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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.

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY

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0	03/24/23	ISSUED FOR CONSTRUCTION SUBMISSION	MK	NH	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	DRA

CHAM				PRESS	KIEWIT P	ROJECT NO.
					KC PRO	DJECT NO.
		- USA. SELNINN		ND DIFA33	12	0174
	WETLAND C	ROSSING DET	AILS		DRAV	/ING NO.
					<b>C</b> -(	611
			SCALE	AS SHOWN	DATE	3/23/2023
KAVVIN BY:		APPROVED BY: NH	REV. NO.	0	SH.NO.	

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WATER SHALL BE DIVERTED OFF THE DISTURBED RIGHT-OF-WAY AT AN OUTSLOPE OF THREE TO FIVE PERCENT BY CONSTRUCTING DIVERSION DITCH ACCORDING TO THE FOLLOWING PROCEDURES:

- 1. AT THE PROPOSED INTERCEPTOR DITCH LOCATION ESTABLISH A HORIZONTAL CONTOUR LINE (USING A POCKET TRANSIT OR HAND LEVEL) WHICH EXTENDS COMPLETELY ACROSS THE DISTURBED RIGHT-OF-WAY. THIS LINE WILL ALWAYS BE PERPENDICULAR TO THE DIRECTION OF WATER FLOW AND SHOULD BE PARALLEL TO THE MAP CONTOURS SHOWN ON THE PLAN DRAWINGS.
- 2. DETERMINE WHICH SIDE OF THE RIGHT-OF-WAY IS BEST SUITED FOR THE DITCH OUTLET (EVALUATE VEGETATION DENSITY, LOCAL TOPOGRAPHY, ETC.) AND DEVIATE DIKE AWAY FROM THE HORIZONTAL CONTOUR LINE SLIGHTLY DOWNWARD TOWARD THE SELECTED OUTLET SIDE MAINTAINING A THREE TO FIVE PERCENT SLOPE. AS AN EXAMPLE, THE CHART AT THE RIGHT SHOWS DIMENSIONS ASSUMING A FOUR PERCENT SLOPE.
- 3. WHEN OUTLETTING NEAR WATER BODIES, STREAMS, DITCHES, & CROP FIELDS, A FILTER FENCE OR STRAW BALE FENCE SHOULD BE PLACED ON OUTLET END OF THE DIVERSION DITCH.

TEMPORARY DRAINAGE DITCH

NOTES:

- 1. TEMPORARY DIVERSION DITCH SHOULD BE BUILT SIMILAR TO THE PERMANENT DITCH CONFIGURATION BUT THE DIMENSION CAN BE SCALED BACK.
- 2. MAXIMUM HEIGHT SHOULD BE 12" AND SHOULD BE COMPACTED.
- 3. SPACING BETWEEN DIVERSION DITCHES AND SKEW OF THE DIVERSION DITCHES CAN VARY FROM THE PERMANENT DIVERSION DITCHES. 4. WHEN CONSTRUCTING TEMPORARY DIVERSION DITCHES THEY SHOULD BE FUNCTIONAL, WHILE
- MAINLINE CONSTRUCTION IS PROCEEDING, UNTIL RESTORATION BEGINS AND PERMANENT DIVERSION DITCHES ARE THEN CONSTRUCTED.

PERMANENT DIVERSION DITCH DETAIL SCALE: N.T.S.

NOTES: 1. WATERBARS ARE NOT USED IN THIS PACKAGE/SEGMENT. DETAILS ARE PROVIDED SHOULD WATERBARS BE DEEMED NECESSARY BY THE ENVIRONMENTAL INSPECTOR BASED ON FIELD CONDITIONS.







DIRECTION OF WATER FLOW HORIZONTAL CONTOUR LINE

> ELEVATION DIFFERENCE BETWEEN INLET AND OUTLET

DITCH OUTLET

4% FLOW CHART ELEVATION HORIZONTAL DISTANCE DISTANCE BETWEEN BETWEEN WATERBAR WATERBAR INLET INLET & OUTLET AND OUTLET (FEET) (FEET) 75 3 100 4 125 5 150 6 175 7







## 2 MINIMAL HEIGHT & WIDTH DIMENSIONS FOR WATERBAR CONSTRUCTION SCALE: N.T.S.

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POFESSIONAL	SPECIFIC DESCRIPTION OF THE ALTERATION.		0	06/09/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MK	NH	
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SILT FENCE, HAYBALE, OR SUMP ------HOLE USED IN ABSENCE OF

VEGETATIVE BARRIER

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СНАМ		ΗЦ	n			PRESS	KIEWIT	PROJECT NO.
		110						21162
EGMENT S	) (PACKA	GE 5	B)-	CSX: SELKIRK	RAIL Y	ARD BYPASS	KC P	ROJECT NO.
	(11011		-,				120174	
		WA	TEF	RBAR DETAILS			DRAWING NO.	
							C	-612
				_	SCALE	AS SHOWN	DATE	6/7/2023
RAWN BY: M	K  DESIGNE	D BY:	MK	APPROVED BY: NH	REV. NO.	В	SH.NO.	



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### WETLAND AND AGRICULTURAL LANDS WORKING SURFACE PLAN - OPTION A NOT TO SCALE







### NOTES:

- 1. UNDERCUT AND REMOVE TOP SOIL PRIOR TO PLACING GEOTEXTILE FABRIC.
- 2. A LAYER OF CLEAN CRUSHED STONE SHALL BE LAID ON TOP OF THE GEOTEXTILE FABRIC.
- 3. GEOTEXTILE FABRIC SHALL EXTEND AT LEAST 3 FT TO 5 FT BEYOND THE EDGE OF STONE PLACEMENT TO MINIMIZE STONE ENTERING THE WETLAND AND FACILITATE REMOVAL OF THE ROAD.
- 4. SUITABLE CROSS DRAINING SHALL BE PROVIDED ACROSS THE ROAD FOR STREAM CHANNELS AND SURFACE FLOW.
- 5. REFER TO EM+CP PLANS FOR EROSION CONTROL DETAILS.
- 6. REFER TO EM+CP PLANS FOR RESTORATION OF WETLAND.

### **GENERAL NOTES:**

- 1. TIMBER:
- A. TIMBER SHALL BE SELECT STRUCTURAL MIXED OAK WITH A MINIMUM BENDING STRESS OF 1250 PSI OR BETTER.
- 2. CONTRACTOR TO VERIFY ALL DIMENSIONS AND SITE CONDITIONS PRIOR TO COMMENCING WORK. ANY
- ERRORS, OMISSIONS, OR UNUSUAL CONDITIONS ARE TO BE REPORTED TO THE ENGINEER IMMEDIATELY.
- NONWOVEN GEOTEXTILE SHALL BE MIRAFI 180N OR EQUIVALENT APPROVED BY EOR. 3.







### NOT TO SCALE



NOTES:

- LAYERS TO BE DETERMINED ON SITE.
- APPROVED LOCATION.
- TIMBERS TO BRIDGE ABOVE.
- MULCH SHOULD BE APPLIED.

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		No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	DRA









### **TYPICAL SHEET PILE SHORING** SCALE: 1"=5'

NOTE: KIEWIT POLICY REQUIRES CONSULTATION WITH THE KIEWIT TEMPORARY STRUCTURES / CONSTRUCTION DEVICES EOR PRIOR TO PROCUREMENT OF MATERIALS OR FIELD IMPLEMENTATION OF THIS DATA.

E OF NEW LO						CHAMPLAIN HUDSON POWER EXPRESS KIEWIT PROJECT NO 21162 KIEWIT PROJECT NO	
	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						
		LAND SURVEYOR TO ALTER AN ITEM IN ANY WAY. IF AN M BEARING THE STAMP OF A LICENSED PROFESSIONAL IS TERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE				I YPICAL TEMPORARY SHORING DETAILS	
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POFESSIONAL						R     SCALE     AS SHOWN     DATE     06/09	Э/2023
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	
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### 2536 SHEET I

# CROSSING TIMBER / WOOD FILLER. APPROXIMATE 8 FT. INCREMENTS. EACH "TRACK FOOT" INCLUDES AND 4 FILLER BLOCK PIECES.

	KIEWIT PROJECT NO.					
	21162					
FGMENT	9 (PACKAGE 5B	) - CSX: SFI KIRI	K RAII YAF	RD BYPASS		
	DRAWING NO.					
					С	-625
			SCALE			06/00/2023
						00/09/2023
			KEV.NO.	0	SHINU.	



CROSSING TIMBER PLAN VIEW





### FIELD SIDE FILLER BLOCK DETAIL

RAIL WGT	А	В	С	D	E	F	G	Н
II5 RE	3⁄4	2 3⁄4	5 3/8	3 1/2	3 7/8	3 3/8	4	7 1/2
122 CB	3⁄4	2 3/4	5 5⁄8	3 1/2	4	3 5/8	4	7 <sup> </sup> / <sub>2</sub>
132 RE	5⁄8	2 7/8	6	3 1/2	4 <sup>1</sup> / <sub>2</sub>	3 7/8	3 7/8	8
136 RE	5⁄8	2 7/8	6 1/4	3 1/2	4 <sup>1</sup> / <sub>2</sub>	3 7/8	3 7/8	8 3/8
140 RE	3⁄4	2 3/4	6 <sup> </sup> / <sub>16</sub>	3 1/2	4 <sup>5</sup> / <sub>16</sub>	3 7/8	4	8 3/8
I4I RE	11/16	2 13/16	6 <sup>3</sup> ⁄8	3 1/2	4 <sup>1</sup> / <sub>2</sub>	3 7/8	3 7/8	8 <sup>3</sup> / <sub>8</sub>

ALL DIMENSIONS ARE IN INCHES.





**B**-626



GAGE SIDE FILLER BLOCK DETAIL

17" NOTES

- I. TIMBERS ARE NOT PREDRILLED UNLESS SPECIFIED IN THE REQUISITION.
- 2. GAGE AND FIELD TIMBERS ARE IDENTICAL.
- 3. TOLERANCES: A, E, AND G : 1/16" +/-ALL OTHERS :  $\frac{1}{8}$  +/-
- 4. CROSSING TIMBER TO BE OAK OR GUM. TREATMENT PER MW SPEC 99001 LIKE CROSSTIES
- 5. FILLER BLOCKS TO BE SOUTHERN YELLOW PINE GRADE 2 WITH IO LB / CU FT TREATMENT
- 6. TIMBERS & FILLERS TO BE MARKED FOR RAIL SIZE

**SX** TRANSPORTATION

TIMBER AND ASPHALT CROSSING CROSSING TIMBER AND FILLER BLOCK DETAILS

J. Kangych CHIEF ENGINEER APPROVED -MAINTENANCE OF WAY

ama W. Dayley ED - VICE PRESEDEN ENGINEERING

PREPARED BY: J. E. BEYERL

ISSUED: MARCH 22, 2005 REVISED: NOVEMBER 14, 2005

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	CHAMPLAIN HUDSON PC SEGMENT 9 (PACKAGE 5B) - CSX: SEL CSX CROSSING DETA				<b>ER EXPRES</b> K RAIL YARD BYI 2 OF 2	SS PASS	PROJECT NO. 21162 AWING NO.
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 06/09/2023 ISSUED FOR CONSTRUCTION SUBMISSION		-			C	·626
	No. DATE SUBMITTAL / REVISION DESCRIPTION	DB APP	DRAWN BY: DESIGNED BY:	APPROVED BY:	SCALE AS S REV. NO.	SHOWN DATE 0 SH.NO.	06/09/2023



### CROSSING TIMBER SECTION AT SCREW LOCATION

2536 SHEET 2







**B**-62

- METAL WEDGE SIGN MOUNT SHALL BE 2<sup>1</sup>/<sub>2</sub>" WIDE, WELDED IN THE CENTER OF THE GATE WITH HOLES DRILLED FOR THE ATTACHMENT OF NO TRESPASSING SIGN
- 2. SIGN SPECIFICATION IS FOUND IN STANDARD DRAWING 2703
- 3. ENTIRE GATE ASSEMBLY TO BE PAINTED AREMA YELLOW.
- 4. CSX SWITCH LOCK TO BE USED FOR GATE LOCK.

DESCRIPTION	UNITS	CLASS
GATE, RIGHT OF WAY, 12'	EACH	014
GATE, RIGHT OF WAY, 16'	EACH	014
GATE, RIGHT OF WAY, 20'	EACH	014
LOCK, SWITCH AMERICAN H10	EACH	450

RIGHT-OF-WAY SECURITY GATE

Ld Um - VICE PRESIDENT

ENGINEERING

ISSUED: JANUARY 10, 2011 REVISED : INITIAL ISSUE

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.								
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## 2614

TEM NUMBER									
0409045									
0409043									
0409041									
0008580									

	KIEV	VIT PROJECT NO.				
		21162				
EGMENT						
SECURITY GATE DETAIL						DRAWING NO.
						<b>C-627</b>
			SCALE	AS SHOWN	DATE	06/09/2023
RAWN BY:	DESIGNED BY:	APPROVED BY:	REV. NO.	0	SH NO.	



SCALE: N.T.S.		SCALE:	N.T.S.							
	TEMPORARY ACCESS ROAD SECTION <sup>1,2,3,4</sup>									
	CBR⁵	UNSTABILIZED	MIRAFI 180N GEOTEXTILE <sup>6</sup>	TENSAR BX1200 GEOGRID <sup>6</sup>	MIRAFI RSI SERIES GEOTEXTILE <sup>6</sup>					
	0.5		20 INCH RIP RAP <sup>7</sup> + 6 INCH AGGREGATE		20 INCH RIP RAP <sup>7</sup> + 4 INCH AGGREGATE (RS580I)					
	1.0		18 INCH AGGREGATE	12 INCH AGGREGATE	15 INCH AGGREGATE (RS280I)					
	1.5		12 INCH AGGREGATE	9 INCH AGGREGATE	9 INCH AGGREGATE (RS280I)					
	2.0	18 INCH AGGREGATE	11 INCH AGGREGATE	6 INCH AGGREGATE	9 INCH AGGREGATE (RS280I)					
	3.0+	15 INCH AGGREGATE	8 INCH AGGREGATE	6 INCH AGGREGATE	9 INCH AGGREGATE (RS280I)					
SLOPE AS INDICATED ON PLAN LAYER THICKNESS PER TABLE COMPACTED SUBGRADE GEOTEXTILE FABRIC AND/OR GEORID, AS REQUIRED <sup>6</sup>	<ul> <li>NOTES:</li> <li><sup>1</sup> TEMPORARY ACC</li> <li><sup>2</sup> AGGREGATE SHA</li> <li><sup>3</sup> DESIGN CONSIDE</li> <li>HEAVIER AXLE LO</li> <li><sup>4</sup> ALTERNATE TEM</li> <li>TRAFFIC LOADING.</li> <li><sup>5</sup> ESTIMATE CBR I</li> <li>RECORD (EOR). Cl</li> <li><sup>6</sup> GEOGRID AND G</li> <li><sup>A</sup> GEOGRID AND G</li> <li><sup>A</sup> GEOGRID AND G</li> <li><sup>C</sup> GEOTEXTILE</li> <li><sup>D</sup> GEOTEXTILE</li> <li><sup>7</sup> RIP RAP</li> <li><sup>A</sup> RIP RAP SH</li> <li><sup>B</sup> A LAYER OF</li> <li>WHERE RIP RAP I</li> </ul>	CESS ROAD SECTIONS PER K ALL BE NYSDOT TYPE 2 CRU RS 1,000 PASSES OF MAXIM ADS, AND DETERIORATED SU PORARY ACCESS ROAD DESI N THE FIELD USING A DYNAI BR OF IN-SITU SOIL MAY VA EOTEXTILE D GEOTEXTILES SHALL BE IN EOTEXTILE OR GEOGRID MAY IS REQUIRED IN REGULATED SEPARATOR FABRIC IS REQU ALL BE NYSDOT LIGHT STON #57 STONE IS RECOMMENDE S USED.	IEWIT ENGINEERING (NY) CORP. SHED AGGREGATE OR APPROVED A UM 22-KIP AXLE LOAD AND A DE BGRADE CONDITIONS MAY REQUIRE GNS MAY BE PROVIDED BY KIEWIT WIC CONE PENETROMETER OR ALTE ARY SEASONALLY DUE TO FREEZE STALLED PER MANUFACTURER'S SI BE REPLACED BY EQUIVALENT MA WETLANDS AND AGRICULTURAL LA IRED BENEATH GEOGRID ON COHES E FILL OR APPROVED ALTERNATIVE ED ON TOP OF GEOTEXTILE TO PRI	ALTERNATIVE. ESIGN RUT DEPTH OF 3 INCHES. THICKER AGGREGATE SECTIONS ENGINEERING, AS REQUIRED, BA ERNATIVE METHOD APPROVED BY THAW AND BASED ON MOISTURE PECIFICATION INCLUDING OVERLAI ATERIAL APPROVED BY EOR. NDS. SIVE SUBGRADE E. EVENT DAMAGING OR PUNCHING	ADDITIONAL AXLE PASSES, OR ADDITIONAL MAINTENANCE. SED ON FIELD CONDITIONS AND GEOTECHNICAL ENGINEER OF CONDITIONS. P AND EDGE DETAILS.					

-1 1/2" ASPHALT CONCRETE TOP COURSE

-2.5" ASPHALT CONCRETE BINDER COURSE

(NYS DOT ITEM NO. 404.096201)

(NYS DOT ITEM NO. 404.196201)



ASPHALT CONCRETE PAVEMENT DETAIL

(PRIVATE DRIVEWAY)



ASPHALT CONCRETE PAVEMENT

(WITHIN NYSDOT ROADWAYS)

2

1. ABOVE SECTION IS THE MINIMUM FOR INSTALLATION. MATCH EXISTING SECTION IF EXISTING

3. APPLY STRAIGHT TACK COAT TO BETWEEN PAVEMENT SECTIONS NYSDOT ITEM407.0103

ALL MATERIALS TO MEET NYSDOT STANDARD SPECIFICATIONS

(WITHIN COUNTY OR TOWN ROADWAYS)

ASPHALT CONCRETE PAVEMENT

THICKNESS IS GREATER

NOTES:

SCALE: N.T.S.

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- SUBBASE COURSE

MATCH EXISTING THICKNESS

- 2" ASPHALT CONCRETE TOP COURSE

- 3" ASPHALT CONCRETE BASE COURSE

-2-1/2" ASPHALT CONCRETE BINDER COURSE

(NYSDOT ITEM NO. 404.096201)

(NYSDOT ITEM NO. 404.198901)

(NYSDOT ITEM NO. 404.378901)

MATCH EXISTING THICKNESS

(NYSDOT ITEM NO. 304.12)

- COMPACTED SUBGRADE

SLOPE AS INDICATED ON PLAN

-8"SUBBASE

// // // // // // // //

06/09/2023 ISSUED FOR CONSTRUCTION SUBMISSION

SUBMITTAL / REVISION DESCRIPTION

DB APP

STABILAZATION FABRIC

**GRAVEL PAVEMENT** 

SCALE: N.T.S.

6

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No.

DATE

- COMPACTED SUBGRADE

SUBBASE MATERIAL.

2" ASPHALT CONCRETE TOP COURSE (NYSDOT ITEM NO. 404.096201) -2.5" ASPHALT CONCRETE BINDER COURSE (NYSDOT ITEM NO. 404.198901) -8" ASPHALT CONCRETE BASE COURSE (NYSDOT ITEM NO. 404.378901)

-SUBBASE MATERIAL, MATCH EXISTING THICKNESS

- COMPACTED SUBGRADE

NYSDOT TYPE 2 (ITEM NO. 304.12)



		_	SCALE	AS SHOWN	DATE	06/09/20
RAWN BY:	DESIGNED BY:	APPROVED BY:	REV. NO.	0	SH.NO.	



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**(B) Kiewit** 



 $\frac{\text{SECTION VIEW A}}{\text{SCALE: } 1/4" = 1'-0"}$ 

 $\frac{\text{PLAN VIEW}}{\text{SCALE: } 1/4" = 1'-0"}$ 

TEOF NEW WANCHIN IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED VV2 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 SUCHATINGE THE DAT OF SUCH ALTERATION AND A 05/03/2023 RFC - VAULT UPDATES 02/10/2023 REV 1 - IFC - NYSDOT HWP, SPLICE VAULT UPDATES JNK OO THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION. 1 0 12/21/2022 IFC SUBMISSION No. DATE SUBMITTAL / REVISION DESCRIPTION

<u>NOTES:</u>

- 1. EACH ENDWALL (8.5 FT x 11 FT) IS DESIGNED FOR A SINGLE 51,000 LB PULLING IRON FORCE. THE FLOOR SLAB IS DESIGNED FOR FOUR CONCURRENT 3,300 LB PULLING IRON FORCES AND A SINGLE 51,000 LB PULLING IRON FORCE. SEE DETAIL 2 FOR RACKING FORCES AT EACH END.
- 2. DESIGN LIVE LOAD: HL-93.
- 3. EXTERIOR COATING & JOINT SEALERS/WATER STOPS TO BE
- USED BETWEEN PRECAST JOINTS, AS SPECIFIED. 4. MAXIMUM PRECAST PIECE PICK WEIGHT LIMITED TO 50.000 LB.
- 5. SEE ELECTRICAL DRAWINGS FOR CABLE RACKING DETAILS & GROUND WIRE DETAILS.
- 6. WALL THICKNESSES TO BE FINALIZED PER APPROVED VENDOR'S DESIGN. REFER TO APPROVED VENDOR SHOP DRAWINGS FOR WEIGHTS AND PICK POINTS.
- 7. THREADED ANCHOR WORKING LOAD SHALL BE 1,100 LB MINIMUM. 8. LINK SEAL TO BE USED BETWEEN CABLE CONDUIT AND PENETRATION SLEEVE, AS SPECIFIED.
- 9. ELECTRIC SUMP PUMP TO BE PROVIDED BY OTHERS.
- 10. SEE SHEET S-702 FOR ANCHOR AND EMBED LOCATIONS. 11. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.
- 12. A MINIMUM BEDDING SECTION CONSISTING OF A 4-INCH THICK MUDMAT OR 4-INCH THICK SELECT GRANULAR FILL SHALL BE PLACED ON TOP OF PREPARED SUBGRADE. ADDITIONAL BEDDING MAY BE REQUIRED AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE BASED ON IN-SITU CONDITIONS.
- PRECAST SUPPLIER TO COORDINATE WITH MANHOLE COVER SUPPLIER FOR FIT-UP ISSUES.
- 14. BACKFILL AREA AROUND VAULT WITH FLUIDIZED THERMAL BACKFILL (FTB) UP TO TOP OF TOP SLAB. ABOVE TOP SLAB. BACKFILL WITH SCREENED NATIVE SOIL TO BE COMPACTED PER EARTHWORK SPECIFICATION.
- 15. FOR LIMITS OF EXCAVATION, SEE CIVIL PLAN DRAWINGS.

SEE NOTE 3-1'-0" (±1/8") 1/0 CABLE (SEE NOTE BELOW)-GROUND PLATE BURNDY YGF29-4N 1'-0' '±1/8 FLEXIBLE COPPER BRAID BURNDY BD24N -

DETAIL 1 SCALE:  $1 \ 1/2" = 1'-0"$ 

NOTE: USED TO ELECTRICALLY JOIN PRECAST CONCRETE SECTIONS TOGETHER. BY MEANS OF REBAR CONNECTIONS. TO BE APPLIED AT EACH PRECAST SECTION, SUCH THAT ALL SECTIONS ARE JOINED TOGETHER.





NOTE: FORCES PROVIDED IN DETAIL 2 ARE PER CABLE AND ARE THE RESULT OF POST-INSTALLED CABLE RACKING EQUIPMENT. FORCES ARE POSITIVE IN THE DIRECTION IN WHICH THEY ARE DRAWN AND ARE ALIGNED WITH & HVDC CABLE. RACKING FORCES ARE NOT CONCURRENT WITH FLOOR PULLING IRON OR ENDWALL PULLING IRON FORCES. RACKING INSTALLED AT EACH END OF THE VAULT, FORCES APPLIED SYMMETRICALLY AT EACH END.  $F_1 = 9.0 \text{ KIP}$   $F_2 = 2.3 \text{ KIP}$   $F_3 = 7.9 \text{ KIP}$ 

		CHAMF	KIE	WIT PROJECT NO. 21162				
				DRAWING NO.				
JNK JNK	00							S-700
JNK	00							
DB	ΔPP				SCALE	AS SHOWN	DATE	
00		DRAWN BY: DRH	DESIGNED BY: JNK	APPROVED BY: O	J REV. NO.	2	SH.NO.	





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						-
ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT	TERING ENGINEER, ARCHITECT, LANDSCAPE D SURVEYOR SHALL STAMP THE DOCUMENT 2	05/03/2023	RFC - VAULT UPDATES	JNK	00	-
AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A	1	02/10/2023	REV 1 - IFC - NYSDOT HWP, SPLICE VAULT UPDATES	JNK	00	
SPECIFIC DESCRIPTION OF THE ALTERATION.	0	12/21/2022	IFC SUBMISSION	JNK	00	
	No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	DF
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### <u>NOTES:</u>

1. REFER TO NOTES ON SHEET S-700. 2. MANHOLE COVER SHALL BE RATED FOR HL-93 WHEEL LOADING MINIMUM PER S-700 NOTES AND S-705 DESIGN LOADS.

# CHAMPLAIN HUDSON POWER EXPRESS

SPLICE VAULT SECTION AND DETAILS

DRAWING NO.

S-701

RIEWIT PROJECT NO.

21162

				SCALE	AS SHOWN	DATE
RAWN BY: DRH	DESIGNED BY: JNK	APPROVED BY:	00	REV NO	2	SH.NO.











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DF LAW FOR ANY PERSON, UNLESS THEY IDER THE DIRECTION OF A LICENSED SEER, ARCHITECT, LANDSCAPE ARCHITECT TO ALTER AN ITEM IN ANY WAY. IF AN STAMP OF A LICENSED PROFESSIONAL IS RING ENGINEER, ARCHITECT, LANDSCAPE SURVEYOR SHALL STAMP THE DOCUMENT NOTATION "ALTERED BY" FOLLOWED BY THE DATE OF SUCH ALTERATION, AND A ESCRIPTION OF THE ALTERATION.						
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	2	05/03/2023	RFC - VAULT UPDATES	JNK	00	-
	1	02/10/2023	REV 1 - IFC - NYSDOT HWP, SPLICE VAULT UPDATES	JNK	00	
	0	12/21/2022	IFC SUBMISSION	JNK	00	
	No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	DRA

<u>NOTES:</u>

1. FOR ALL SPLICE VAULT MANHOLES IN PACKAGES 1A AND 1B WITHIN DOT ROW OR UNDER PAVEMENT SECTION: AFTER CABLE COMMISSIONING, RISERS TO BE REMOVED, MANHOLE FRAMES AND COVERS TO BE LOWERED TO FINAL POSITION. MANHOLE COVER NOT TO EXTEND INTO PAVEMENT SECTION. MANHOLE FRAMES AND COVERS TO BE COVERED WITH 8'X 8' MIRAFI 140N GEOTEXTILE FABRIC OR EQUIVALENT. FULL DEPTH PAVEMENT WILL BE RESTORED PRIOR TO MILL AND OVERLAY AFTER CABLE COMMISSIONING.

## CHAMPLAIN HUDSON POWER EXPRESS

SPLICE VAULT DETAILS

DRAWING NO.

S-703

RIEWITPROJECTNO. 21162

RAWN BY: DRH DESIGNED BY: JNK APPROVED BY: OO REV. NO.

AS SHOWN DATE 2 SH.NO.

DESIGN SPECIFICATIONS

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1. AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 9TH EDITION, 2020 2. NYSDOT LRFD BRIDGE DESIGN SPECIFICATIONS, 2021 3. NYSDOT LRFD BLUE PAGES, 2021 4. AREMA MANUAL FOR RAILWAY ENGINEERING, VOLUME 2 STRUCTURES, 2016 5. ASCE 7-16 MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES <u>DESIGN LOADS</u> 1. DEAD LOADS 1.1. CONCRETE UNIT WEIGHT = 150 PCF 1.2. STEEL UNIT WEIGHT = 490 PCF 2. SUPERIMPOSED DEAD LOADS 2.1. WEIGHT OF TWO HVDC CABLES + ONE FIBER OPTIC CABLE AND ASSOCIATED CONDUIT = 47.53 PLF2.2. WEIGHT OF CABLE TRAY = 20.57 PLF 2.3. PULLING IRON, TROLLEY BEAM, ANCHORAGE, EMBED FORCES NOTED ON DRAWINGS WHERE APPLICABLE. 3. EARTH LOADS 3.1. SOIL BACKFILL UNIT WEIGHT = 125 PCF 4. LIVE LOAD SURCHARGE 4.1. 100 PSF MINIMUM 5. LIVE LOADS 5.1. 300 PSF MINIMUM AT GROUND SURFACE OF TRENCH SECTIONS AND VAULTS. 5.2. HL-93 5.3. COOPER E-80 5.4. ANSI-SCTE TIER 22 (FOR HANDHOLES ONLY, SEE MATERIALS 7.1 BELOW) 6. WIND LOADS 6.1. 50 PSF TRANSVERSE 6.2. 10 PSF LONGITUDINAL 7. SNOW LOADS 7.1. 50 PSF 8. WATER 8.1. STRUCTURES ARE ASSUMED TO BE SUBMERGED. 9. THERMAL LOADS 9.1. STRUCTURES ARE SUBJECT TO THERMOMECHANICAL LOADING FROM HVDC CABLES. 9.2. TEMPERATURE GRADIENT. 10. SEISMIC LOADING 10.1. BURIED STRUCTURES ARE NOT SUBJECT TO SEISMIC PROVISIONS. MATERIALS: 1. REINFORCED CONCRETE 1.1. f'c = 4,500 PSI AT 28 DAYS, UNO 1.2. F2 FREEZE-THAW CATEGORY WHERE NOTED 2. REINFORCING STEEL 2.1. ASTM A706, GRADE 60, UNO 3. STRUCTURAL STEEL 3.1. ASTM A36, UNO 4. BOLTS 4.1. ASTM A325, UNO 5. NUTS 5.1. ASTM A563, UNO 6. WASHERS 6.1. ASTM F436, UNO 7. POLYMER CONCRETE 7.1. ANSI-SCTE 77 2017 8. REINFORCED THERMOSETTING RESIN CONDUIT 8.1. NEC 355 9. PVC 9.1. SCH 40







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	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.	2	05/03/2023	RFC - VAULT UPDATES	JNK	00	
		1	02/10/2023	REV 1 - IFC - NYSDOT HWP, SPLICE VAULT UPDATES	JNK	00	
		0	12/21/2022	IFC SUBMISSION	JNK	00	
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ABBREVIATIONS:

APPROACH				
BEARING				
CAST IN PLACE				
CENTERLINE				
CLEAR COVER				
DIAMETER				
ELEVATION				
GIRDER				
HIGH STRENGTH				
INTERMEDIATE CONDUIT SUPPORT				
INSIDE DIAMETER				
IRON PIPE SIZE				
KIPS PER SQUARE INCH				
LONG LEG VERTICAL				
NOMINAL				
OUTSIDE DIAMETER				
PRECAST				
PLATE				
PROTECTIVE				
POLYVINYL CHLORIDE				
ROUTE				
STATION				
STANDARD WALL				
THICKNESS				
UNLESS NOTED OTHERWISE				

## CHAMPLAIN HUDSON POWER EXPRESS

STRUCTURAL GENERAL NOTES AND ABBREVIATIONS

KHEWIT PROJECT NO. 21162

DRAWING NO.

S-705

DRAWN BY: DRH DESIGNED BY: JNK APPROVED BY: OO REV. NO.

AS SHOWN DATE 2 SH.NO.





CHPE Champlain Hudson **Power Express** 





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Julie Weber	ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT	2	05/03/2023	RFC - VAULT UPDATES	JNK	00	
	THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A	1	02/10/2023	REV 1 - IFC - NYSDOT HWP, SPLICE VAULT UPDATES	JNK	00	
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TUFESSION		No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

<u>NOTES:</u>

- 1. TYPICAL SECTION AND FOLLOWING NOTES PROVIDED PROPOSED DESIGN CRITERIA TO BE APPLIED FOR DRAINS OR OTHER UTILITIES LOCATED BELOW THE DUCT BANK WITHIN THE NYSDOT RIGHT OF WAY AND/OR OTHER PRIVATE PROPERTY OWNERS AND JURISDICTIONS, 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+0D+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 3'-0" MINIMUM.
- PER GEOTECHNICAL TRENCH REPORT, 1.5 KSF MINIMUM BEARING CAPACITY ASSUMED. 13. SEE NOTE 11/S-721, SPECIFIC TO PACKAGE 8:
- FOR STA. 80000+50 TO 80001+50 (ADJACENT TO WILLIS AVE. BRIDGE), MINIMUM COVER IS 2'-O". TYPICAL COVER IN PACKAGE 8 IS 3'-O" MINIMUM.

## CHAMPLAIN HUDSON POWER EXPRESS

REINFORCING TRAY OVER UTILITIES

KIEWIT PROJECT NO. 21162

DRAWING NO.

S-720

AS SHOWN DATE

2 SH.NO.

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RAWN BY: DRH	DESIGNED BY: JNK	APPROVED BY:	00	REV. NO.	



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	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	2	05/03/2023	RFC - VAULT UPDATES	JNK	00	
087775	THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.	1	02/10/2023	REV 1 - IFC - NYSDOT HWP, SPLICE VAULT UPDATES	JNK	00	
		0	12/21/2022	IFC SUBMISSION	JNK	00	
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1 yest	ALTERED, THE ALTERING ENGINEER, ARCHITECT, LANDSCAPE ARCHITECT OR LAND SURVEYOR SHALL STAMP THE DOCUMENT	2	05/03/2023	RFC - VAULT UPDATES	JNK	00	
AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY 090036 DOCUMENTATION OF THE ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.	AND INCLUDE THE NOTATION "ALTERED BY" FOLLOWED BY THEIR SIGNATURE, THE DATE OF SUCH ALTERATION, AND A	1	02/10/2023	REV 1 - IFC - NYSDOT HWP, SPLICE VAULT UPDATES	JNK	00	]
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![](_page_19_Figure_0.jpeg)

![](_page_19_Picture_1.jpeg)

![](_page_19_Picture_2.jpeg)

![](_page_19_Picture_3.jpeg)

![](_page_19_Figure_5.jpeg)

	С	V	V
_	0"		

					6
0	06/08/2023	ISSUED FOR CONSTRUCTION SUBMISSION	DLM	ASM	
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	DRA

1.	ESTABLISH STABLE SUBGRADE CONDITIONS AS OR THEIR REPRESENTATIVE.	DIRECTED BY THE GEOTECHNICAL ENGINEER		
2. A MINIMUM BEDDING SECTION CONSISTING OF A 4-INCH THICK MUDMAT OR 4-INCH T SELECT GRANULAR FILL SHALL BE PLACED ON TOP OF PREPARED SUBGRADE. ADDITION BEDDING MAY BE REQUIRED AS DIRECTED BY GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE BASED ON IN-SITU CONDITIONS.				
	REFERENCE DO	OCUMENTS		
LIST NO.	DOCUMENT NAME	DOCUMENT NO.		
1	STRUCTURAL VAULT DRAWING	S-700		
2	TYPICAL VAULT GROUNDING DETAILS	C-803		
3	DUCT BANK CONNECTION DETAILS	C-812		
4	FIBER OPTIC SPLICE DETAILS	C-855		
5	FIBER OPTIC H-FRAME BRACKET DETAIL	C-856		

![](_page_19_Figure_11.jpeg)

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

1'-11"

![](_page_19_Picture_13.jpeg)

![](_page_20_Figure_0.jpeg)

BILL OF MATERIALS									
M ).	ITEM DESCRIPTION	MANUFACTURER & CATALOG NO.	PROVIDER	INSTALLER					
	LINK BOX	NKT LB.U.E.2.1	NKT	KIEWIT					
	INSULATED COAX BONDING CABLE	AS REQUIRED	NKT	NKT					
	BARE 4/0 GROUND CABLE	AS REQUIRED	KIEWIT	KIEWIT					
	GROUND CONNECTOR	BURNDY GB29	KIEWIT	KIEWIT					
	FEMALE WEDGE ANCHOR	GRAINGER 12DWG	KIEWIT	KIEWIT					
	COMPRESSION C CONNECTOR	BURNDY YGHC29C29	KIEWIT	KIEWIT					
	COMPRESSION CONNECTION TO GROUND ROD	BURNDY YGHR29C34	KIEWIT	KIEWIT					
	3/4" X 10'-0" GROUND ROD	NVENT ERICO 613400	KIEWIT	KIEWIT					
	SILICON BRONZE HEX HEAD CAP SCREW	STS INDUSTRIAL #HHSB0370075	KIEWIT	KIEWIT					
)	POLYWATER FST SEALANT	POLYWATER	KIEWIT	KIEWIT					
L	FOUR-HOLE GROUNDING PLATE	BURNDY YGF294N	KIEWIT	KIEWIT					
2	GROUNDING BUSBAR & ASSEMBLY	NVENT ERICO EGBA14210BB	KIEWIT	KIEWIT					
3	ONE HOLE LUG COMPRESSION TERMINAL	BURNDY YAV28L60	KIEWIT	KIEWIT					
1	TWO HOLE LONG BARREL LUG	BURNDY YA282N	KIEWIT	KIEWIT					
5	UNISTRUT AND SUNDRIES	STAINLESS STEEL	NKT	NKT					
5	FLEXIBLE COPPER BRAID	BURNDY BD24N	KIEWIT	KIEWIT					
7	SILICON BRONZE HEX NUT	STS INDUSTRIAL #NFSB0370000	KIEWIT	KIEWIT					
3	COMPRESSION LUG	ABB 120M16-A	KIEWIT	KIEWIT					
)	SILICON BRONZE HEX HEAD CAP SCREW	AFT BB-VS1160-B	KIEWIT	KIEWIT					
)	SILICON BRONZE TAP BOLT	FASTENAL 74954	KIEWIT	KIEWIT					
1	SILICON BRONZE SPLIT LOCK WASHER	GRAINGER 1NU94	KIEWIT	KIEWIT					
2	SILICON BRONZE HEX NUT	GRAINGER 1WE52	KIEWIT	KIEWIT					
מחו	OVED EQUAL MATERIAL MAY RE SURMITTED FOR D								

	REFERENCE DOCUMENTS						
T	DOCUMENT NAME	DOCUMENT NO.					
	STRUCTURAL VAULT DRAWING	S-700					
	GROUNDING SPECIFICATIONS	260526.01					

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![](_page_21_Figure_0.jpeg)

![](_page_21_Picture_1.jpeg)

**Kiewit** 

![](_page_21_Picture_2.jpeg)

AF NEW YORK	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	06/08/2023	ISSUED FOR CONSTRUCTION SUBMISSION	DLM	ASM	-
706996	SPECIFIC DESCRIPTION OF THE ALTERATION.	0	06/08/2023	ISSUED FOR CONSTRUCTION SUBMISSION	DLM	ASM	
ESSIONAL		No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	

	KIEWIT PROJECT NO.
	21162
	CHA PROJECT NO.
	066076
SPLICE VAULT AND CABLE MARKING DETAILS	DRAWING NO.
	<b>C-807</b>
SCALE	DATE 06/08/2023
AWN BY: DLM DESIGNED BY: SD   APPROVED BY: ASM REV. NO. 0	SH.NO.

![](_page_22_Figure_0.jpeg)

DB APP DRAWN BY: DLM DESIGNED BY: SS APPROVED BY: ASM REV. NO. No. DATE SUBMITTAL / REVISION DESCRIPTION

REFERENCE DOCOMENTS		
LIST NO.	DOCUMENT NAME	DOCUMENT NO.
1	TYPICAL OPEN PIT GROUNDING DETAILS	C-809
2	OPEN VAULT HAND HOLE	C-853
3	FIBER OPTIC HAND HOLE DETAILS	C-854
4	FIBER OPTIC SPLICE DETAILS	C-855
5	TRENCHING AND BACKFILLING SPEC.	312333

0 SH.NO.