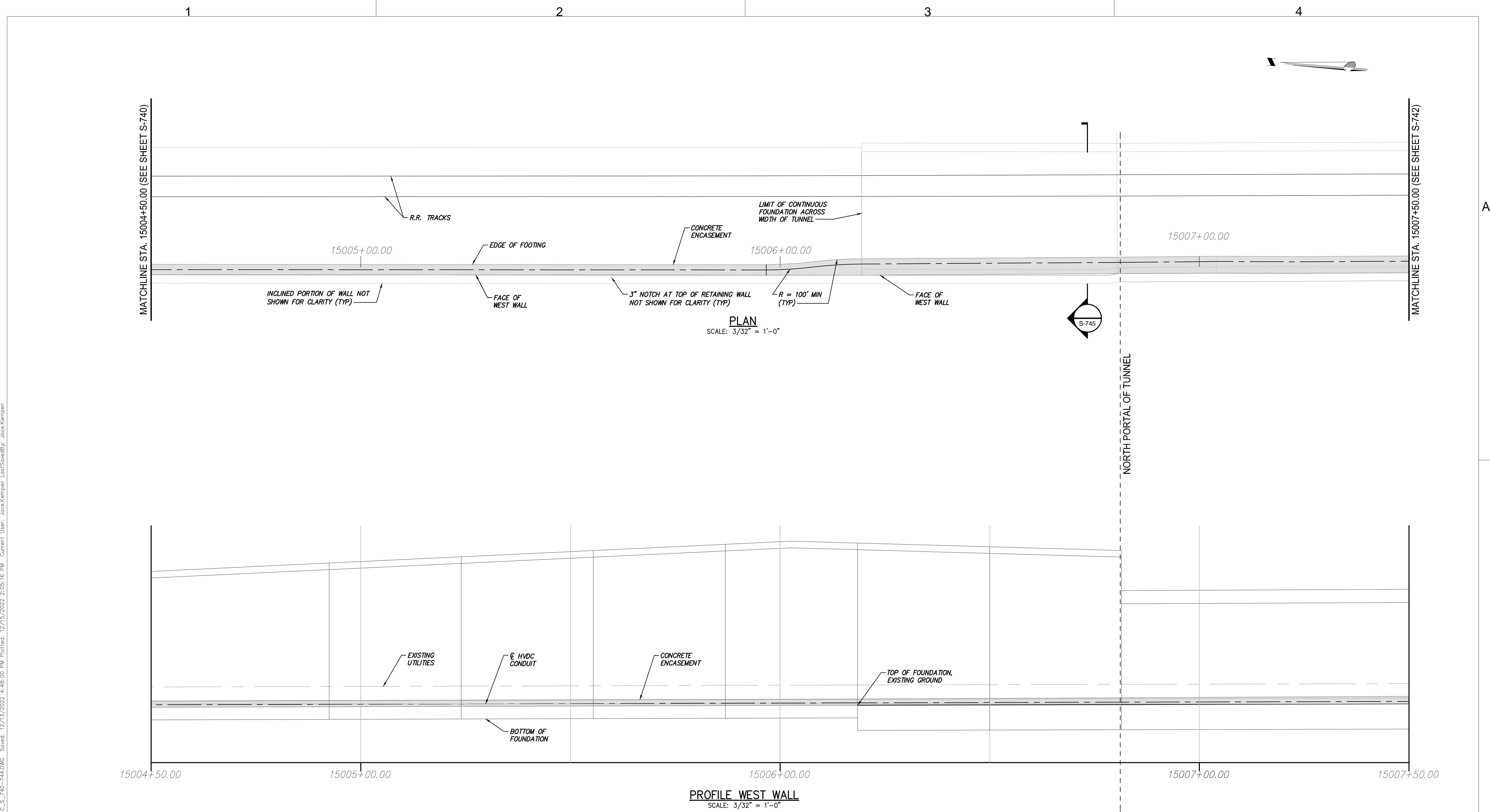




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0	12/16/2022	FINAL EM&CP SUBMISSION					JNK	OO	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION					DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

WALL PLAN AND ELEVATION II

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			REV. NO.		12/16/22

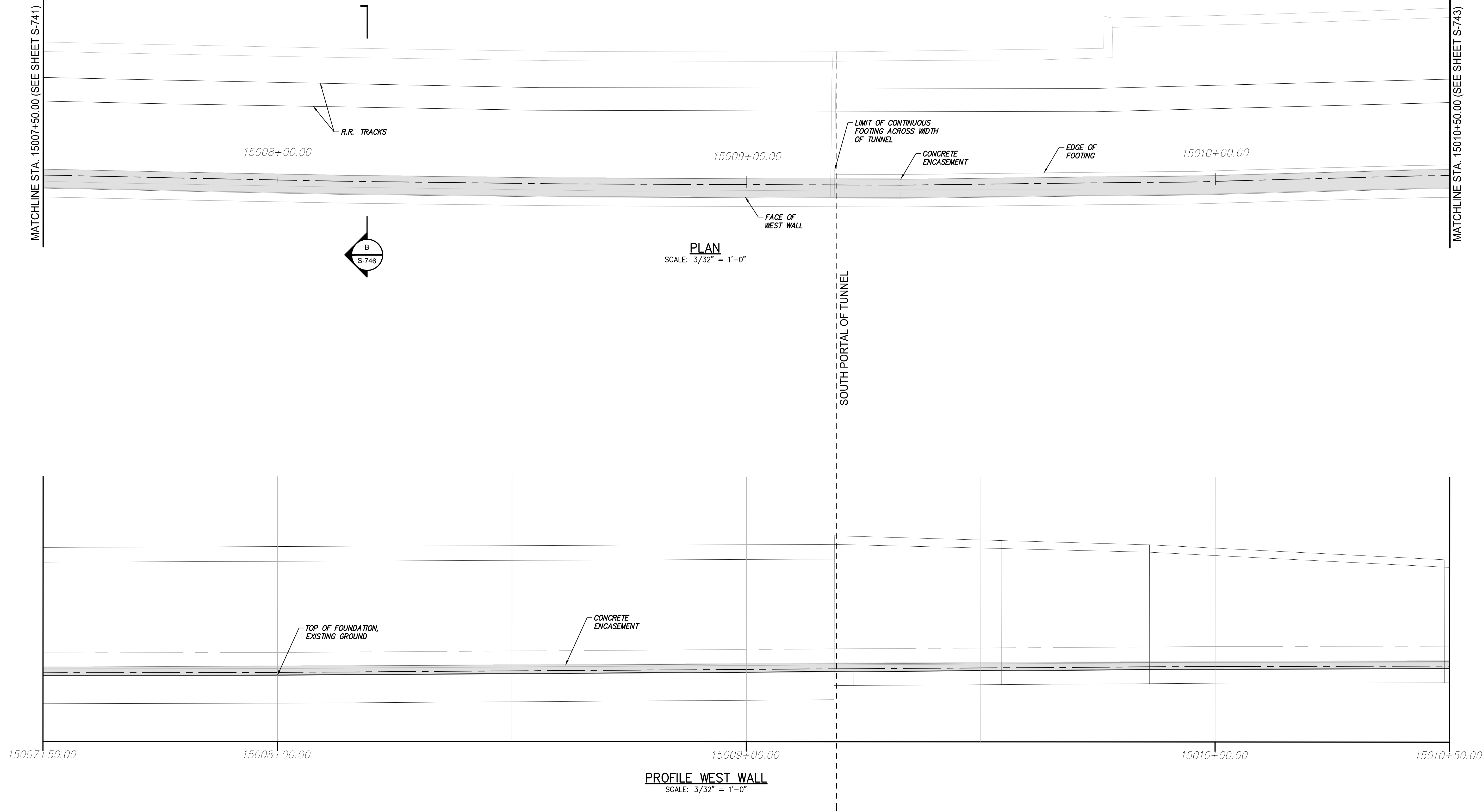
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DRAWING NO.	S-741
DATE	12/16/22
SH.NO.	0



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MATCHLINE STA. 15007+50.00 (SEE SHEET S-741)

MATCHLINE STA. 15010+50.00 (SEE SHEET S-743)



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0	12/16/2022	FINAL EM&CP SUBMISSION					JNK	OO	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION					DB	APP	

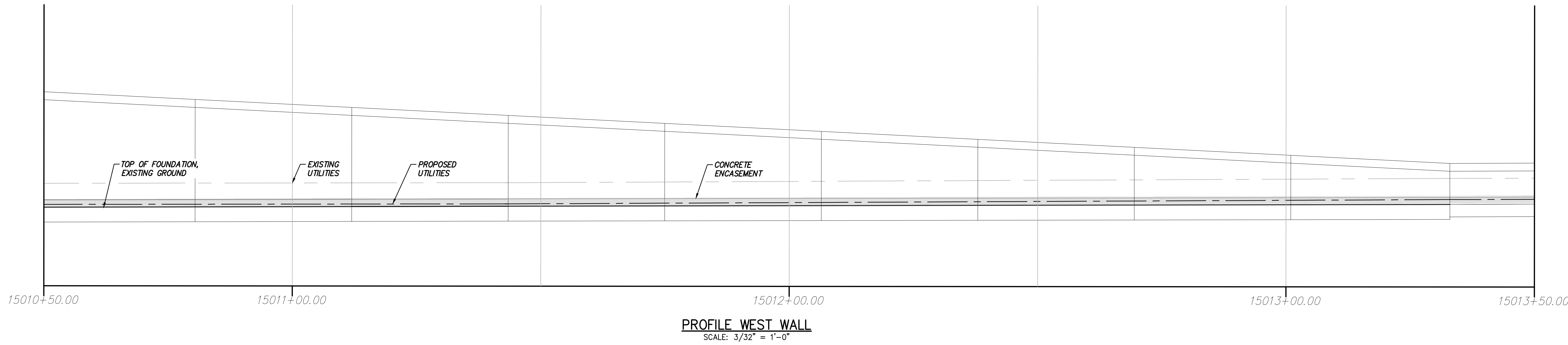
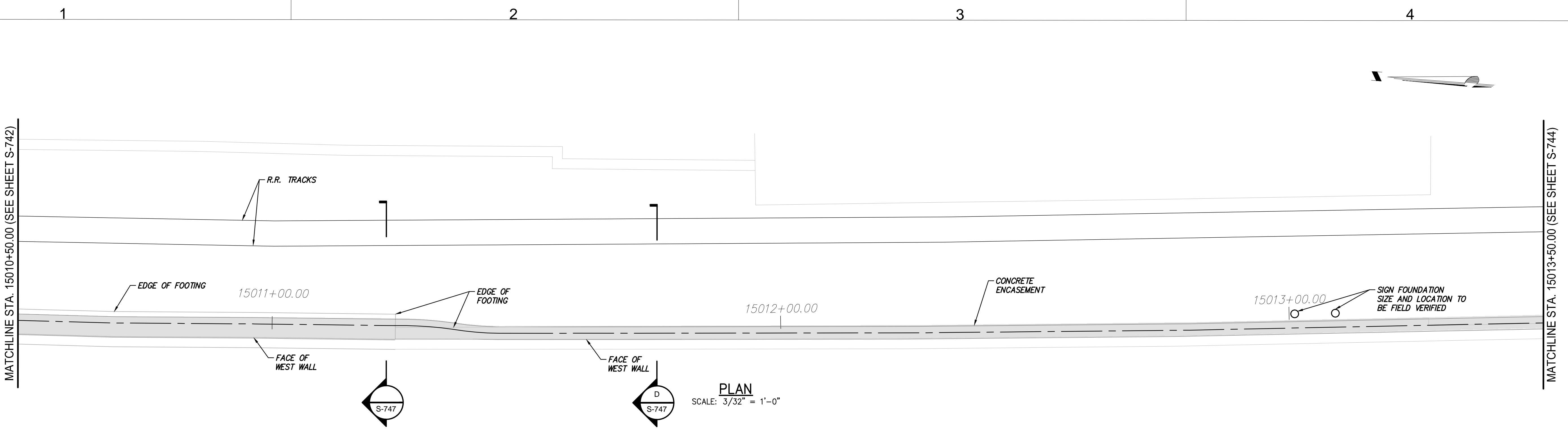
CHAMPLAIN HUDSON POWER EXPRESS

WALL PLAN AND ELEVATION III

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						REV. NO.		SH. NO.	0

KIEWIT PROJECT NO.	21162
DRAWING NO.	S-742

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0	12/16/2022	FINAL EM&CP SUBMISSION					JNK	OO	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION					DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

WALL PLAN AND ELEVATION IV

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						REV. NO.		SH. NO.	0

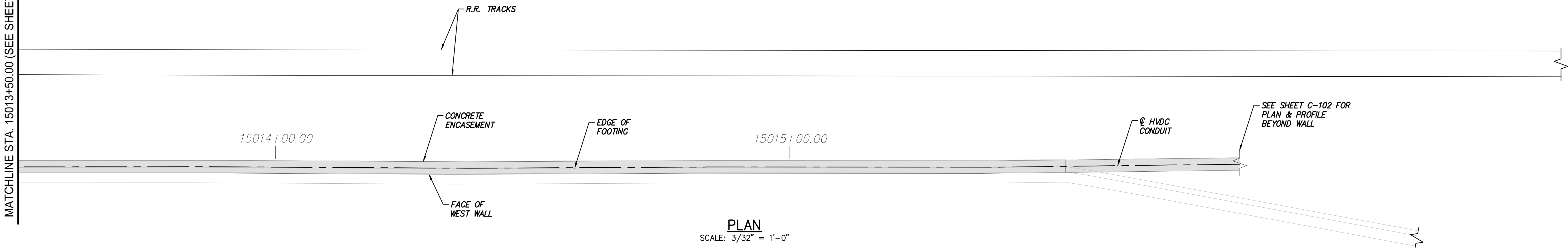
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DRAWING NO.	S-743



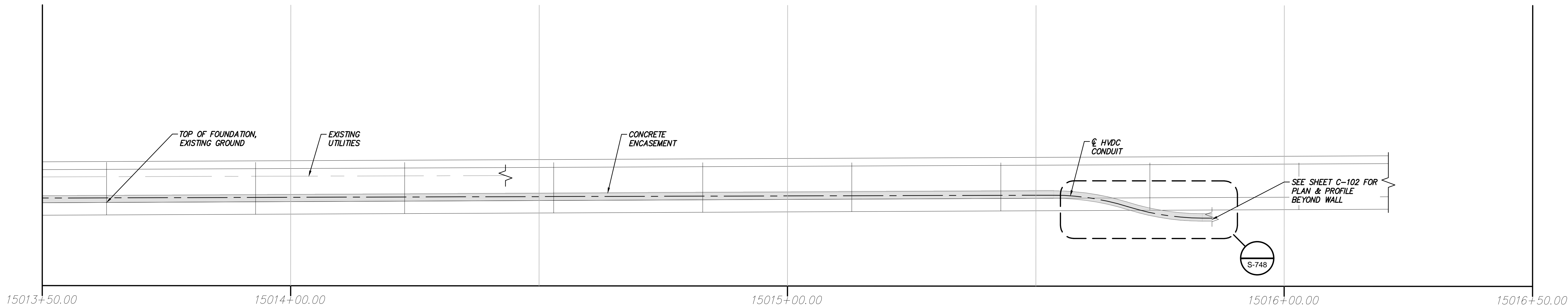
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B

MATCHLINE STA. 15013+50.00 (SEE SHEET S-743)



PLAN  
SCALE: 3/32" = 1'-0"



PROFILE WEST WALL  
SCALE: 3/32" = 1'-0"

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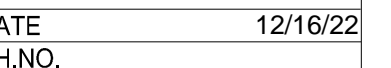
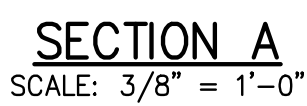
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION				DB	APP		

CHAMPLAIN HUDSON POWER EXPRESS

WALL PLAN AND ELEVATION V

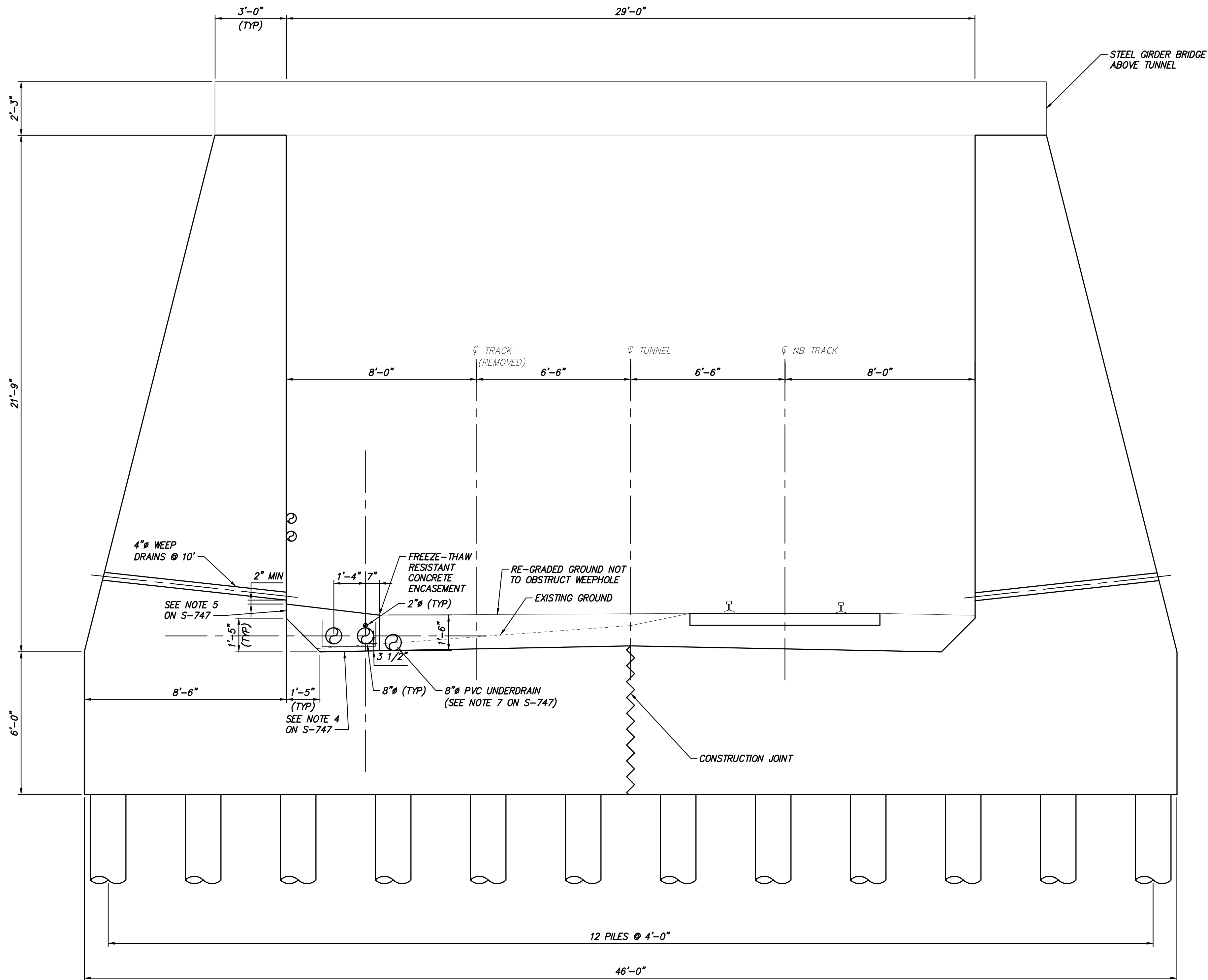
DRAWN BY: DRH	DESIGNED BY: JNK	APPROVED BY: OO	SCALE REV. NO.	AS SHOWN	DATE SH. NO.
					12/16/22

KIEWIT PROJECT NO. 21162
DRAWING NO. S-744





NOTES:  
1. SEE NOTES ON S-747.



APPROX. STA. 15008+15  
**SECTION B – TYPICAL TUNNEL CROSS SECTION**  
SCALE: 3/8" = 1'-0"

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0	12/16/2022	FINAL EM&CP SUBMISSION	JNK	OO	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

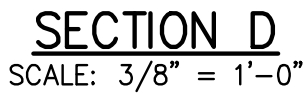
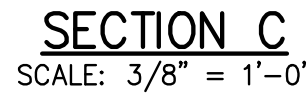
CHAMPLAIN HUDSON POWER EXPRESS

WALL ATTACHMENT SECTIONS II

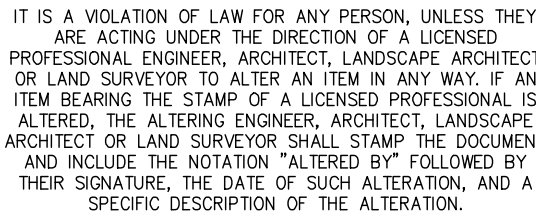
KIEWIT PROJECT NO.	21162
DRAWING NO.	S-746
DATE	12/16/22
SH.NO.	0

DRAWN BY: DRH	DESIGNED BY: JNK	APPROVED BY: OO	SCALE	AS SHOWN	DATE
			REV. NO.		SH.NO.

1. DUCTBANK MATERIAL TO BE AIR ENTRAINED, FREEZE--THAW RESISTANT REINFORCED CONCRETE ALONG THE RETAINING WALL. PROVIDING MINIMUM REINFORCEMENT PER CODE.
2. MINIMUM CONCRETE STRENGTH  $F'_{C} = 5.0$  KSI, CATEGORY F3 FREEZE--THAW EXPOSURE.
3. REINFORCEMENT SHALL BE WELDED WIRE MESH (SEE DETAIL 1 ON S-745). PROVIDE 3" CLEAR COVER.
4. PROVIDE SEPARATION BETWEEN RETAINING WALL FOOTING AND DUCTBANK CONCRETE WITH 2 LAYERS OF 1/4" POLYETHYLENE SHEET BETWEEN EXISTING CONCRETE AND DUCTBANK.
5. PROVIDE BOND BREAKER ON VERTICAL SURFACES BETWEEN EXISTING CONCRETE AND DUCTBANK, AS APPLICABLE.
6. REGRADED GROUND LEVEL NOT TO OBSTRUCT WEAP DRAINS.
7. PROVIDE 8 INCH DIA SCH 40 PVC UNDERDRAIN PIPE, HALF PERFORATED FACING DOWN ON TOP OF CONCRETE FILING FOUNDATION, 0.5% MIN SLOPE, DIRECTED BY DRAINAGE ENGINEER. SEE C-101 FOR LIMITS OF UNDERDRAIN.
8. IF A PORTION OF THE DUCTBANK IS ON SOIL, PROVIDE THE SAME BEDDING DETAIL AS PER TYPICAL

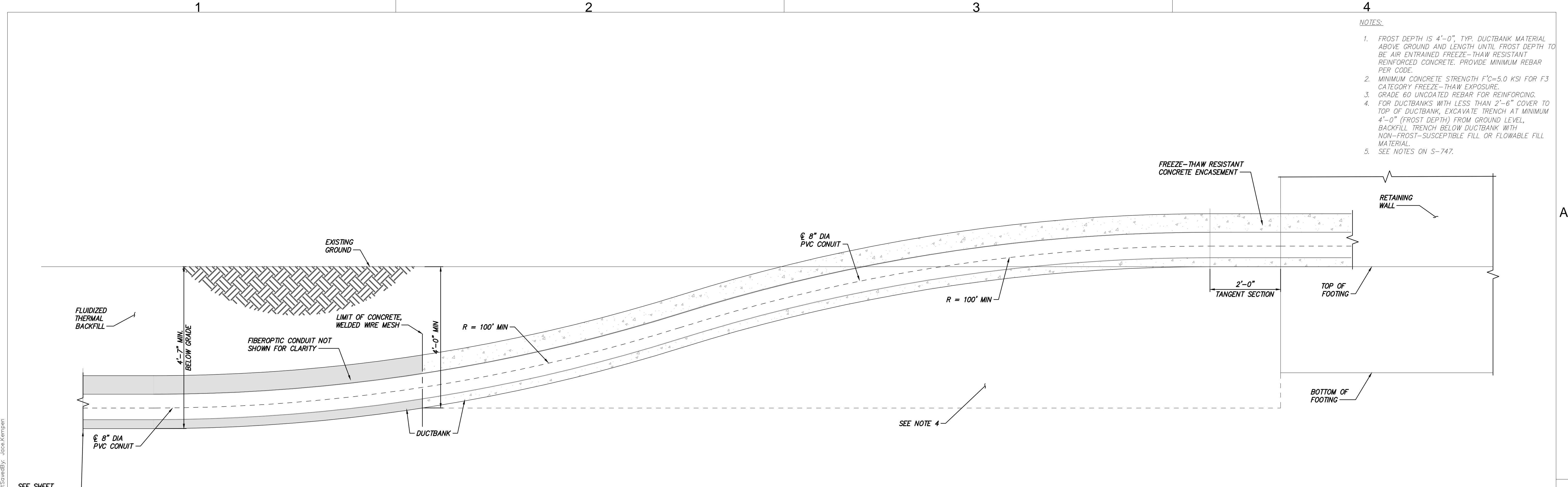


DATE	12/16/22
SH.NO.	

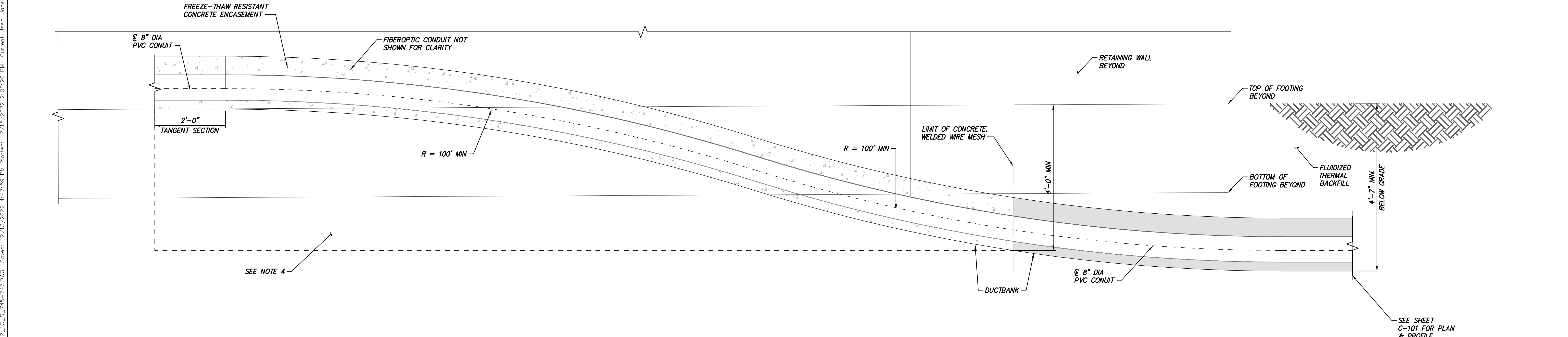


0	12/16/2022	FINAL EM&CP SUBMISSION	JNK	OO
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP





DETAIL 1- NORTH END TRANSITION  
SCALE: 3/4" = 1'-0"



DETAIL 2- SOUTH END TRANSITION  
SCALE: 3/4" = 1'-0"

- NOTES:
1. FROST DEPTH IS 4'-0", TYP. DUCTBANK MATERIAL ABOVE GROUND AND LENGTH UNTIL FROST DEPTH TO BE AIR ENTRAINED FREEZE-THAW RESISTANT REINFORCED CONCRETE. PROVIDE MINIMUM REBAR PER CODE.
  2. MINIMUM CONCRETE STRENGTH F'C=5.0 KSI FOR F3 CATEGORY FREEZE-THAW EXPOSURE.
  3. GRADE 60 UNCOATED REBAR FOR REINFORCING.
  4. FOR DUCTBANKS WITH LESS THAN 2'-6" COVER TO TOP OF DUCTBANK, EXCAVATE TRENCH AT MINIMUM 4'-0" (FROST DEPTH) FROM GROUND LEVEL, BACKFILL TRENCH BELOW DUCTBANK WITH NON-FROST-SUSCEPTIBLE FILL OR FLOWABLE FILL MATERIAL.
  5. SEE NOTES ON S-747.

File: P:\KIE-CHPE\3-DES\07 STR\SHTS\21162\_10\_S\_745-747.DWG Saved: 12/13/2022 4:47:59 PM Plotted: 12/15/2022 2:06:26 PM Current User: Joca.Kempen LostSavesBy: Joca.Kempen



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION					DB	APP	

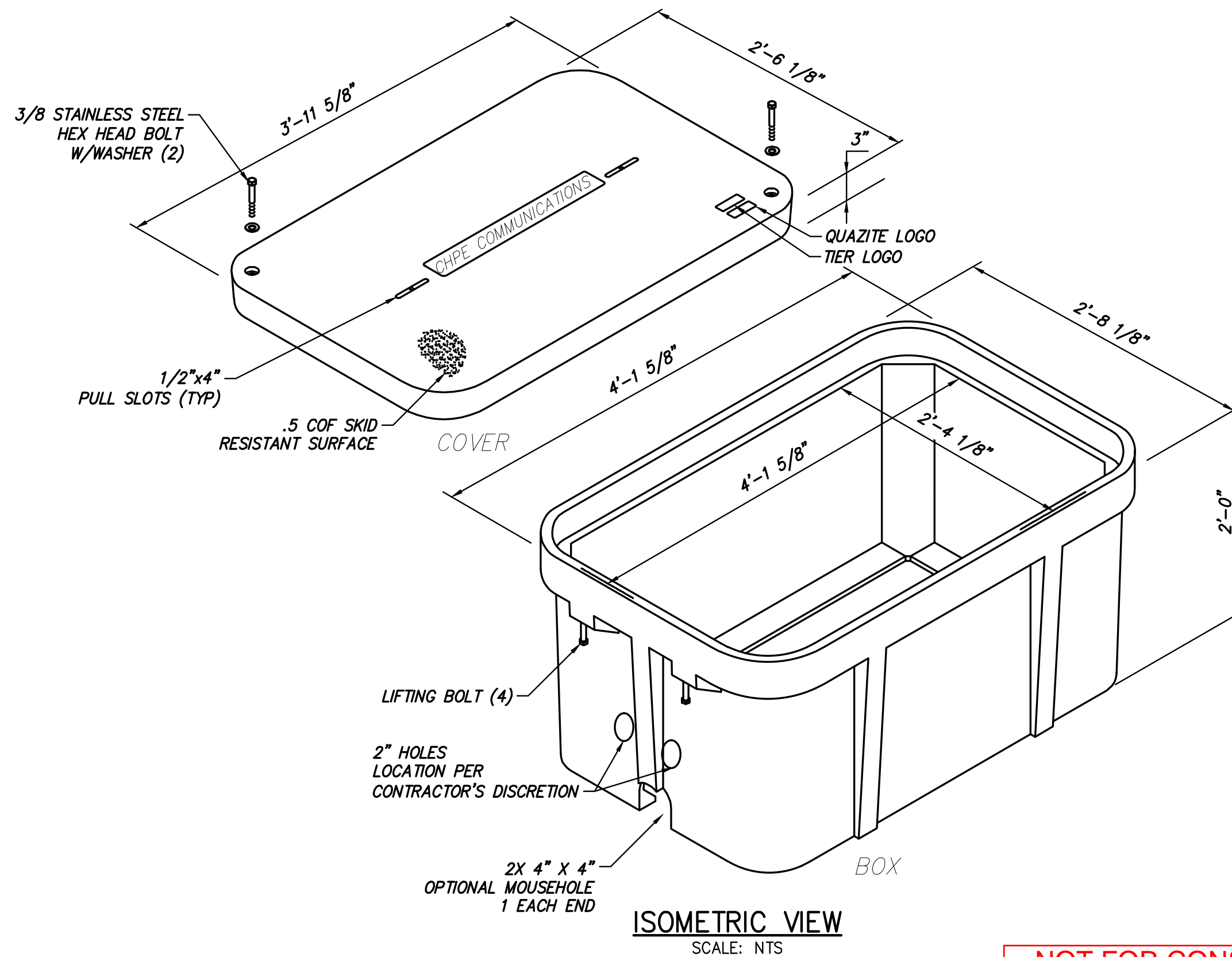
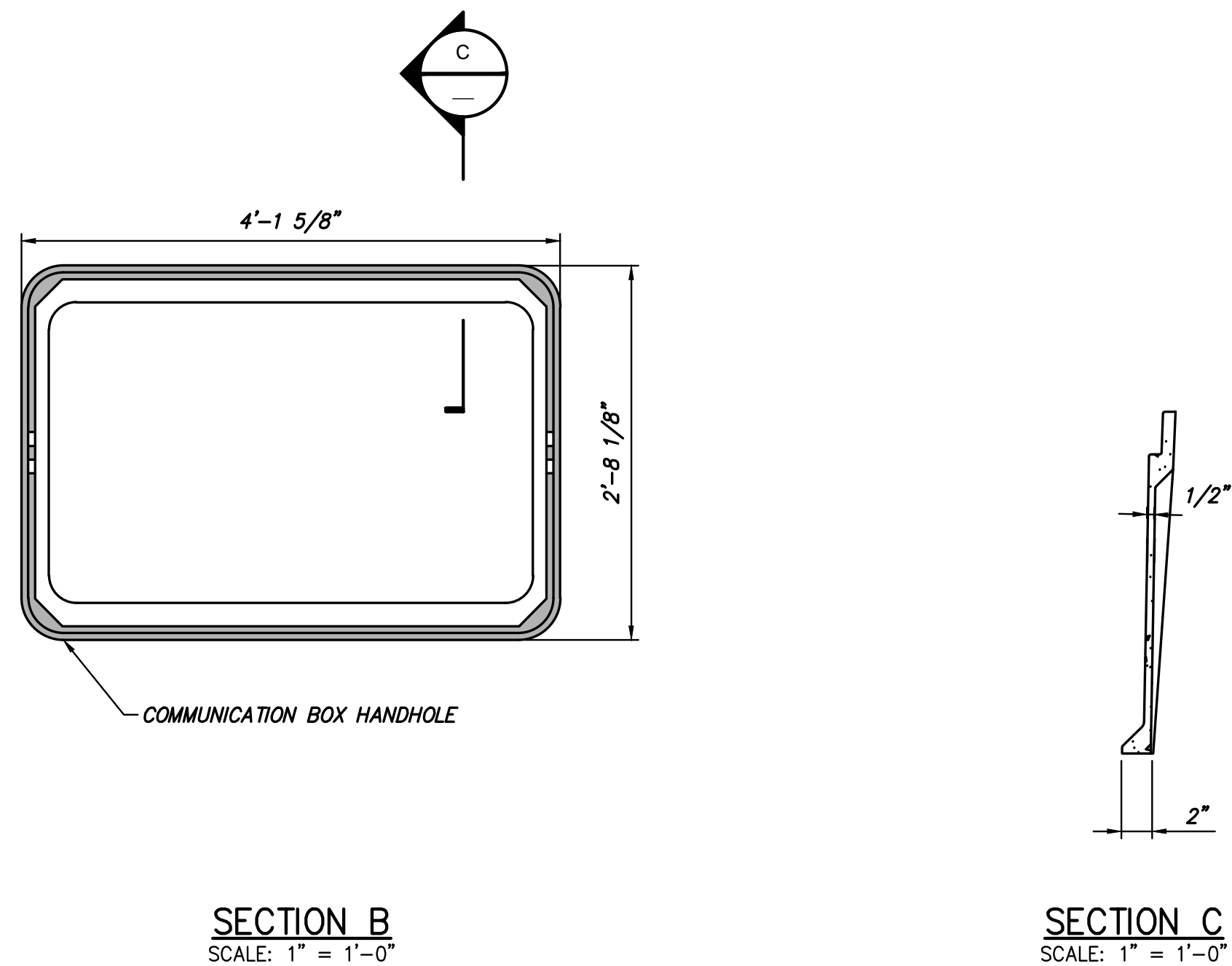
CHAMPLAIN HUDSON POWER EXPRESS

WALL ATTACHMENT TRANSITION DETAIL

DRAWN BY:	DRH	DESIGNED BY:	JNK	APPROVED BY:	OO	SCALE	AS SHOWN	DATE	12/16/22
						REV. NO.		SH. NO.	0

KIEWIT PROJECT NO.	21162
DRAWING NO.	S-748
DATE	12/16/22

NOT FOR CONSTRUCTION,  
FOR PERMIT APPROVAL ONLY



# CHAMPLAIN HUDSON POWER EXPRESS

## FRP COMMUNICATION HANDHOLES

					<div>CHAMPLAIN HUDSON POWER EXPRESS</div> <div>FRP COMMUNICATION HANDHOLES</div>					KIEWIT PROJECT NO.	
										21162	
										DRAWING NO.	
										S-771	
0	12/05/2022	REVISED NYSDOT HWP SUBMISSION	JNK	OO							
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	DRAWN BY: DRH	DESIGNED BY: JNK	APPROVED BY: OO	SCALE REV. NO.	AS SHOWN	DATE SH.NO.	06/09/2022 XX OF XXX



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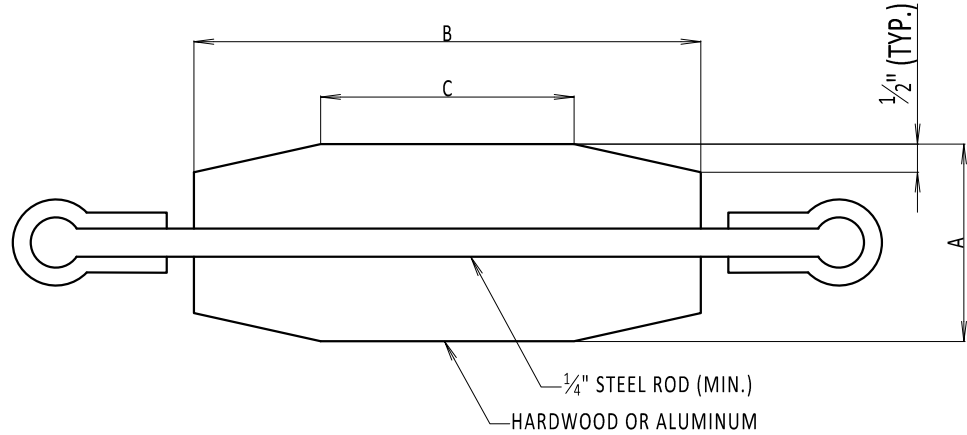
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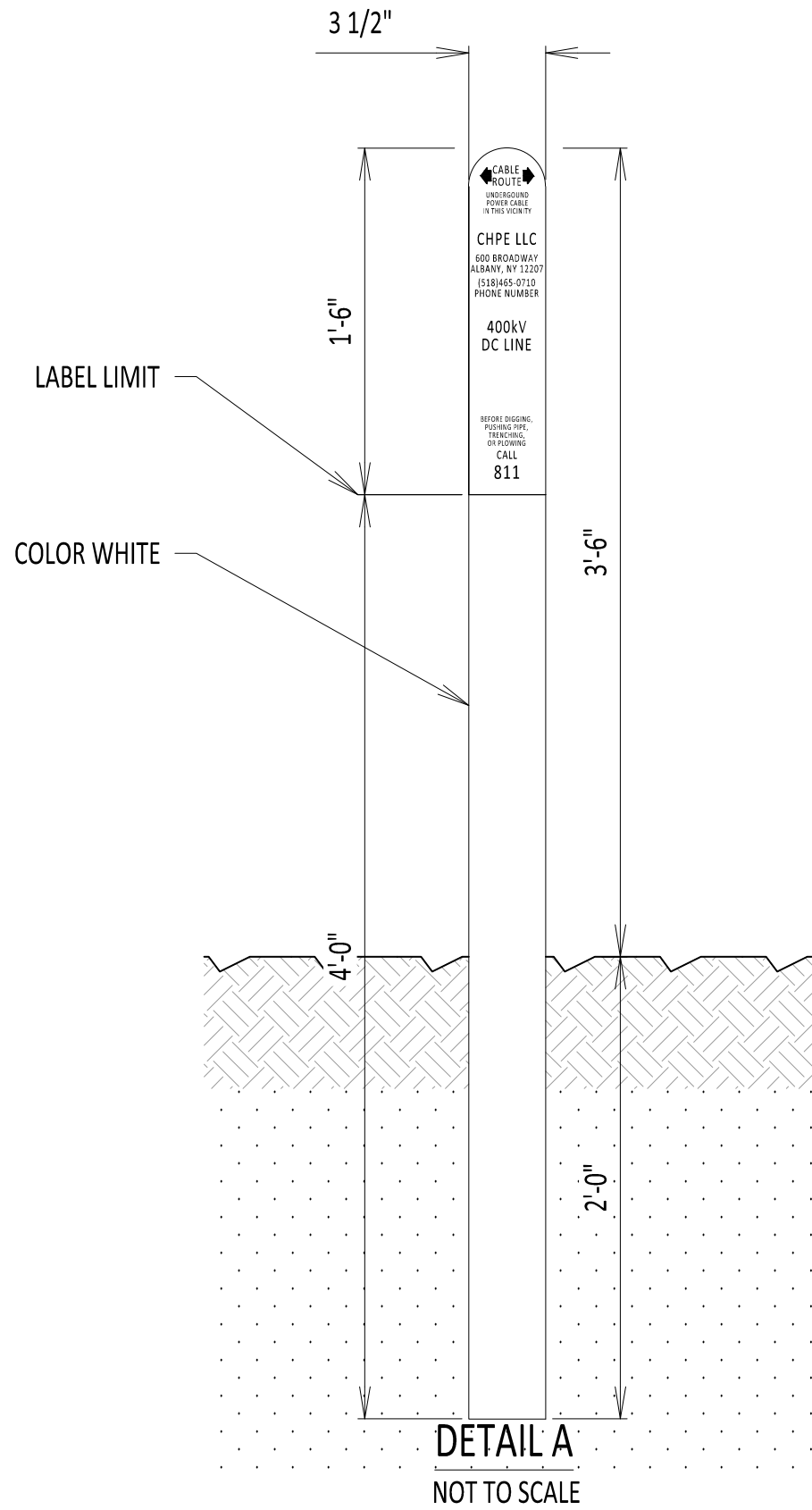
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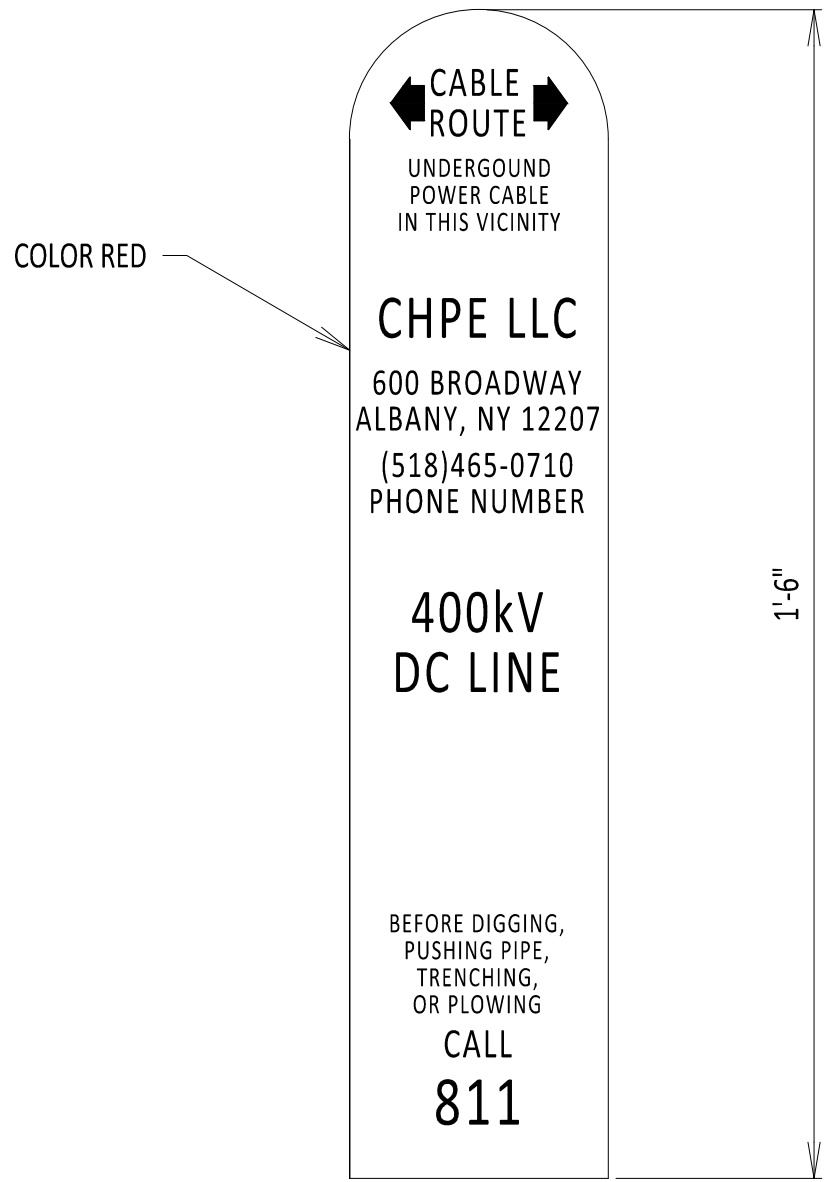
MANDREL SIZE DATA TABLE								
CONDUIT INFORMATION					MANDREL DIM.			
CONDUIT TYPE	SCH.	NOMINAL CONDUIT SIZE	MINIMUM CONDUIT RADIUS	CONDUIT O.D.	CONDUIT I.D.	A	B	C
PVC	40	8"	8'-0"	8.625"	7.942"	7.481"	18.5"	10"
PVC	40	8"	10'-0"	8.625"	7.942"	7.481"	20.5"	11"
PVC	40	8"	12'-0"	8.625"	7.942"	7.481"	22.5"	12"
HDPE	DR7	10"	8'-0"	10.75"	7.49"	7.481"	18.5"	10"
HDPE	DR7	10"	10'-0"	10.75"	7.49"	7.481"	20.5"	11"
HDPE	DR7	10"	12'-0"	10.75"	7.49"	7.481"	22.5"	12"
HDPE	DR9	10"	8'-0"	10.75"	8.22"	7.481"	18.5"	10"
HDPE	DR9	10"	10'-0"	10.75"	8.22"	7.481"	20.5"	11"
HDPE	DR9	10"	12'-0"	10.75"	8.22"	7.481"	22.5"	12"
FRE	-	8"	8'-0"	8.9"	8.4"	7.481"	18.5"	10"
FRE	-	8"	10'-0"	8.9"	8.4"	7.481"	20.5"	11"
FRE	-	8"	12'-0"	8.9"	8.4"	7.481"	22.5"	12"



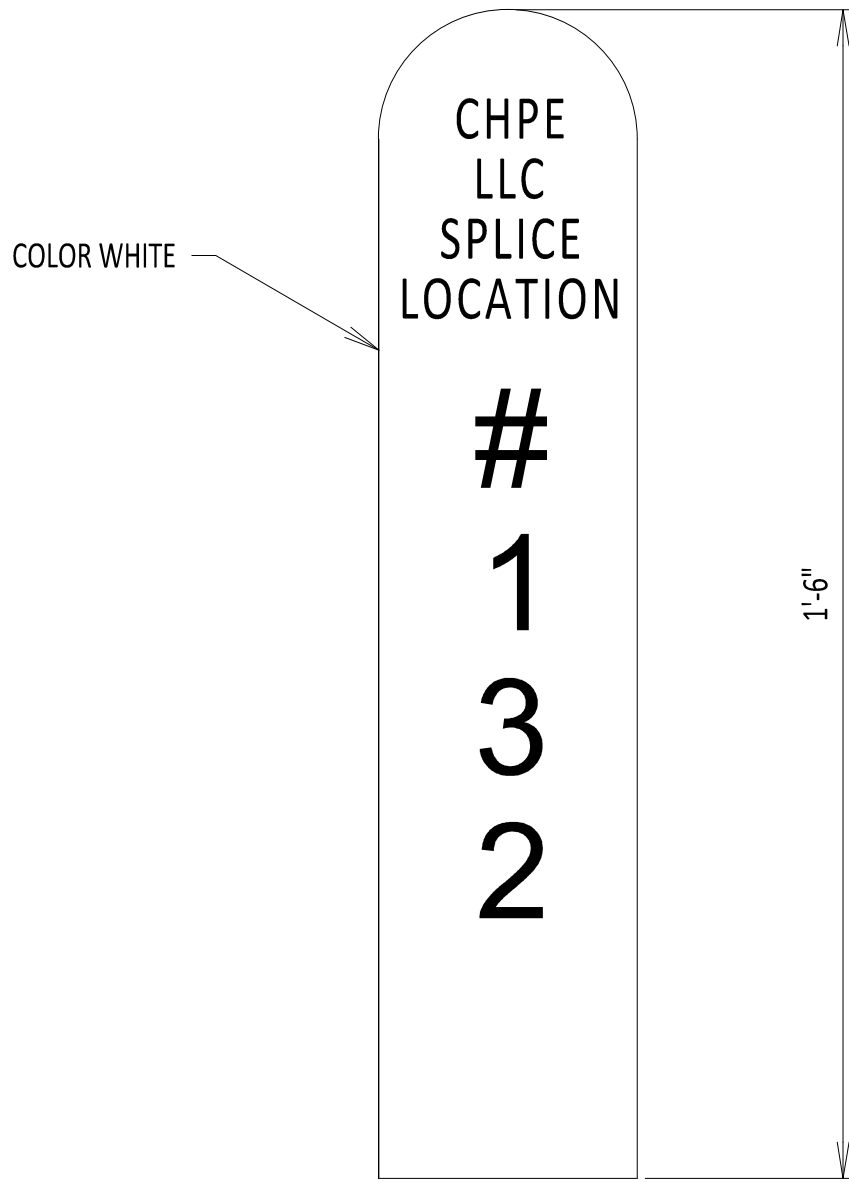
TYPICAL MANDREL DETAIL  
NOT TO SCALE



DETAIL A  
NOT TO SCALE



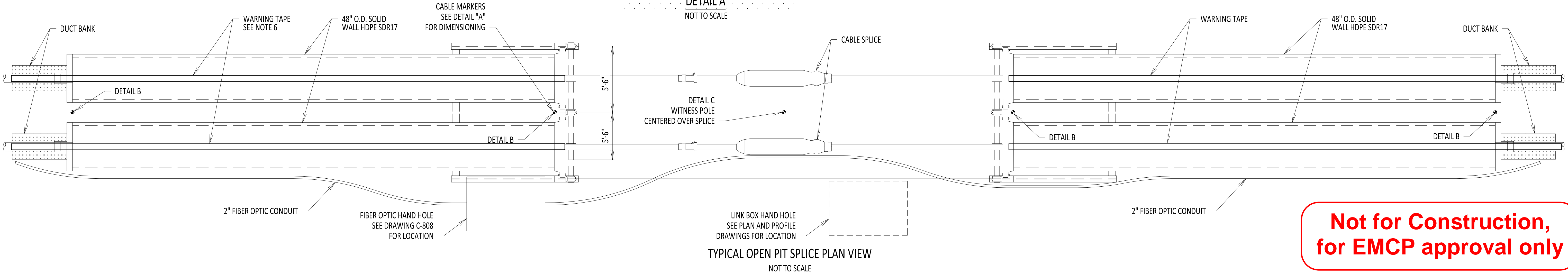
DETAIL B  
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DETAIL C  
NOT TO SCALE

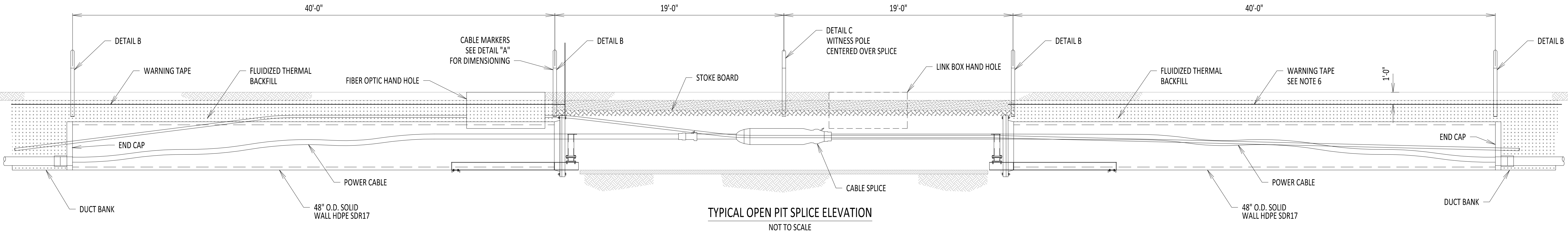
NOTES:

- POLES TO BE INSTALLED AT A DEPTH OF 2'-0" MINIMUM TO OPTIMIZE STABILITY.
- EXCLUDING ROAD SURFACES, CONDUIT LOCATED WITHIN RAILROAD RIGHT-OF-WAY SHALL BE MARKED USING POLE MARKERS LOCATED ABOVE THE CENTERLINE OF THE CONDUIT. CROSSINGS SHALL BE MARKED ON BOTH SIDES OF THE TRACK.
- POLE SHALL DISPLAY THE FOLLOWING: NAME AND ADDRESS OF OWNER, CONTENTS OF CONDUIT, CONDUIT DEPTH BELOW GRADE, AND EMERGENCY TELEPHONE NUMBER.
- POLES SHALL BE PLACED OVER THE PIPE AT ALL CHANGES IN DIRECTION OF THE CONDUIT. IN NO EVENT SHALL THEY BE PLACED MORE THAN 500 FEET APART.
- OWNER MUST MAINTAIN SIGNS ON RAILWAY RIGHT-OF-WAY.
- CABLE MARKERS PER AREMA CHAPTER 1 SECTION 5.5.2.i. A 6 INCH WIDE WARNING TAPE SHALL BE INSTALLED 1 FOOT BELOW NATURAL GRADE AND DIRECTLY OVER THE UNDERGROUND WIRELINE WITHIN THE RAILROAD RIGHT-OF-WAY. WARNING TAPE IS NOT REQUIRED FOR HORIZONTAL DIRECTION DERILLING ROUTES LOCATED ON RAILROAD PROPET. WITNESS POLES MUST BE PLACED AT RAILROAD RIGHT-OF-WAY FOR CROSSINGS AND PLACED EVERY 500 FEET FOR PARALLEL WIRELINES.



TYPICAL OPEN PIT SPLICING PLAN VIEW  
NOT TO SCALE

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TYPICAL OPEN PIT SPLICING ELEVATION  
NOT TO SCALE



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	09/16/2022	EM&CP REGULATORY RE-SUBMISSION	SD	ASM

CHAMPLAIN HUDSON POWER EXPRESS

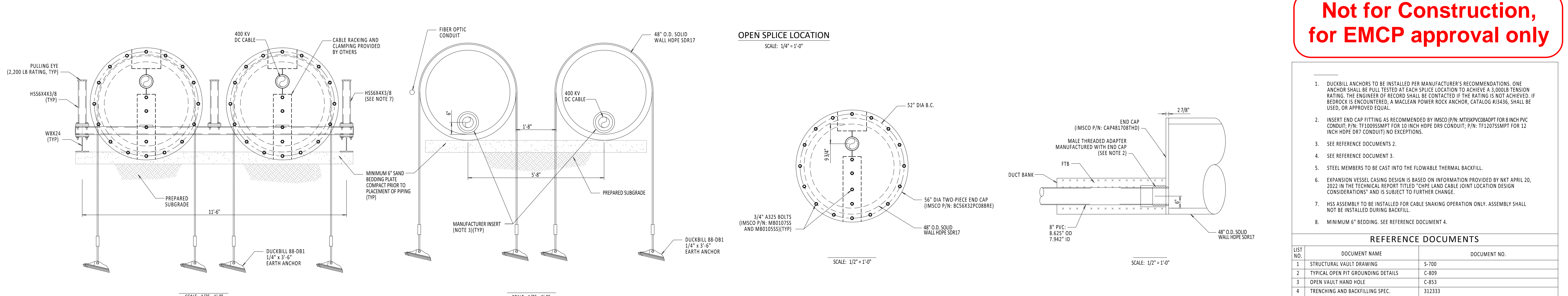
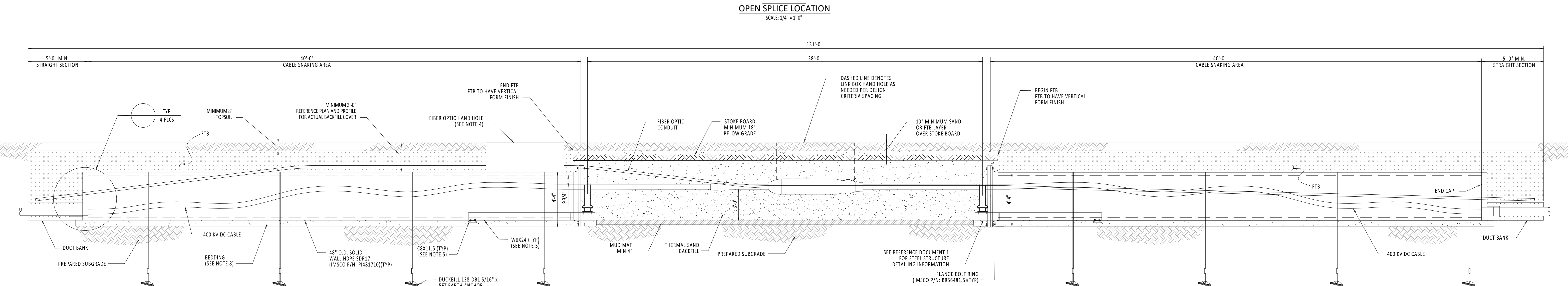
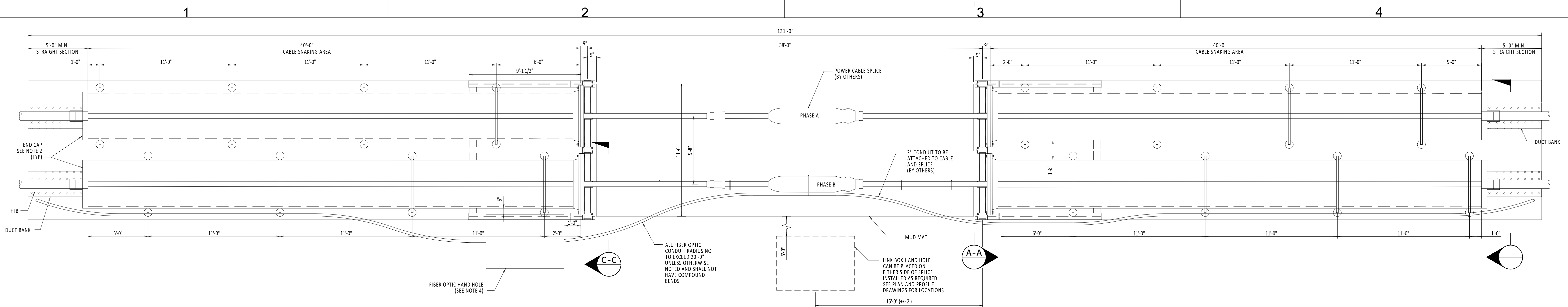
ABOVE GROUND  
MARKING DETAILS

DRAWN BY:	DLM	DESIGNED BY:	APPROVED BY:	ASM	SCALE	REV. NO.	DATE	09/16/2022
							SH.NO.	OF XXX

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-801







File: R:\INFO\PD\US\STANDARDS\UNDERGROUND\SHAREPOINT\PROJECTS\CHPE\_400KV\_DC\_WORKING\_FOLDER\DWG\C-808\_OPEN\_SPLICE\_PIT.DWG Saved: 9/13/2022 2:31:26 PM Plotted: 9/15/2022 7:48:42 AM Current User: Douglas Mason Last Saved By: Douglas Mason



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REFERENCE DOCUMENTS		
LIST NO.	DOCUMENT NAME	DOCUMENT NO.
1	STRUCTURAL VAULT DRAWING	S-700
2	TYPICAL OPEN PIT GROUNDING DETAILS	C-809
3	OPEN VAULT HAND HOLE	C-853
4	TRENCHING AND BACKFILLING SPEC.	312333

- DUCKBILL ANCHORS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ONE ANCHOR SHALL BE PULL TESTED AT EACH SPLICE LOCATION TO ACHIEVE A 3,000LB TENSION RATING. THE ENGINEER OF RECORD SHALL BE CONTACTED IF THE RATING IS NOT ACHIEVED. IF BEDROCK IS ENCOUNTERED, A MACLEAN POWER ROCK ANCHOR, CATALOG #J3436, SHALL BE USED, OR APPROVED EQUAL.
- INSERT END CAP FITTING AS RECOMMENDED BY IMSCO (P/N: MTXSKPVC08ADPT FOR 8 INCH PVC CONDUIT; P/N: TF1008SSMPT FOR 10 INCH HDPE DR9 CONDUIT; P/N: TF1207SSMPT FOR 12 INCH HDPE DR7 CONDUIT) NO EXCEPTIONS.
- SEE REFERENCE DOCUMENTS 2.
- SEE REFERENCE DOCUMENT 3.
- STEEL MEMBERS TO BE CAST INTO THE FLOWABLE THERMAL BACKFILL.
- EXPANSION VESSEL CASING DESIGN IS BASED ON INFORMATION PROVIDED BY NKT APRIL 20, 2022 IN THE TECHNICAL REPORT TITLED "CHPE LAND CABLE JOINT LOCATION DESIGN CONSIDERATIONS" AND IS SUBJECT TO FURTHER CHANGE.
- HSS ASSEMBLY TO BE INSTALLED FOR CABLE SNAKING OPERATION ONLY. ASSEMBLY SHALL NOT BE INSTALLED DURING BACKFILL.
- MINIMUM 6" BEDDING. SEE REFERENCE DOCUMENT 4.



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0	09/16/2022	EM&CP REGULATORY RE-SUBMISSION	SS	ASM
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP

**CHAMPLAIN HUDSON POWER EXPRESS**  
**TYPICAL OPEN PIT SPLICE CASING DETAILS**  
DRAWN BY: DLM DESIGNED BY: ss APPROVED BY: ASM SCALE: REV. NO.

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	<b>C-808</b>
DATE	09/16/2022
SH.NO.	OF XXX



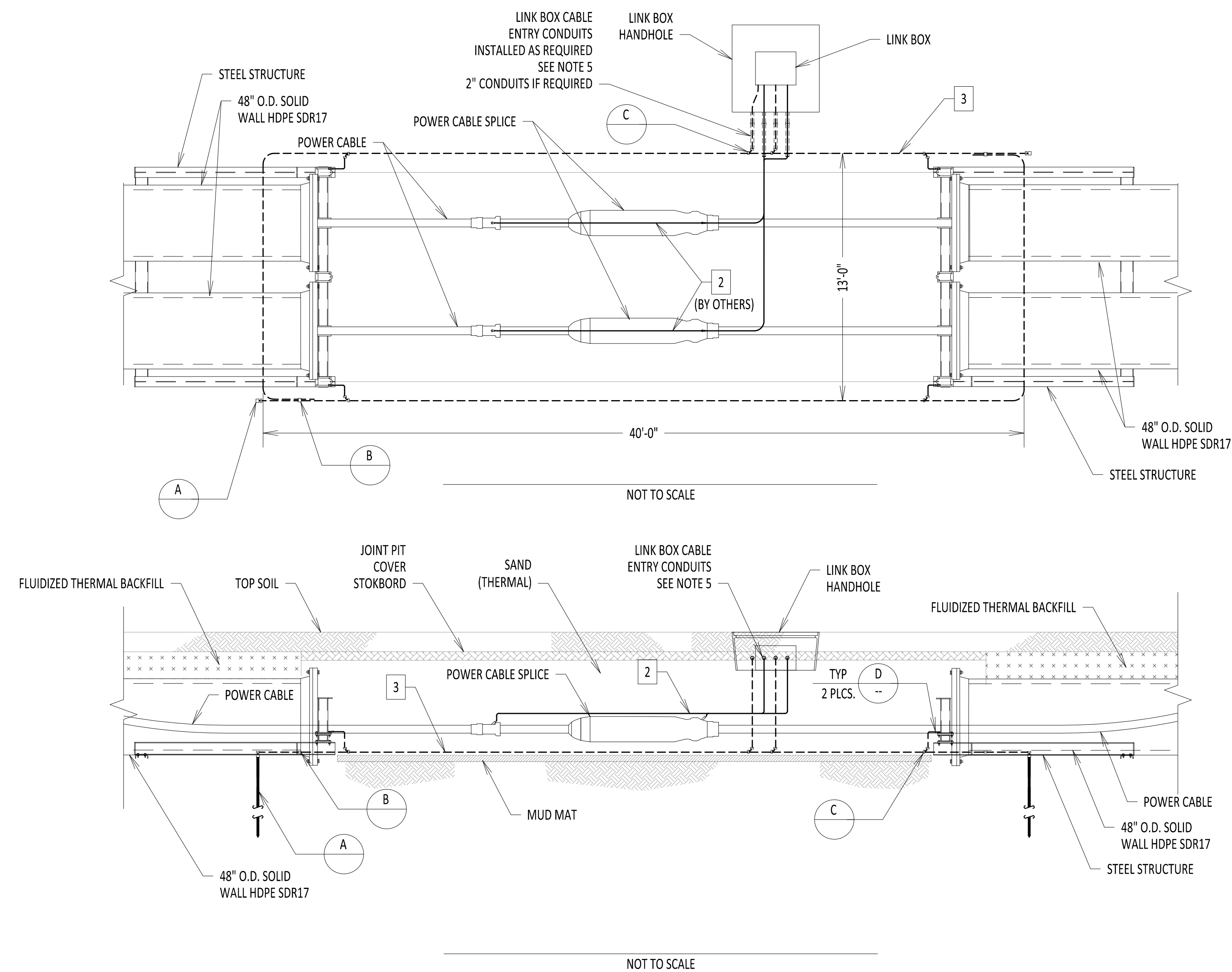
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NOTES:

- 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.
- POLYWATER FST SHALL BE USED TO SEAL CONDUIT.
- 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.

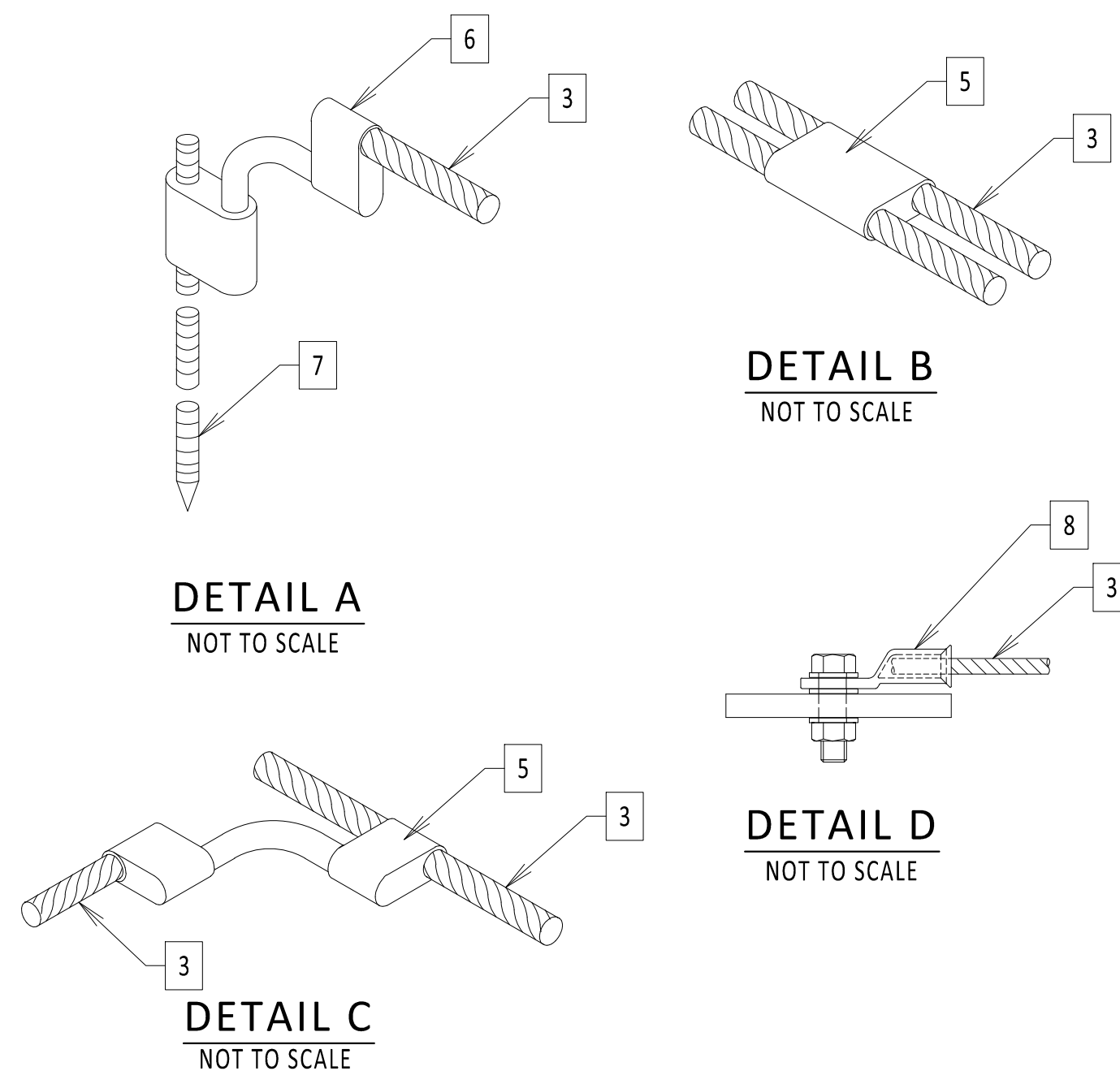
BILL OF MATERIALS

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 CROSS GRID CONNECTOR	BURNDY YGL29C29	KIEWIT	KIEWIT
5	COMPRESSION C CONNECTOR	BURNDY YGHC29C29	KIEWIT	KIEWIT
6	COMPRESSION CONNECTION TO GROUND ROD	BURNDY YGL34C29	KIEWIT	KIEWIT
7	3/4" X 10'-0" GROUND ROD	NVENT ERICO 613400	KIEWIT	KIEWIT
8	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 SPICE CASING DETAILS	C-808
3	GROUNDING SPECIFICATIONS	260526.01



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0	09/16/2022	EM&CP REGULATORY RE-SUBMISSION	SD	ASM	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

OPEN PIT SPICE  
GROUNDING DETAILS

DRAWN BY: DESIGNED BY: SD APPROVED BY: ASM SCALE NOT TO SCALE REV. NO. DATE 09/16/2022 SH.NO. OF XXX

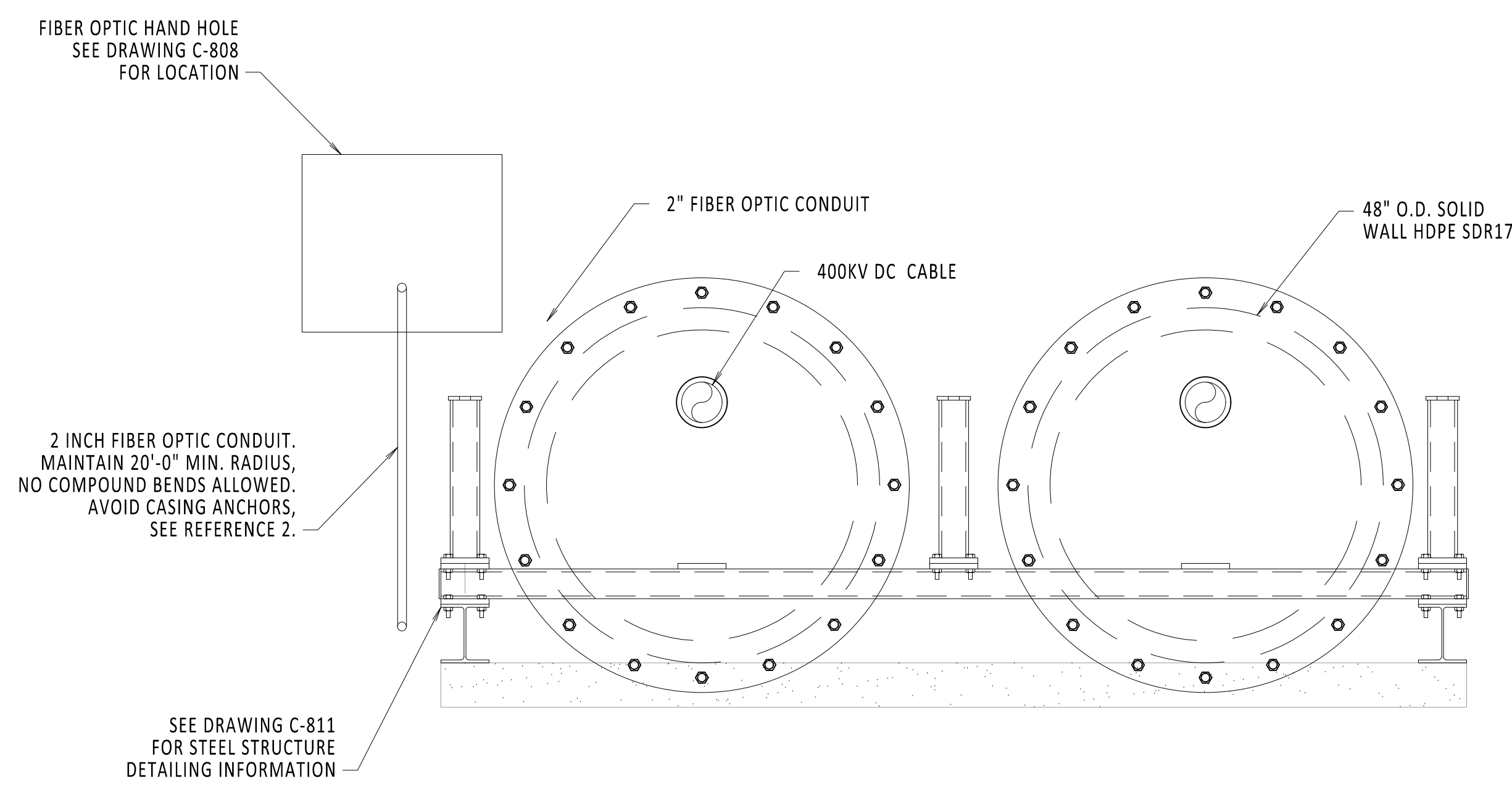
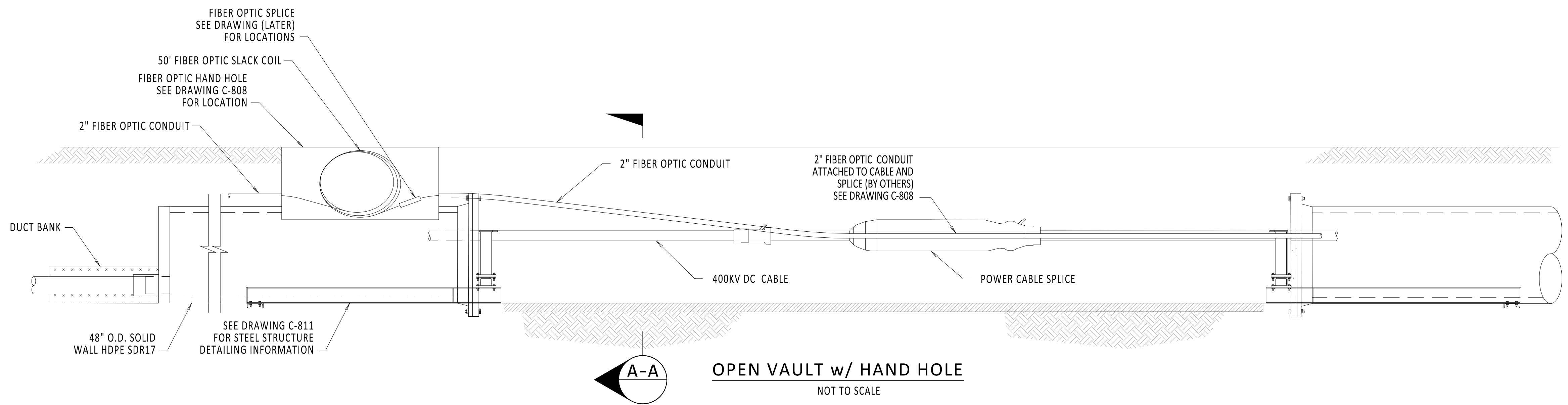
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-809
DATE	09/16/2022
SH.NO.	OF XXX

OPEN PIT SPICE GROUNDING ELEVATION





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1. ADD HAND HOLE TO ALL OPEN VAULT LOCATIONS.
2. FIBER OPTIC SPLICE CLOSURE ONLY AT SPECIFIC LOCATIONS.

### REFERENCE DOCUMENTS

LIST NO.	DOCUMENT NAME	DOCUMENT NO.
1	FRP FIBER COMMUNICATION HAND HOLE	S-771
2	TYPICAL OPEN PIT SPLICE CASING DETAILS	C-808
3	STEEL SUPPORT DETAILS	C-811



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0	09/16/2022	EM&CP REGULATORY RE-SUBMISSION	DM	MK	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

### CHAMPLAIN HUDSON POWER EXPRESS

#### OPEN VAULT w/ FIBER OPTICS HAND HOLE

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	<b>C-853</b>
DATE	09/16/2022
SH.NO.	OF XXX

DRAWN BY:	TJM	DESIGNED BY:	MK	APPROVED BY:	XX	SCALE	
						REV. NO.	

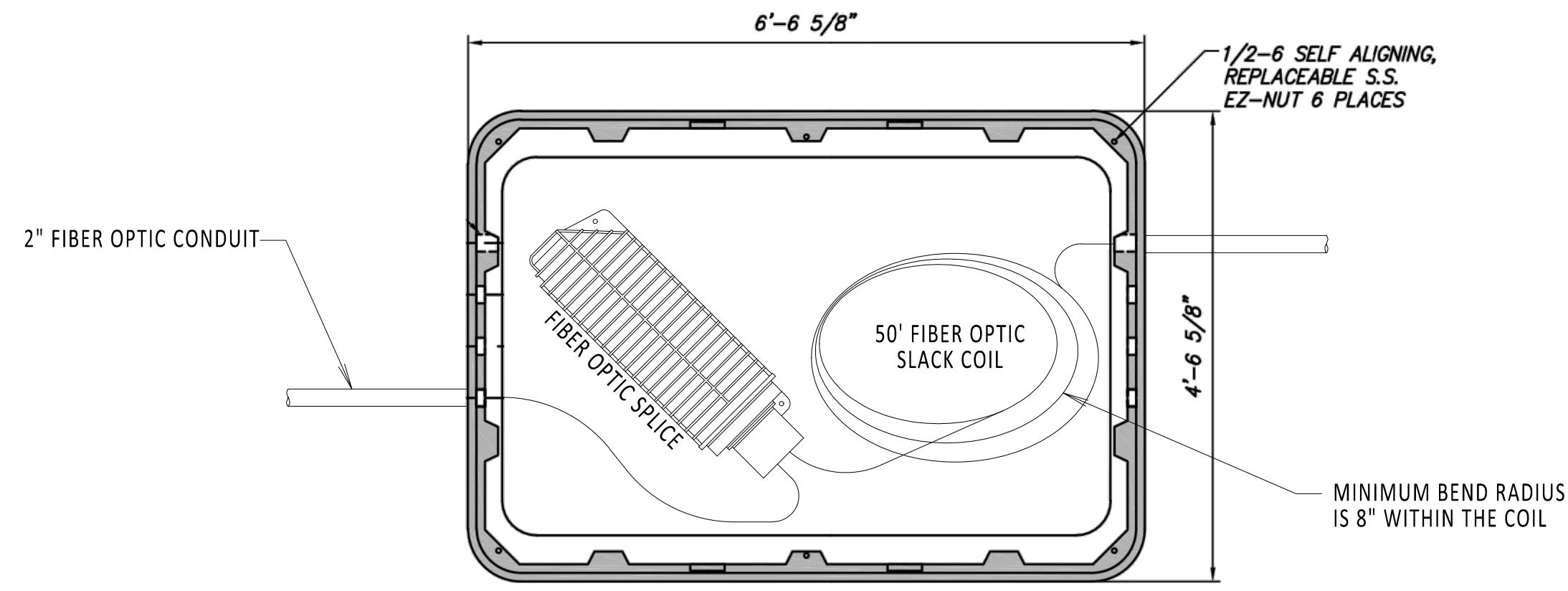
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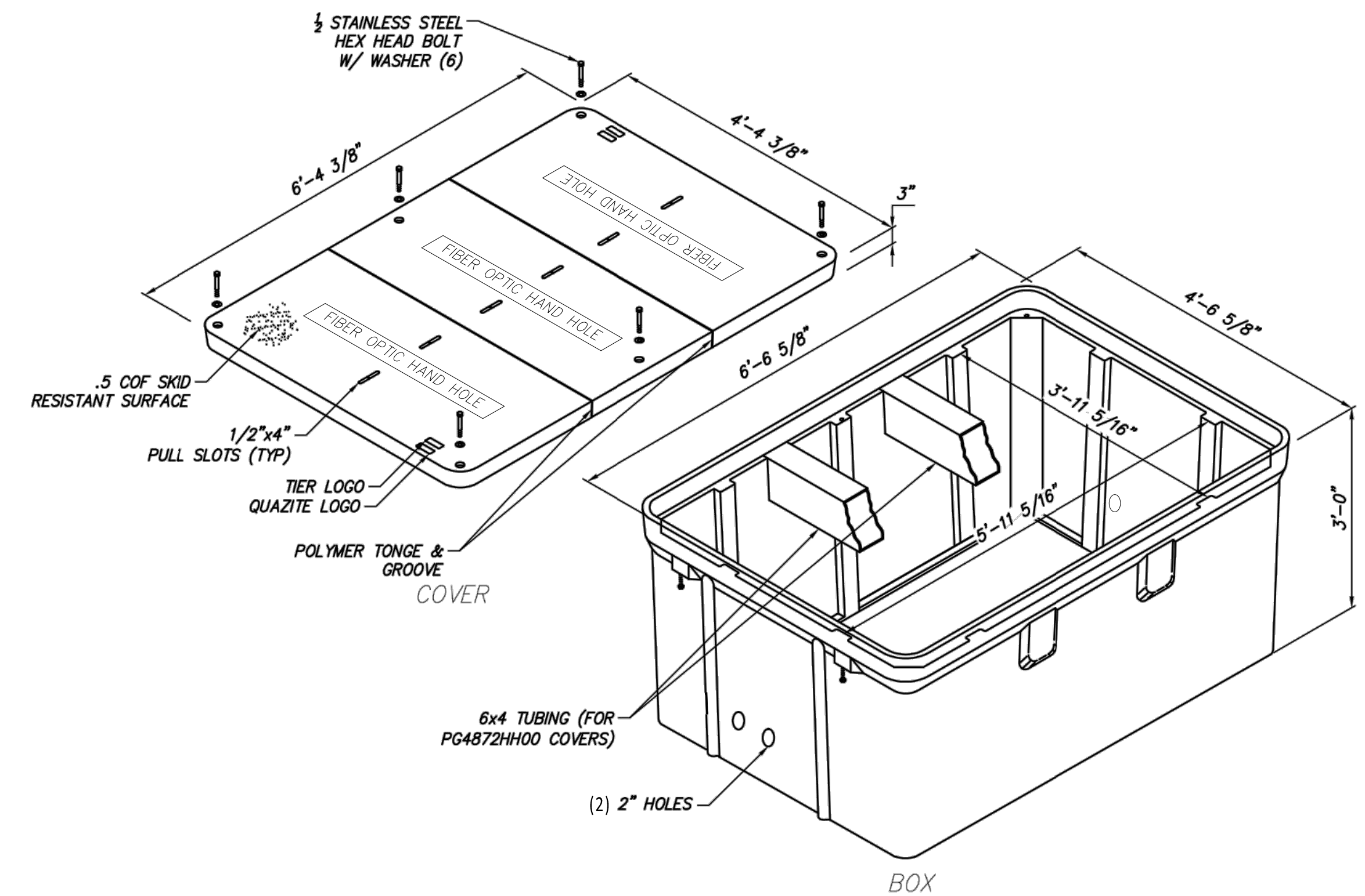
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HAND HOLE  
TOP VIEW  
NOT TO SCALE



ISOMETRIC VIEW  
NOT TO SCALE

Not for Construction,  
for EMCP approval only

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.
4. GROUNDING REQUIREMENTS TO BE DETERMINED.
5. HAND HOLE AT ALL OPEN SPLICE LOCATIONS.

REFERENCE DOCUMENTS

LIST NO.	DOCUMENT NAME	DOCUMENT NO.
1	TYPICAL OPEN PIT SPLICE CASING DETAILS	C-808
2	FIBER OPTIC SPLICE DETAILS	C-855



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

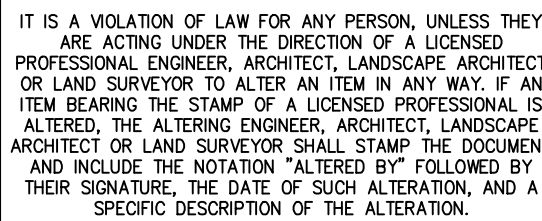
FIBER OPTIC HAND HOLE DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-854
DATE	09/16/2022
SH.NO.	OF XXX

DRAWN BY:	TJM	DESIGNED BY:	MK	APPROVED BY:	XX	SCALE	
						REV. NO.	



- A



**NOTES:**

File: R:\INFO\PD\USA STANDARDS\UNDERGROUND SHAREPOINT\PROJECTS\CHPE 400KV DC WORKING FOLDER\DWG\C-856-SPUCE\_ENCLOSURE.DWG Saved: 9/13/2022 2:41:40 PM Plotted: 9/15/2022 8:06:27 AM Current User: Douglas.Mason LastSavedBy: Douglas.Mason

1

2

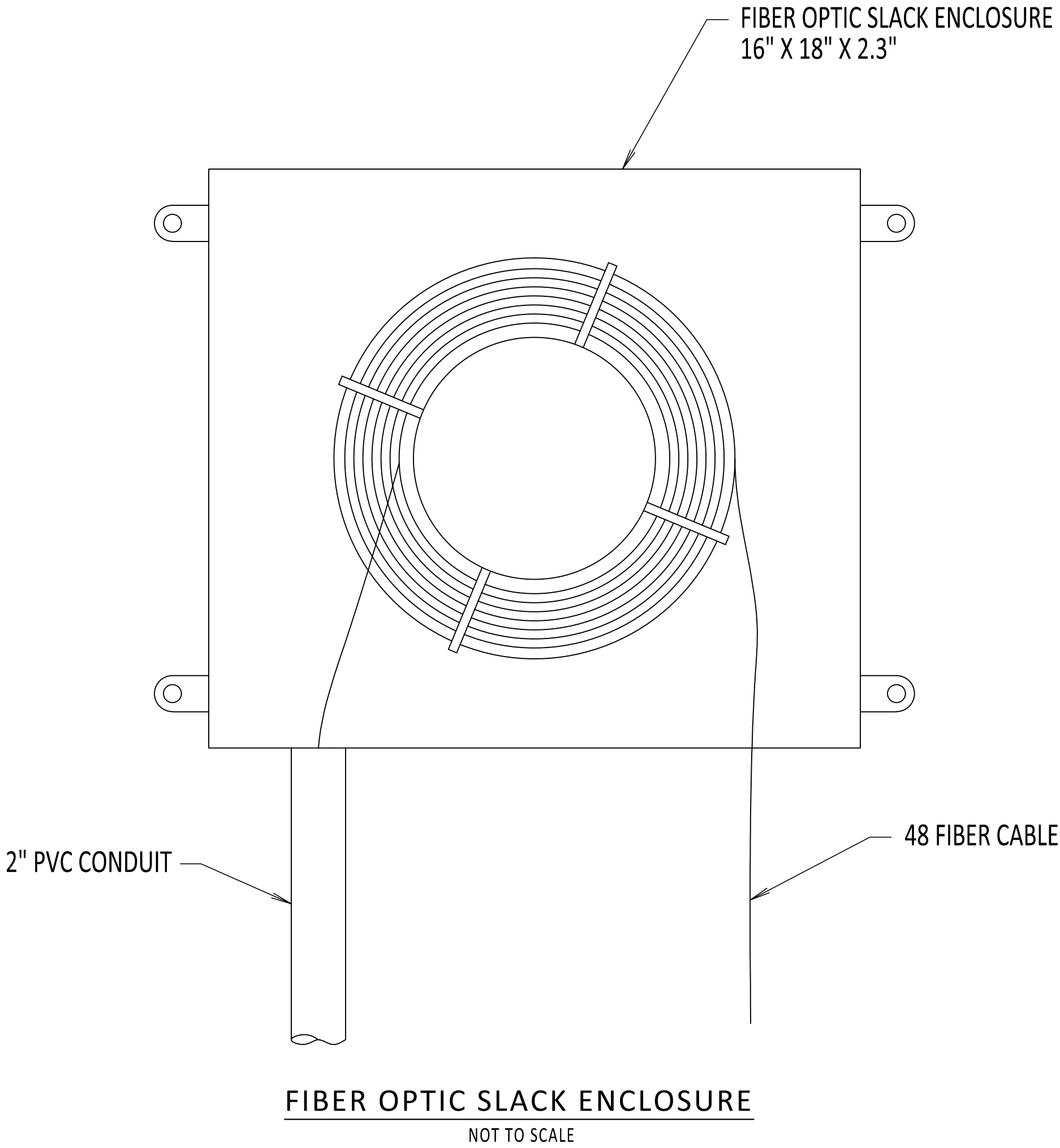
3

4

1. DO NOT KINK OR TWIST FIBER OPTIC CABLE.
2. IN VAULT PULL FROM DISTANT MANHOLE THEN COIL AND PLACE IN THE FIBER OPTIC SLACK ENCLOSURE.

REFERENCE DOCUMENTS

LIST NO.	DOCUMENT NAME	DOCUMENT NO.
1	TRANSITION VAULT WITH FIBER OPTIC DETAILS	C-850
2	ENCLOSED VAULT WITH FIBER OPTIC DETAILS	C-852



Not for Construction,  
for EMCP approval only



IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN ITEM BEARING THE STAMP OF A LICENSED PROFESSIONAL IS ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

0	09/16/2022	EM&CP REGULATORY RE-SUBMISSION	DM	MK	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

CHAMPLAIN HUDSON POWER EXPRESS

FIBER OPTIC SLACK ENCLOSURE DETAIL

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-856
DATE	09/16/2022
SH.NO.	OF XXX

DRAWN BY:	TJM	DESIGNED BY:	MK	APPROVED BY:	XX	SCALE	
						REV. NO.	

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NOTES: