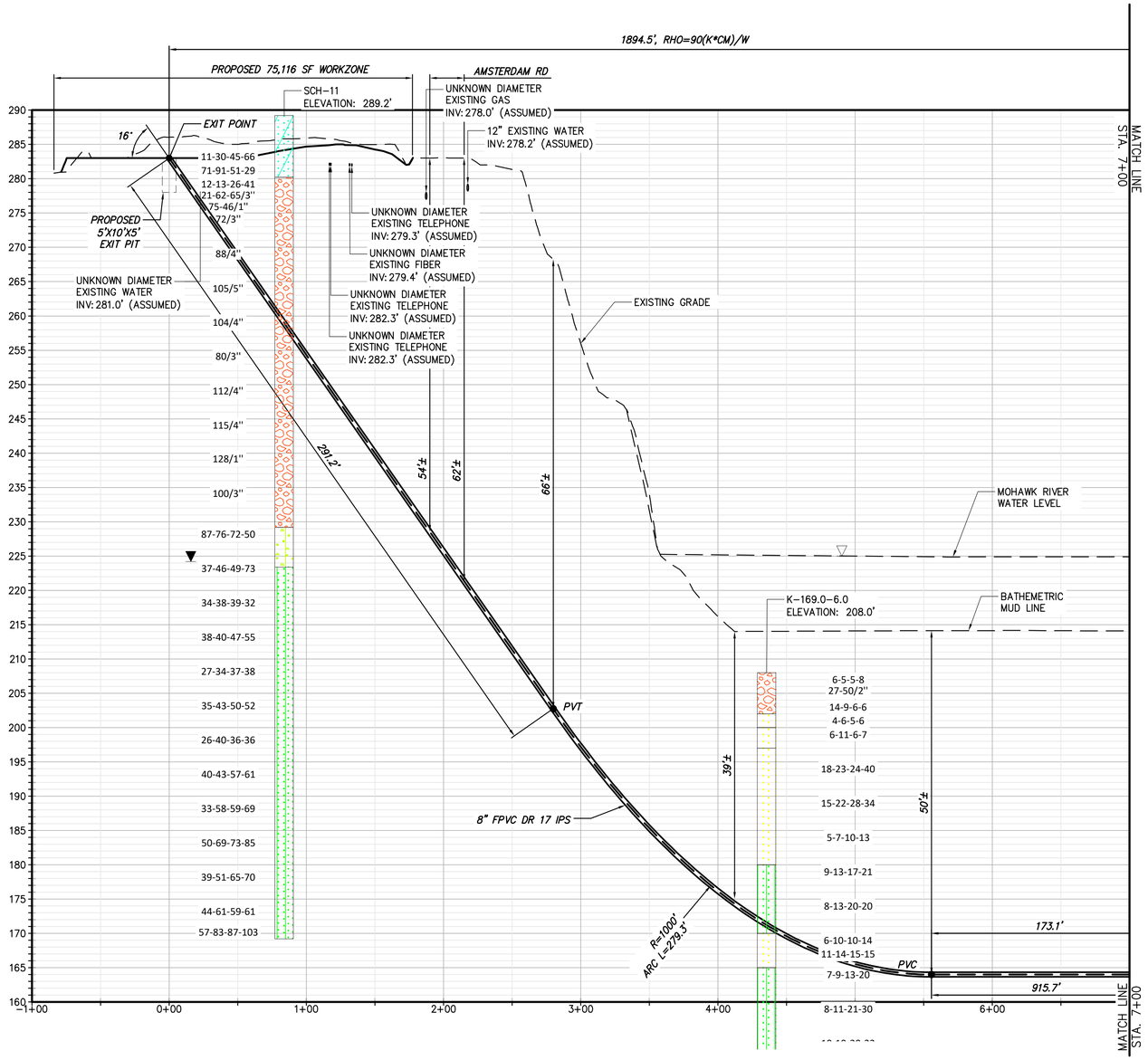
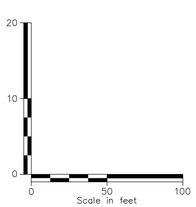


PROPOSED HDD 68 PROFILE VIEW

CONDUIT 2



NOTE:

1. *HDD 68 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 17 DIAMETER CONDUIT. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.
2. BASED ON THE BORING DATA THE CONTRACTOR SHOULD CONSIDER USE OF DRILLING ADDITIVES TO INCREASE THE CARRYING CAPACITY OF THE DRILLING MUD AND, ADDITIVES TO PLUG COARSER GRAVELS AND PREVENT SLURRY LOSS.
3. CONDUCTOR CASINGS FOR THE ENTRY AND EXIT VERTICAL TANGENT SECTIONS OF THE ALIGNMENTS SHOULD BE CONSIDERED.
4. THE WATERLINE SHOWN ENDING APPROXIMATELY 21 FEET FROM CONDUIT 2 EXIT AND POTENTIALLY SIMILAR FOR CONDUIT 1 SHALL BE POSITIVELY IDENTIFIED DURING CONDUCTOR CASING INSTALLATION AND MAY REQUIRE WATERLINE RELOCATION IF THE HDD CANNOT ACCOMMODATE FIELD ADJUSTMENTS.
5. BALLASTING IS EXPECTED TO BE REQUIRED DURING PULL BACK TO MANAGE INSTALLATION STRESSES.

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

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
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	GP-GM	Poorly Graded GRAVEL with SILT
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	Limestone	Limestone
	MH	Elastic SILT
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	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
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▼	Water Table	Water Table during drilling
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	SPB	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 68, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-309A.1**

DRAWN BY: CKZ DESIGNED BY: CKZ APPROVED BY: JEO SCALE AS NOTED DATE 07/28/2023 REV. NO. X SH.NO.

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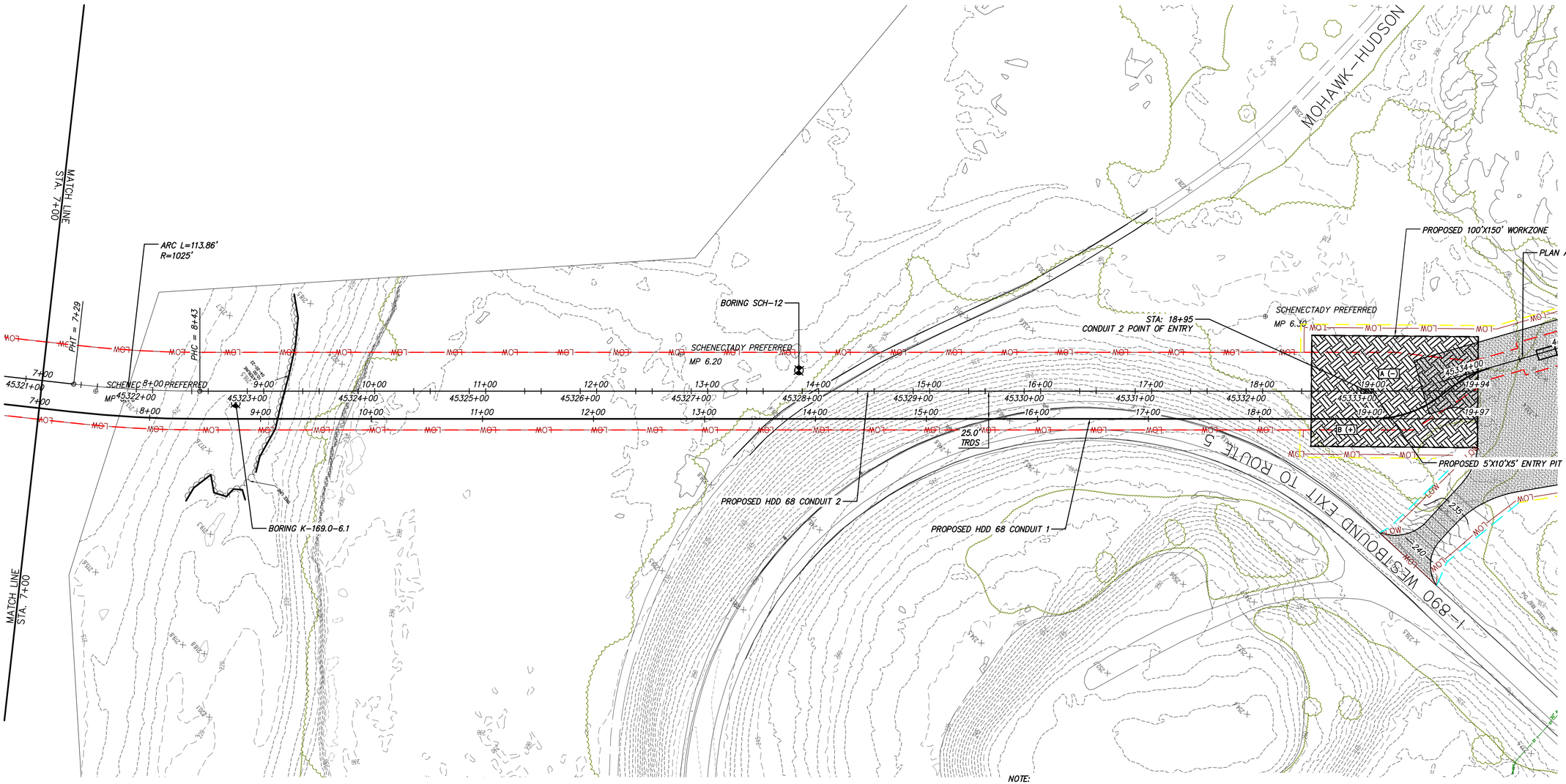

0 50 100
Scale in feet

PROPOSED HDD 68 PLAN VIEW

CONDUIT 2

NOTE:

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	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 68, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-309A.2**

DRAWN BY: CKZ | DESIGNED BY: CKZ | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

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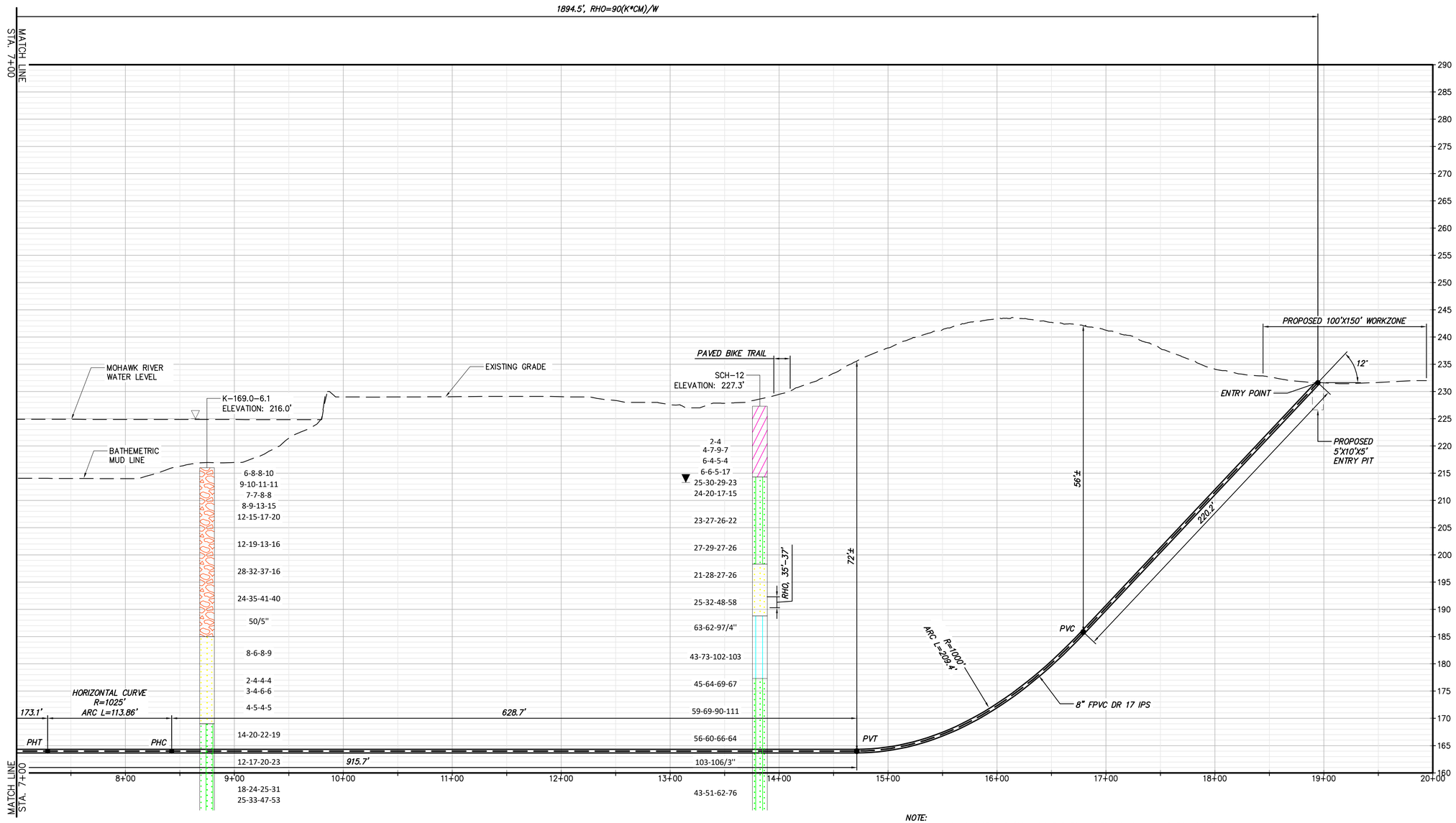

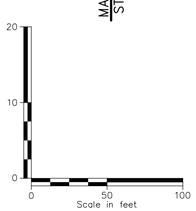

PROPOSED HDD 68 PROFILE VIEW

CONDUIT 2

NOTE:

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BORING LOG STRIP LEGEND

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Void	Void
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Weathered Rock	Undefined
Water Table	Water Table during drilling
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 68, CONDUIT 2

KIEWIT PROJECT NO. 21162

CHA PROJECT NO. 066076

DRAWING NO. **C-309A.3**

DRAWN BY: CKZ DESIGNED BY: CKZ APPROVED BY: JEO

SCALE AS NOTED DATE 07/28/2023

REV. NO. X SH.NO.

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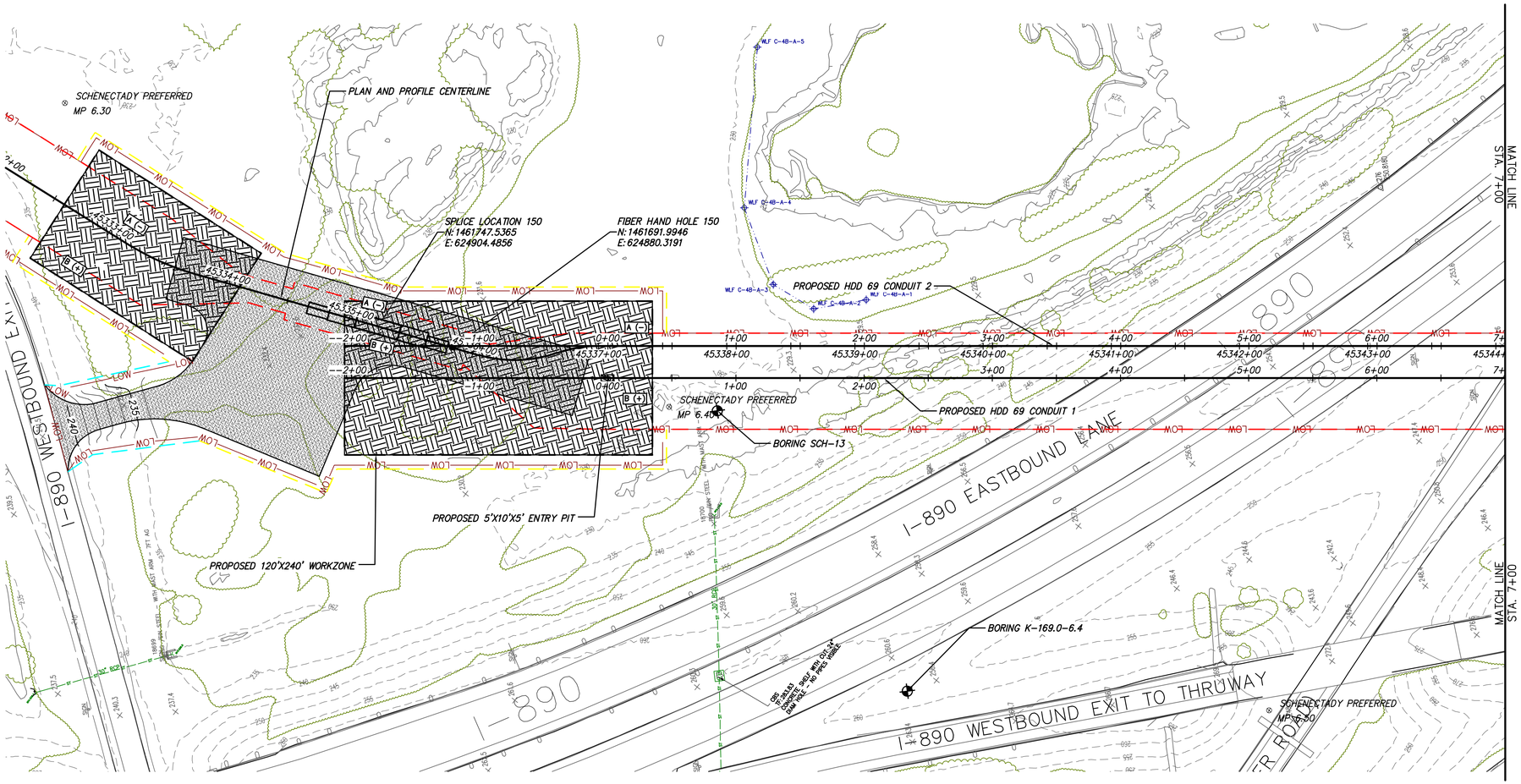

PROPOSED HDD 69 PLAN VIEW

CONDUIT 1

0 50 100
Scale in feet

NOTE:

1. *HDD#69 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 14 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69, CONDUIT 1

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-310**

DRAWN BY: CKZ DESIGNED BY: CKZ APPROVED BY: JEO
SCALE AS NOTED DATE 07/28/2023
REV. NO. X SH.NO.

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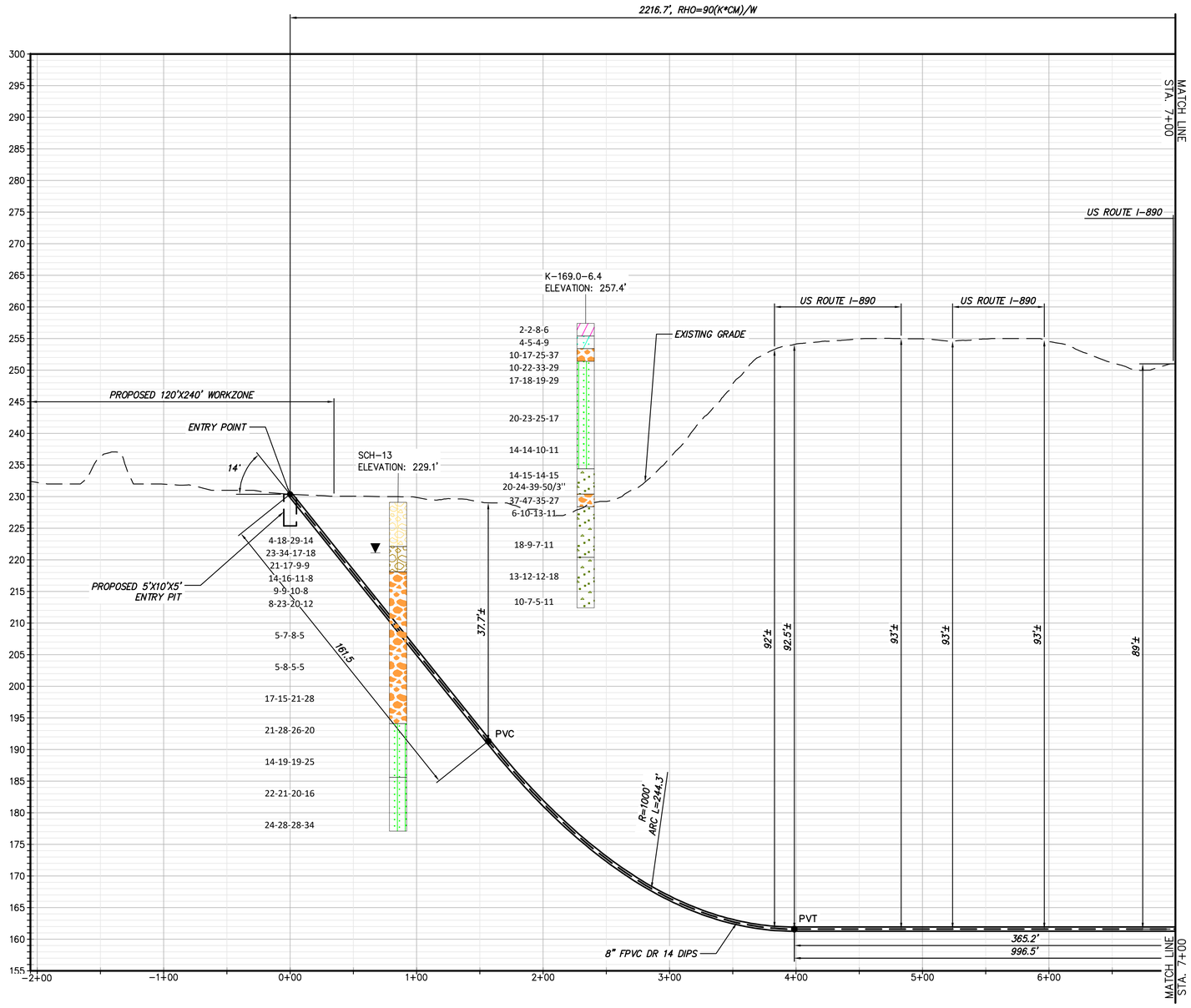

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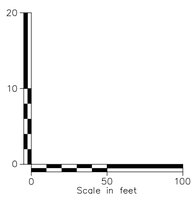

PROPOSED HDD 69 PROFILE

CONDUIT 1

CHPE Champlain Hudson Power Express

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	SPB	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69, CONDUIT 1

KIEWIT PROJECT NO. 21162

CHA PROJECT NO. 066076

DRAWING NO. **C-310.1**

DRAWN BY: CKZ | DESIGNED BY: CKZ | APPROVED BY: JEO | SCALE AS NOTED | DATE 07/28/2023 | REV. NO. X | SH.NO.

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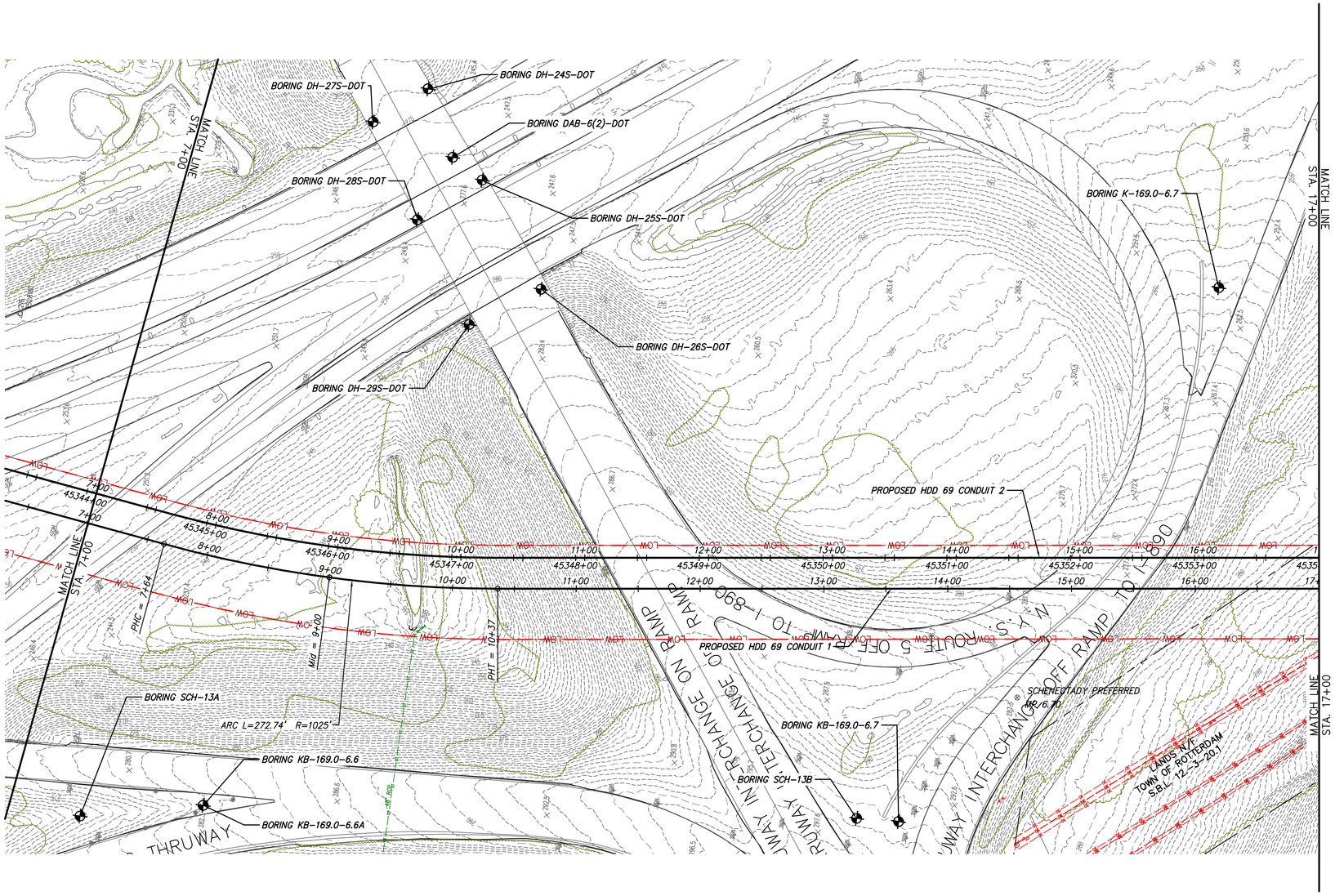

PROPOSED HDD 69 PLAN VIEW

CONDUIT 1

0 50 100
Scale in feet

NOTE:

1. *HDD#69 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 14 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.
2. BASED ON THE BORING DATA THE CONTRACTOR SHOULD CONSIDER USE OF DRILLING ADDITIVES TO INCREASE THE CARRYING CAPACITY OF THE DRILLING MUD AND, ADDITIVES TO PLUG COARSER GRAVELS AND PREVENT SLURRY LOSS.
3. CONDUCTOR CASINGS FOR THE ENTRY AND EXIT VERTICAL TANGENT SECTIONS OF THE ALIGNMENTS SHOULD BE CONSIDERED.

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

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

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Kiewit

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69, CONDUIT 1

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-310.2**

DRAWN BY: CKZ DESIGNED BY: CKZ APPROVED BY: JEO SCALE AS NOTED DATE 07/28/2023 REV. NO. X SH.NO.

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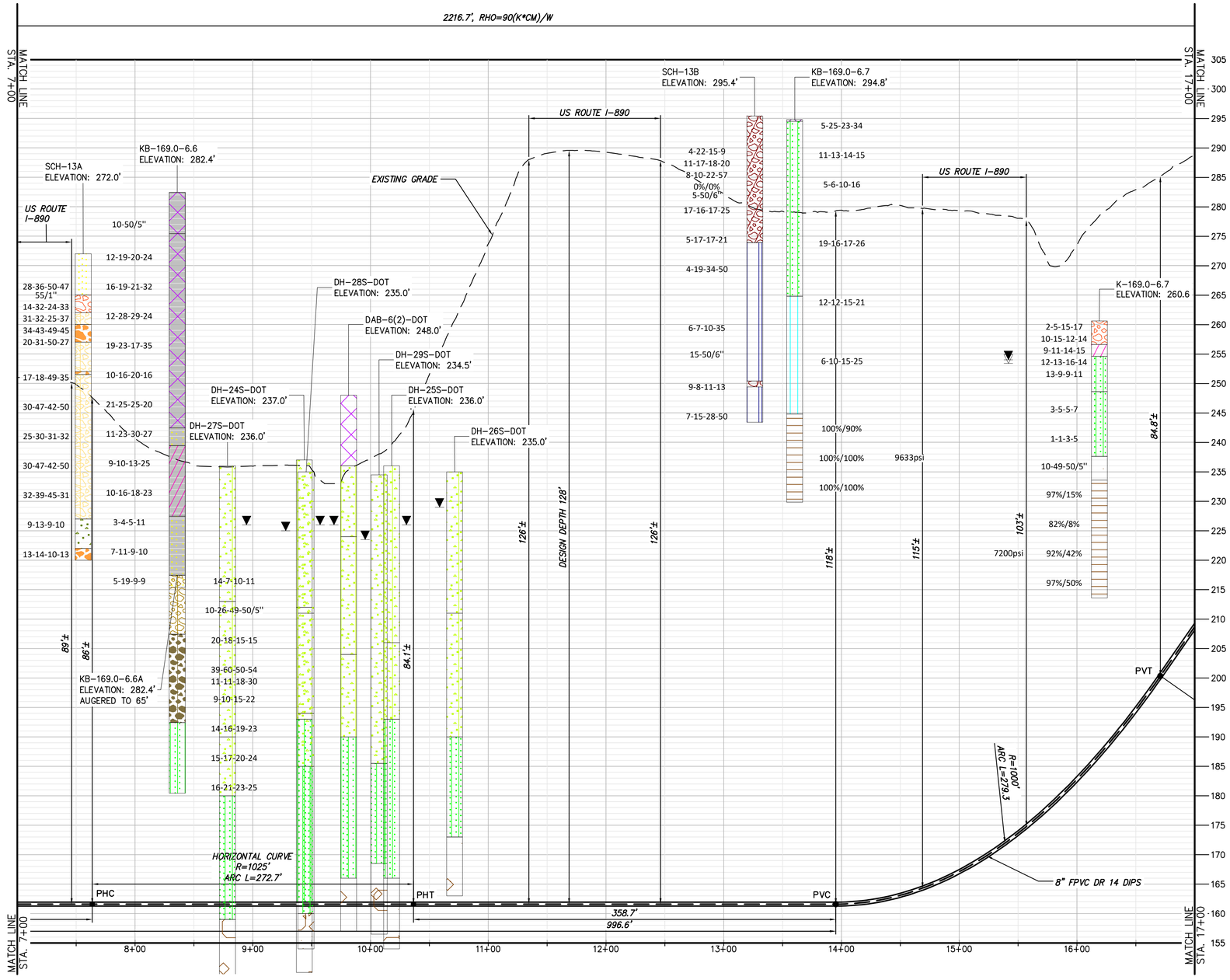

NOTE:
1. *HDD#69 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 14 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.
2. BASED ON THE BORING DATA THE CONTRACTOR SHOULD CONSIDER USE OF DRILLING ADDITIVES TO INCREASE THE CARRYING CAPACITY OF THE DRILLING MUD AND, ADDITIVES TO PLUG COARSER GRAVELS AND PREVENT SLURRY LOSS.
3. CONDUCTOR CASINGS FOR THE ENTRY AND EXIT VERTICAL TANGENT SECTIONS OF THE ALIGNMENTS SHOULD BE CONSIDERED.

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
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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

Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi =UCS

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

PROPOSED HDD 69 PROFILE

CONDUIT 1

20 10 0 — 0 50 100 Scale in feet

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69, CONDUIT 1

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-310.3

DRAWN BY: CKZ | DESIGNED BY: CKZ | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

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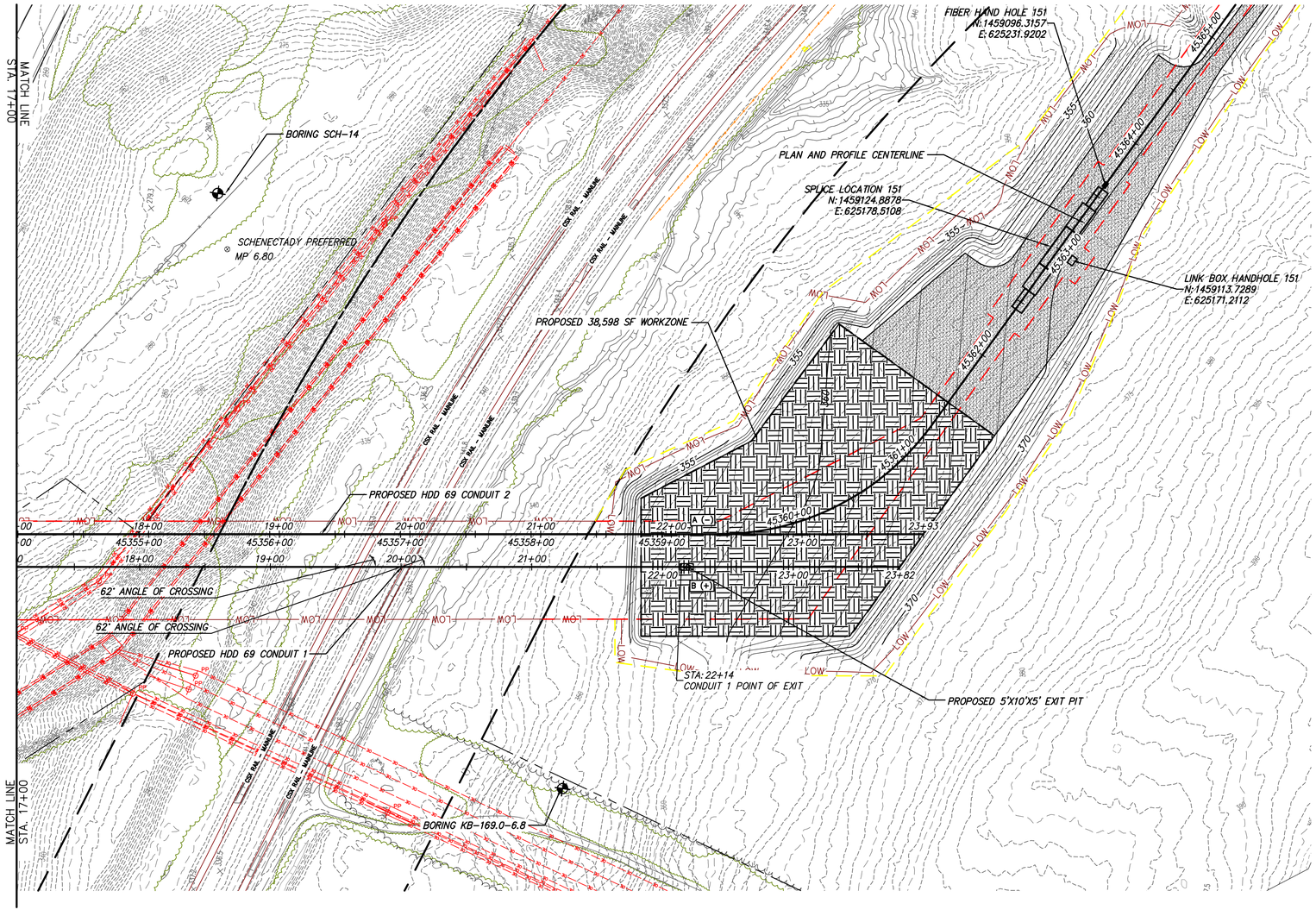

0 50 100
Scale in feet

PROPOSED HDD 69 PLAN VIEW

CONDUIT 1

NOTE:

1. *HDD#69 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 14 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.
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3. CONDUCTOR CASINGS FOR THE ENTRY AND EXIT VERTICAL TANGENT SECTIONS OF THE ALIGNMENTS SHOULD BE CONSIDERED.

BORING LOG STRIP LEGEND

B101

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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
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	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
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	SW	Well graded SAND
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	USGS 601	Gravel or Conglomerate 1
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	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69, CONDUIT 1

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-310.4**

DRAWN BY: CKZ | DESIGNED BY: CKZ | APPROVED BY: JEO | SCALE AS NOTED | DATE 07/28/2023 | REV. NO. X | SH.NO.

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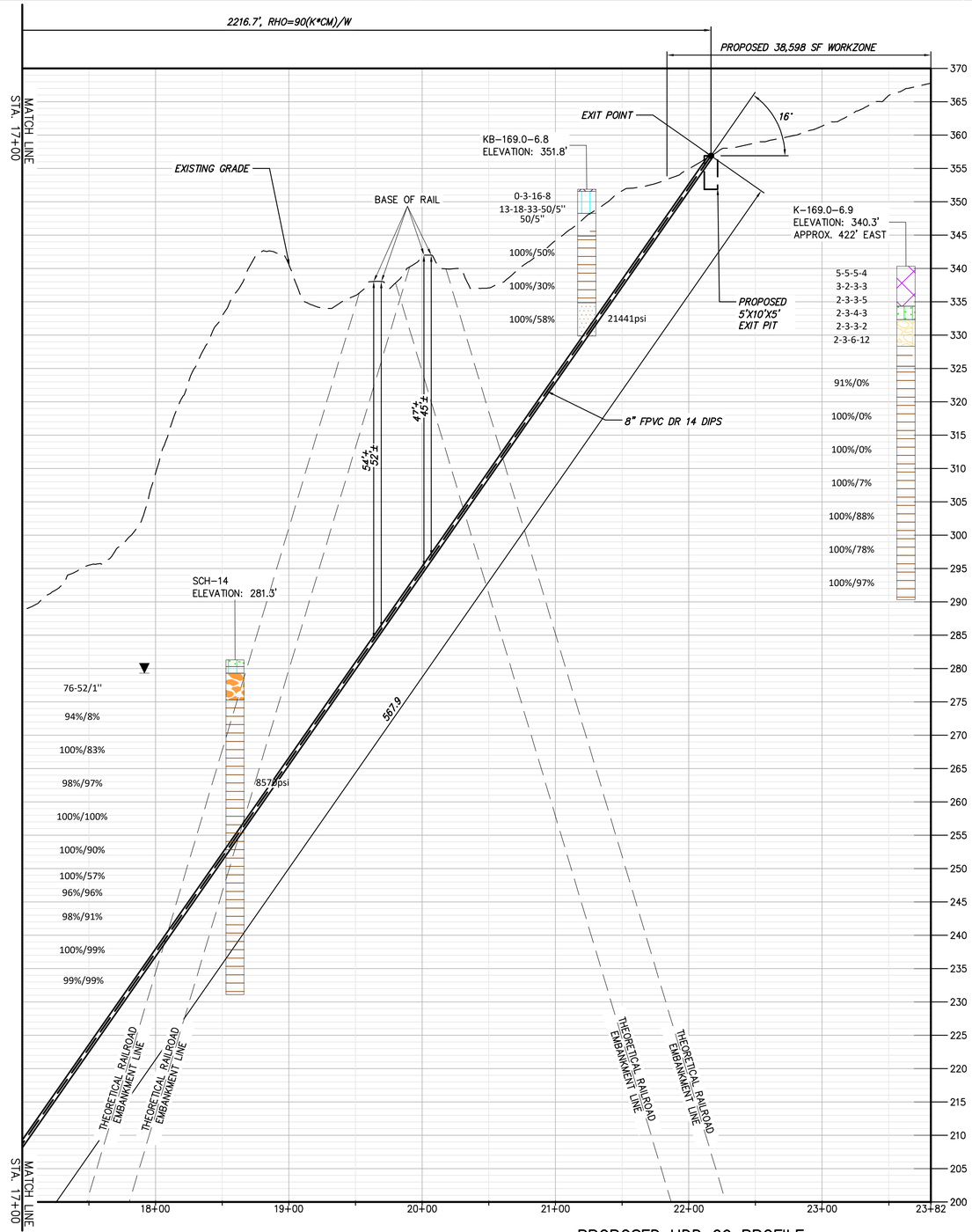

PROPOSED HDD 69 PROFILE

CONDUIT 1

NOTE:

1. *HDD#69 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 14 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.
2. BASED ON THE BORING DATA THE CONTRACTOR SHOULD CONSIDER USE OF DRILLING ADDITIVES TO INCREASE THE CARRYING CAPACITY OF THE DRILLING MUD AND, ADDITIVES TO PLUG COARSER GRAVELS AND PREVENT SLURRY LOSS.
3. CONDUCTOR CASINGS FOR THE ENTRY AND EXIT VERTICAL TANGENT SECTIONS OF THE ALIGNMENTS SHOULD BE CONSIDERED.

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
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	SP-SC	Poorly Graded SAND with CLAY
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	SW-SC	Well Graded SAND with CLAY
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	USGS 670	Interbedded Sandstone and Shale
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	USGS 705	Schist
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	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
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BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

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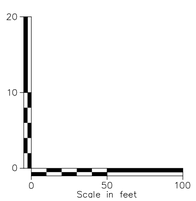

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69, CONDUIT 1

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-310.5**

DRAWN BY: CKZ | DESIGNED BY: CKZ | APPROVED BY: JEO | SCALE AS NOTED | DATE 07/28/2023 | REV. NO. X | SH.NO.

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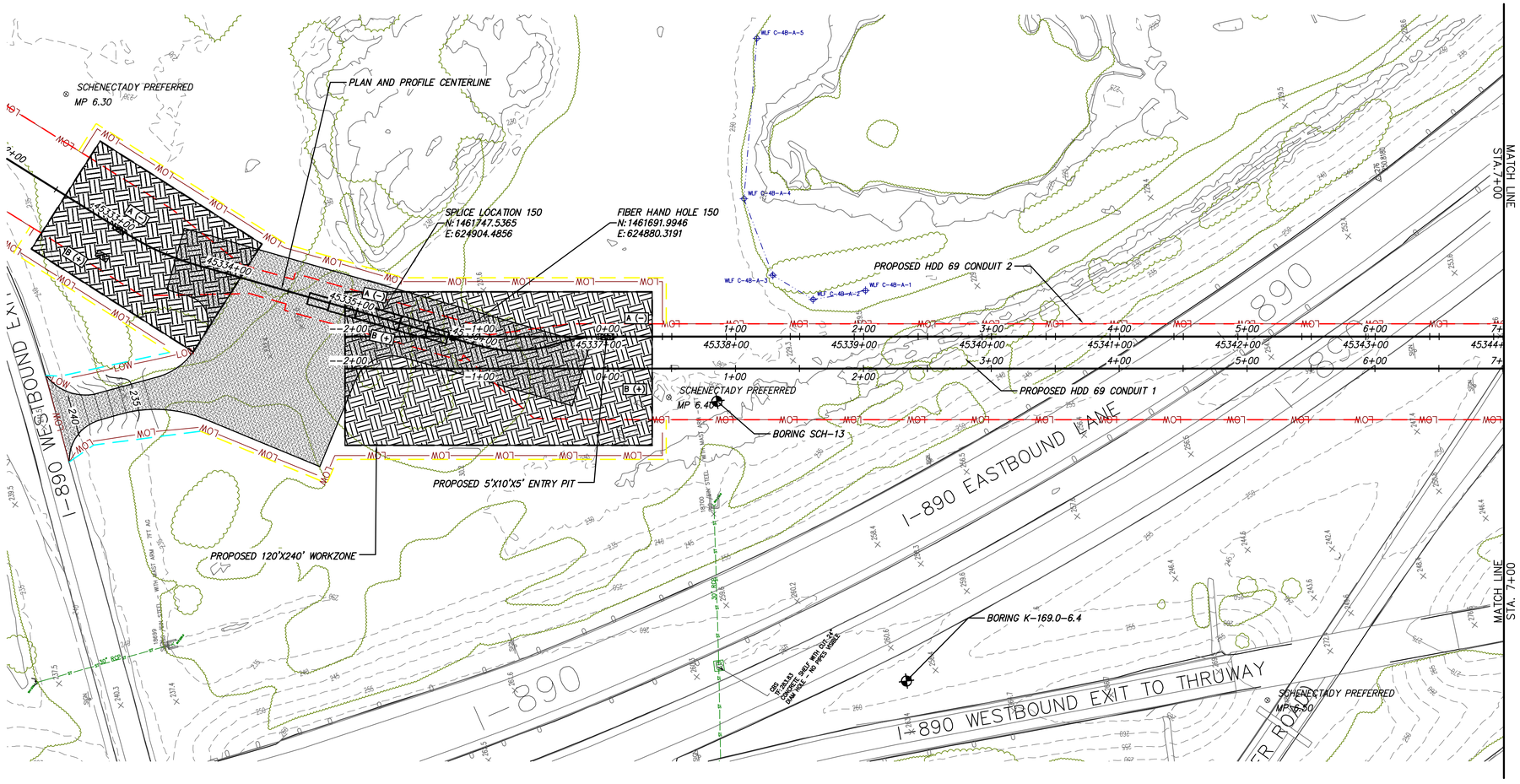

PROPOSED HDD 69 PLAN VIEW

CONDUIT 2

0 50 100
Scale in feet

NOTE:

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BORING LOG STRIP LEGEND

B101

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	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
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	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
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CHPE Champlain Hudson Power Express

Kiewit

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0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	SPB	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-310A**

DRAWN BY: CKZ DESIGNED BY: CKZ APPROVED BY: JEO
SCALE AS NOTED DATE 07/28/2023
REV. NO. X SH.NO.

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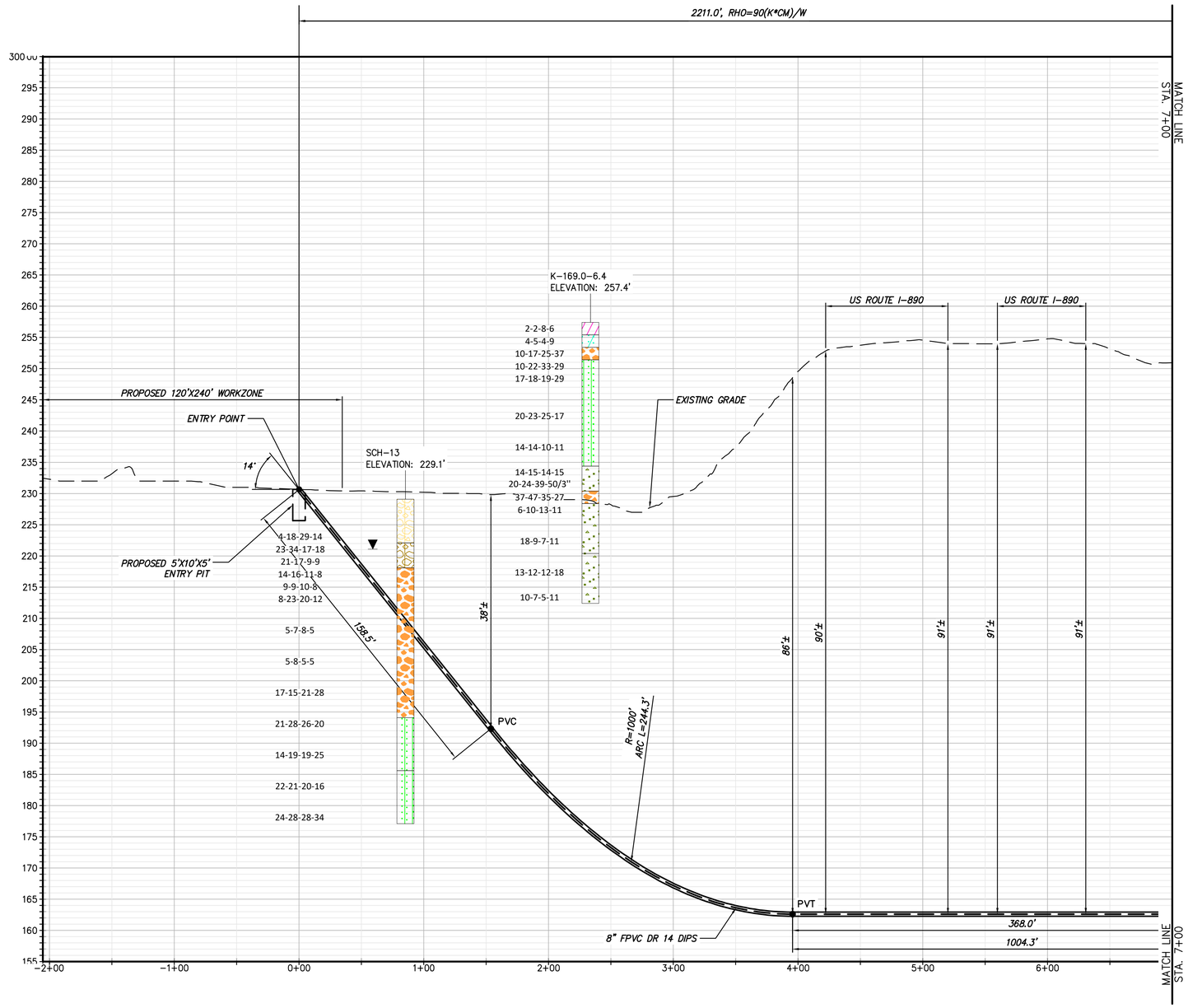

NOTE:
1. *HDD#69 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 14 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.
2. BASED ON THE BORING DATA THE CONTRACTOR SHOULD CONSIDER USE OF DRILLING ADDITIVES TO INCREASE THE CARRYING CAPACITY OF THE DRILLING MUD AND, ADDITIVES TO PLUG COARSER GRAVELS AND PREVENT SLURRY LOSS.
3. CONDUCTOR CASINGS FOR THE ENTRY AND EXIT VERTICAL TANGENT SECTIONS OF THE ALIGNMENTS SHOULD BE CONSIDERED.

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

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

PROPOSED HDD 69 PROFILE

CONDUIT 2

0 50 100
Scale in feet

CHPE Champlain Hudson Power Express

Kiewit

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III Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 . www.chacompanies.com

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 068076
DRAWING NO. C-310A.1

DRAWN BY: CKZ DESIGNED BY: CKZ APPROVED BY: JEO SCALE AS NOTED DATE 07/28/2023 REV. NO. X SH.NO.

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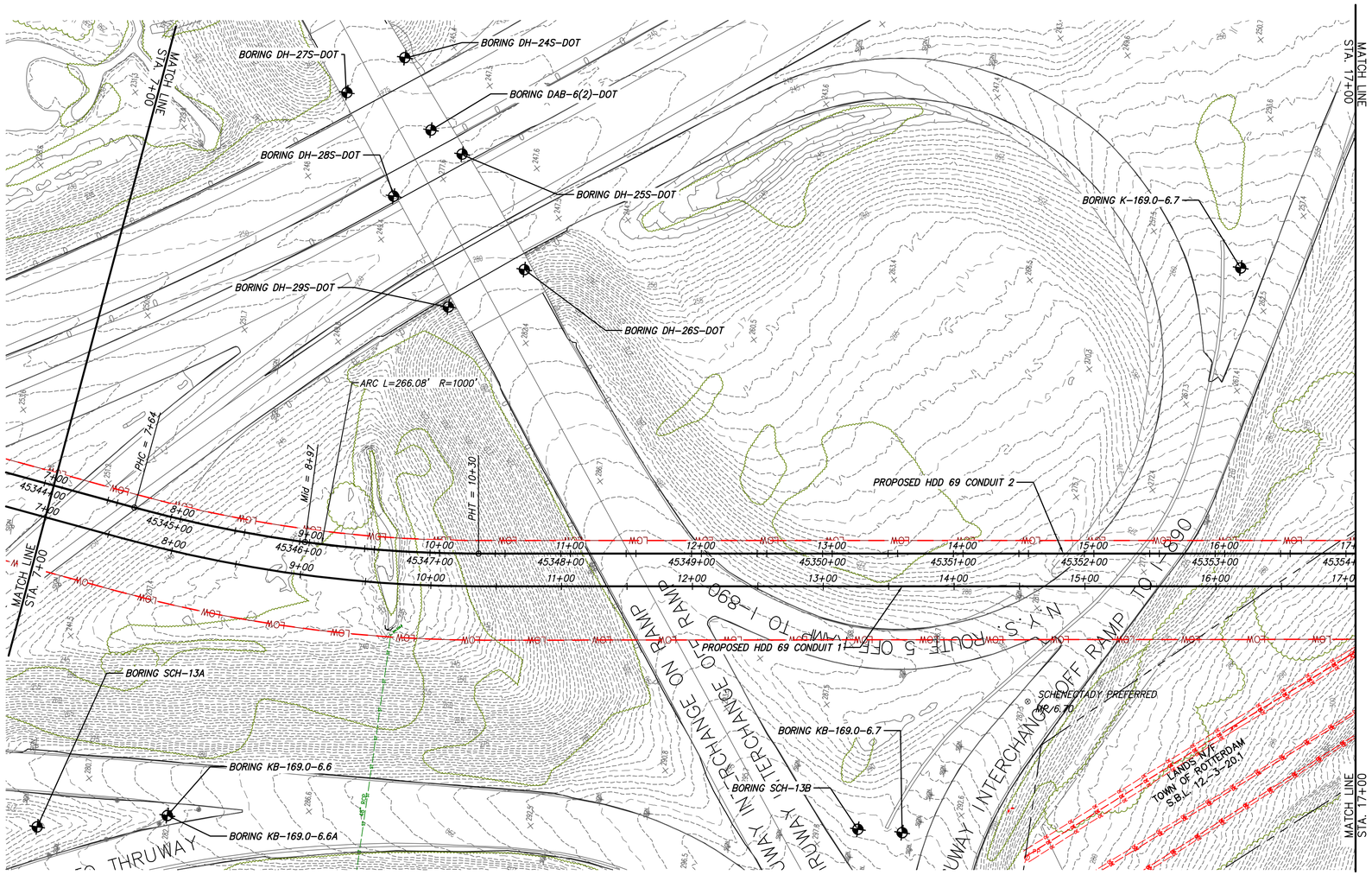

PROPOSED HDD 69 PLAN VIEW

CONDUIT 2

0 50 100
Scale in feet

NOTE:

1. *HDD#69 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 14 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
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BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi =UCS

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

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
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	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
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CHPE Champlain Hudson Power Express

Kiewit

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-310A.2**

DRAWN BY: CKZ DESIGNED BY: CKZ APPROVED BY: JEO
SCALE AS NOTED DATE 07/28/2023
REV. NO. X SH.NO.

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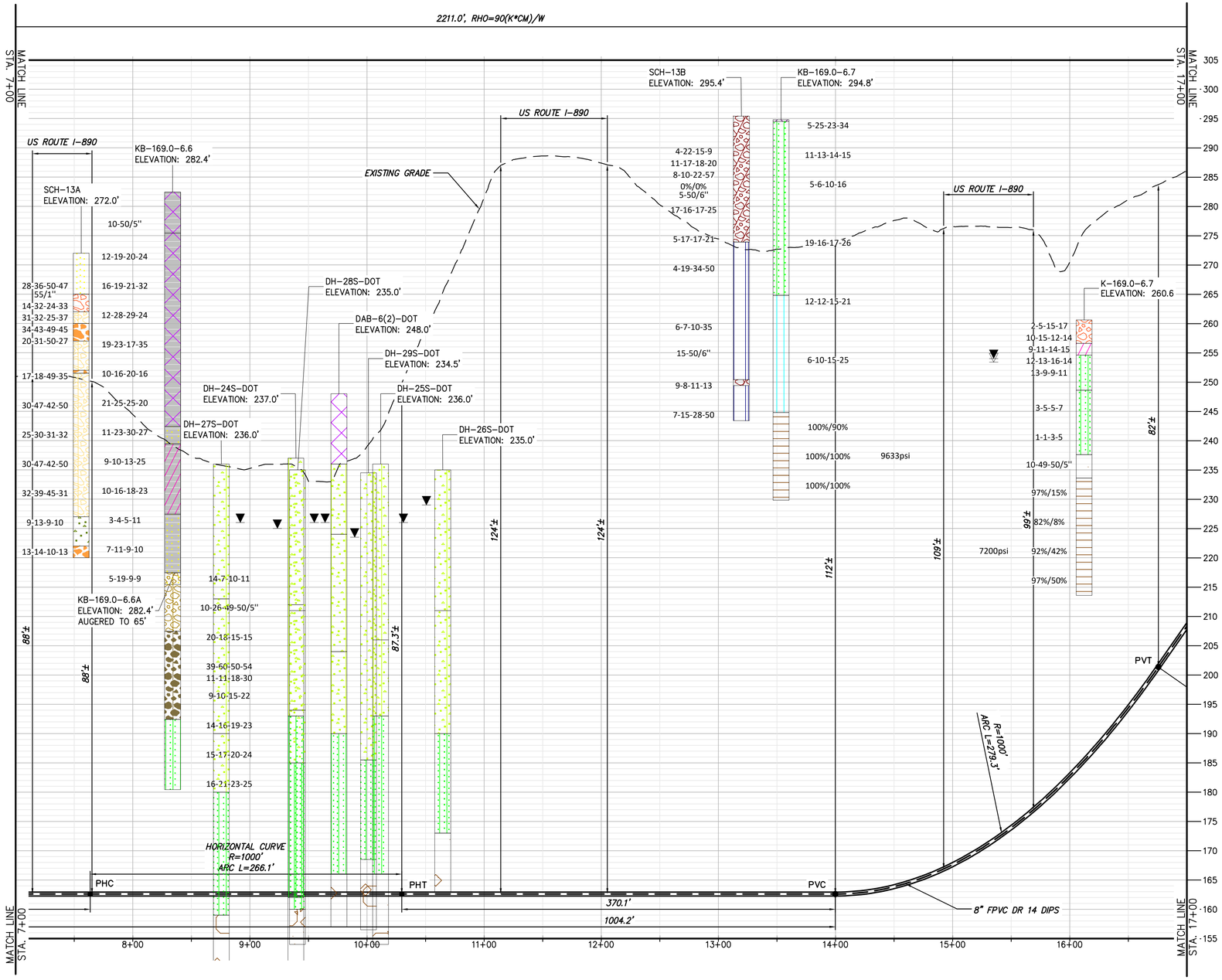

NOTE:
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3. CONDUCTOR CASINGS FOR THE ENTRY AND EXIT VERTICAL TANGENT SECTIONS OF THE ALIGNMENTS SHOULD BE CONSIDERED.

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
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	USGS 670	Interbedded Sandstone and Shale
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	USGS 705	Schist
	USGS 705	Schist
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	USGS 708	Gneiss
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	Weathered Rock	Undefined
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BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi =UCS

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

PROPOSED HDD 69 PROFILE

CONDUIT 2

0 10 20
0 50 100
Scale in feet

CHPE Champlain Hudson Power Express

Kiewit

CHA
III Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 . www.chacompanies.com

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-310A.3**

DRAWN BY: CKZ | DESIGNED BY: CKZ | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

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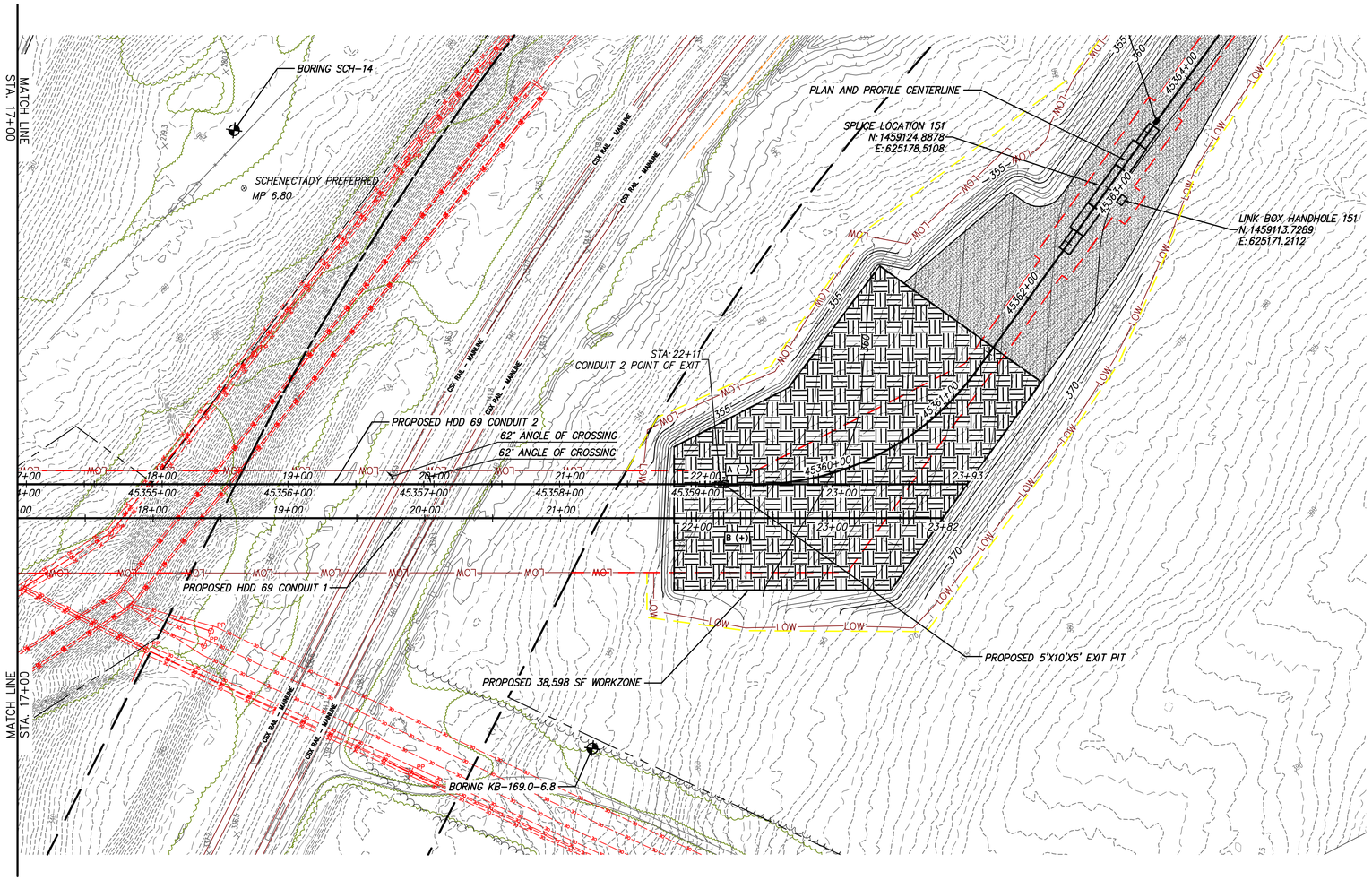

PROPOSED HDD 69 PLAN VIEW

CONDUIT 2

0 50 100
Scale in feet

NOTE:

1. *HDD#69 CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 14 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
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BORING LOG STRIP LEGEND

B101

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Legend		
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	Bedrock	Bedrock
	Boulder	Boulder
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	CONCRETE	Concrete
	Fill	Fill
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	GM	SILTY GRAVEL
	GP	Poorly Graded GRAVEL
	GP-GC	Poorly Graded Gravel with CLAY
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	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
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CHPE Champlain Hudson Power Express

Kiewit

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 068076
DRAWING NO. **C-310A.4**

DRAWN BY: CKZ DESIGNED BY: CKZ APPROVED BY: JEO SCALE AS NOTED DATE 07/28/2023 REV. NO. X SH.NO.

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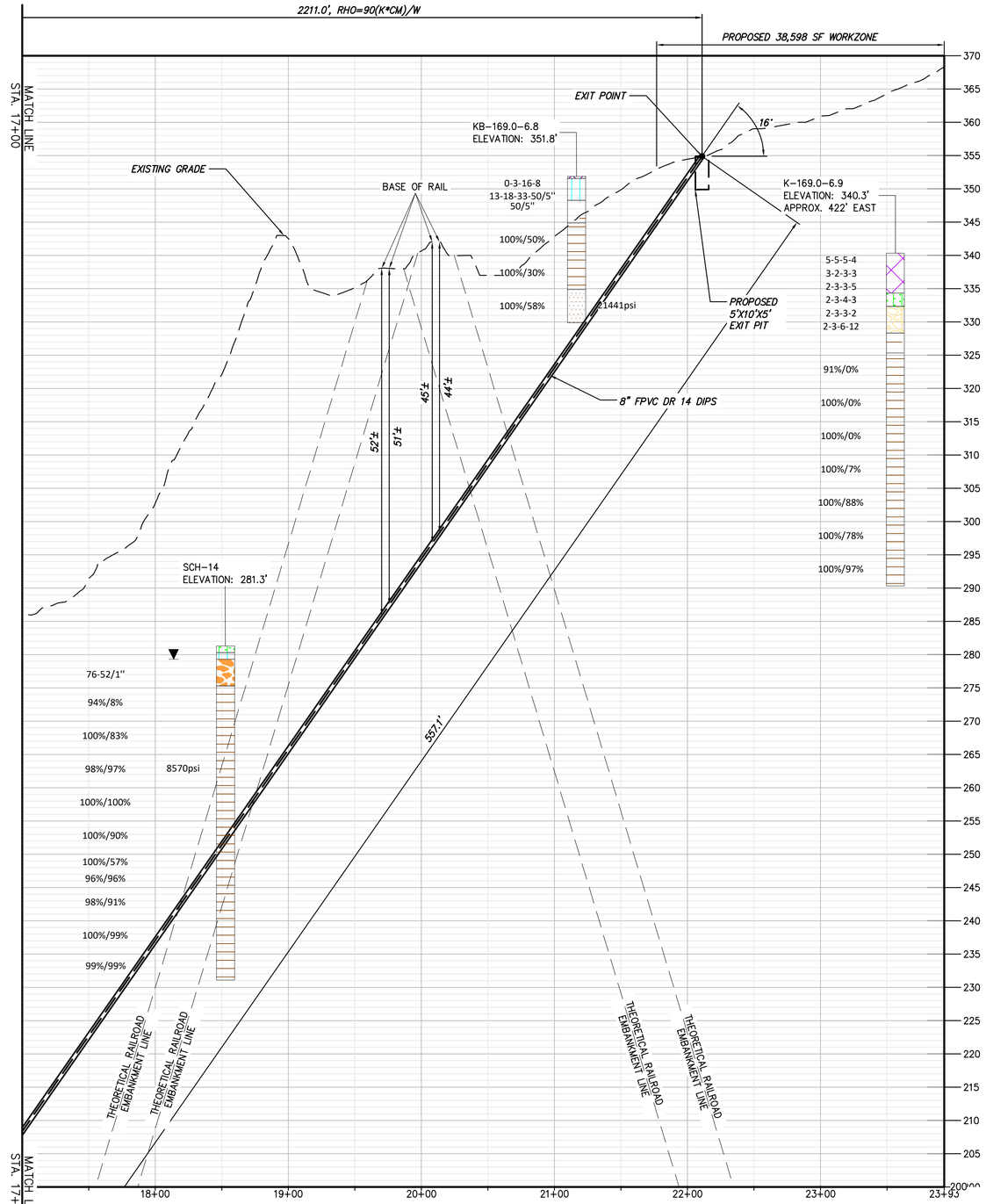

PROPOSED HDD 69 PROFILE

CONDUIT 2

NOTE:

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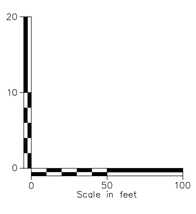

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0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	SPB	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-310A.5**

DRAWN BY: CKZ | DESIGNED BY: CKZ | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

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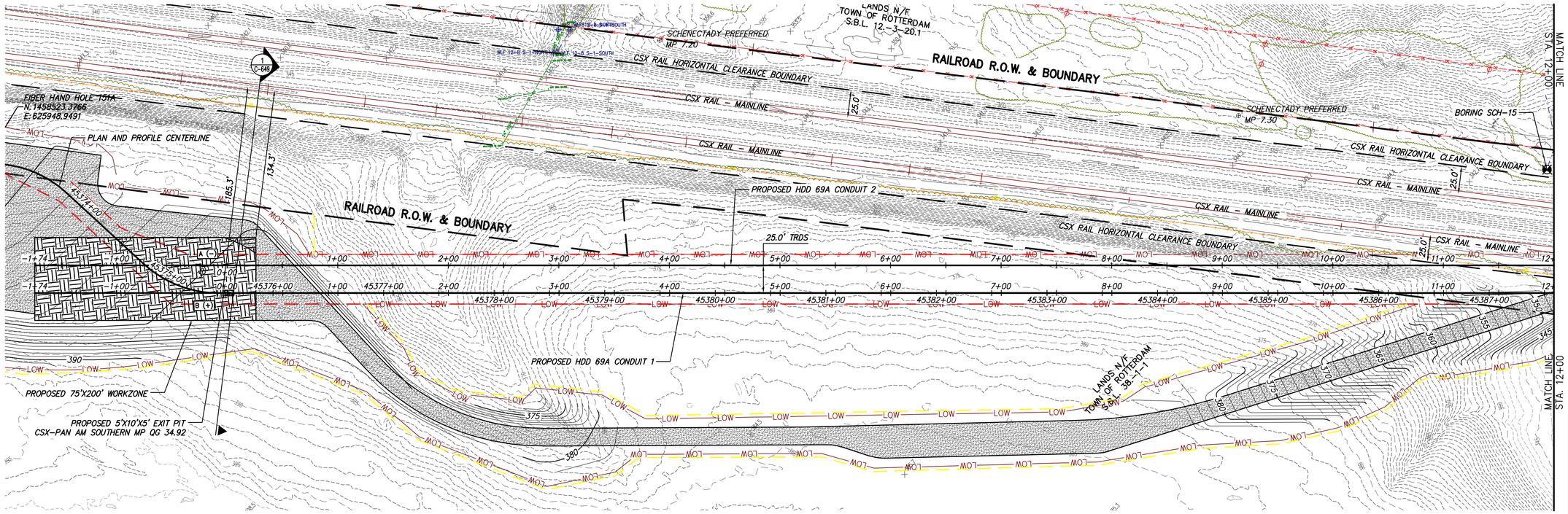

PROPOSED HDD 69A PLAN VIEW

CONDUIT 1

0 50 100
Scale in feet

NOTE:

1. *HDD#69A CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 17 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
2. *A GEOTECHNICAL BORE KB-169.0-7.3 AND FINAL REPORTS WILL BE AVAILABLE IN MIDDLE AUGUST OF 2023. THESE WILL BE ADDED TO SHEETS C-311.2 AND C-311A.2. THIS INDIVIDUAL DRAWING IS P.E. SEALED FOR PERMIT AND OVERALL PACKAGE 4B IFC STATUS. THE ENGINEERING SUPPORTING THIS DRAWING SUGGESTS ADDITIONAL GEOTECHNICAL AND SUBSURFACE DATA WOULD BE BENFICIAL AND ONLY REPRESENTS THE ANALYSIS AVAILABLE WHEN SEALED. DO NOT USE THIS DRAWING FOR SUBSURFACE CONSTRUCTION ACTIVITIES.*
3. *A GEOTECHNICAL BORE COMMENSURATE WITH THE EXIT PIT AND COMPANION BOREAID ANALYSIS IS HIGHLY RECOMMENDED TO QUANTIFY INADVERTANT RETURN POTENTIAL APPROACHING HDD STATION 0+00. SEE NOTE 2. IF AND WHEN A FINAL REPORT IS MADE AVAILALE FOR SUCH A BORE, THIS DRAWING CAN BE MODIFIED AND RE-SEALED.*

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

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

CHPE Champlain Hudson Power Express

Kiewit

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69A, CONDUIT 1

DRAWN BY: JDL DESIGNED BY: JDL APPROVED BY: JEO

SCALE AS NOTED
REV. NO. X

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-311**
DATE 07/28/2023
SH.NO.

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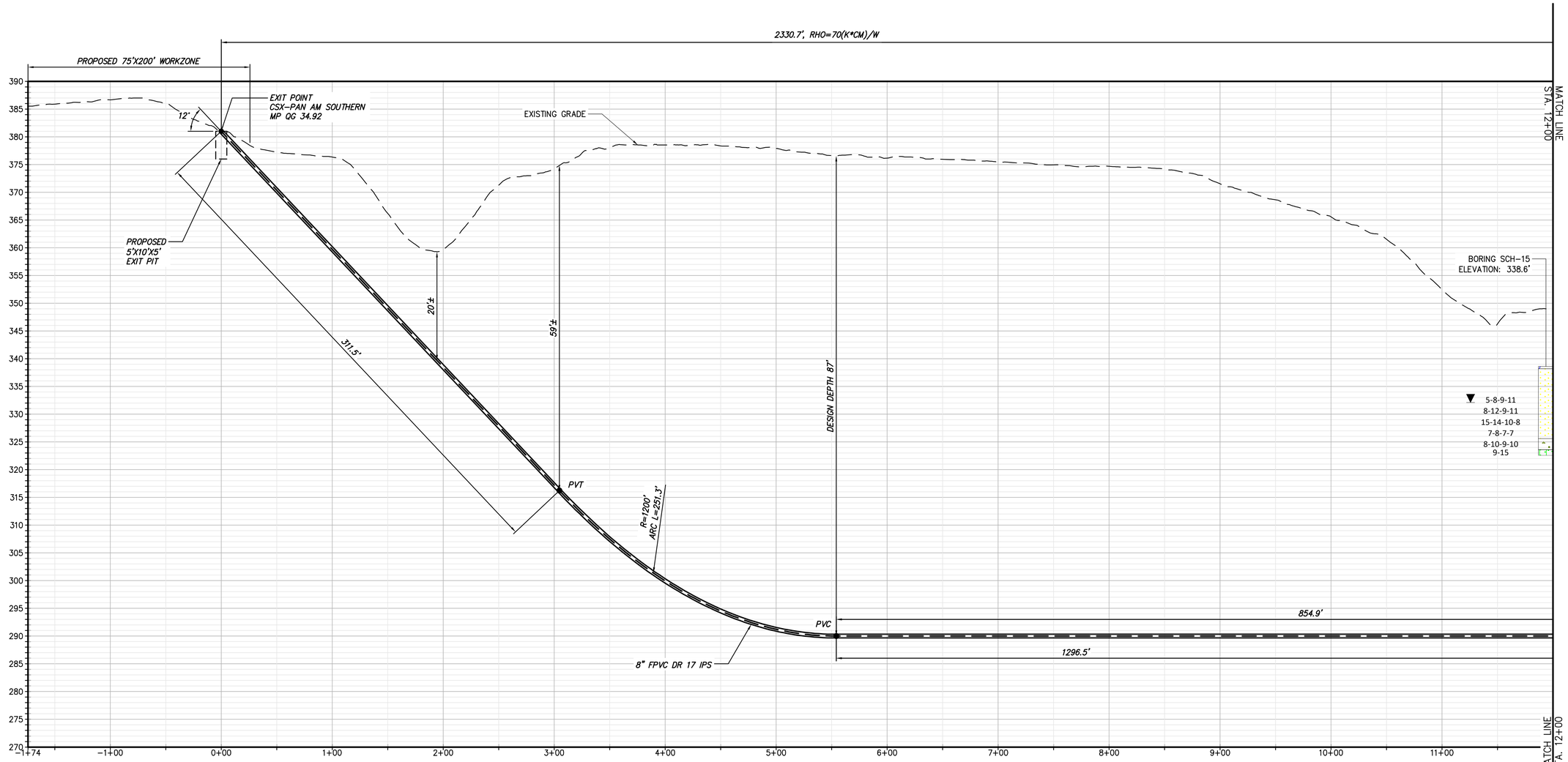

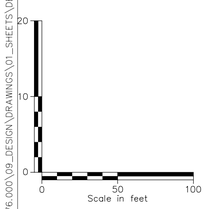

PROPOSED HDD 69A PROFILE

CONDUIT 1

NOTE:

1. "HDD#69A CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 17 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.
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BORING LOG STRIP LEGEND

B101

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Recovery %/RQD % = 95%/90%

11000psi =UCS

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

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

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0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	SPB	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69A, CONDUIT 1

DRAWN BY: JDL | DESIGNED BY: JDL | APPROVED BY: JEO

SCALE AS NOTED | REV. NO. X

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-311.1**
DATE 07/28/2023
SH.NO.

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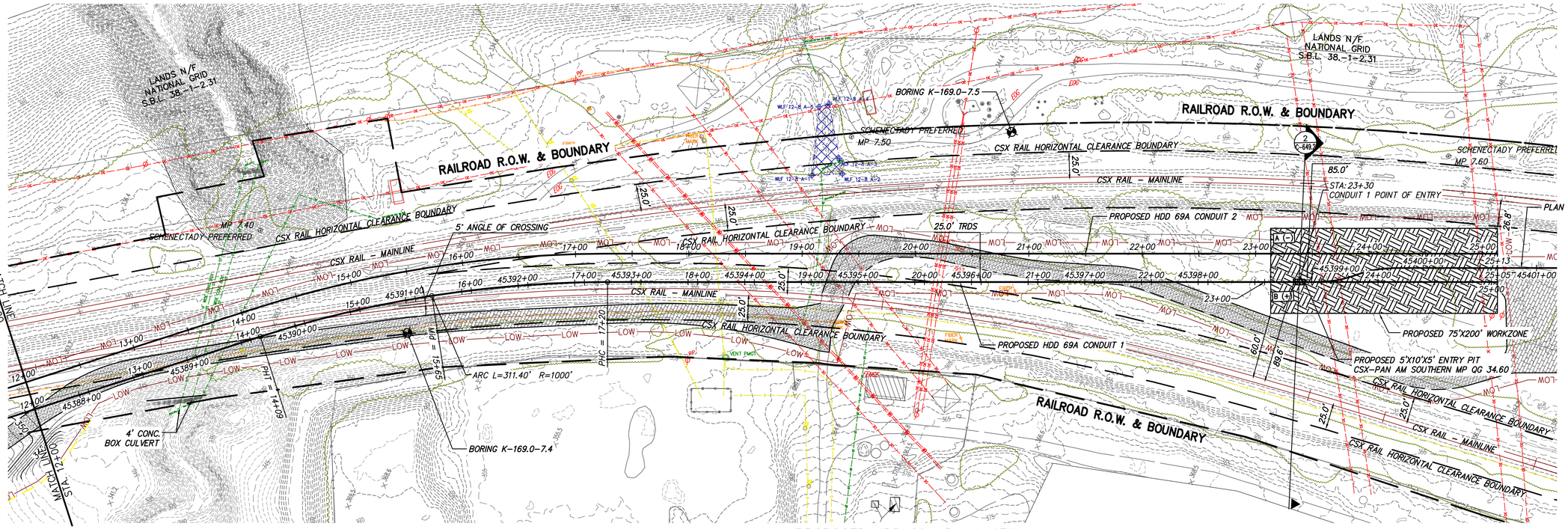

PROPOSED HDD 69A PLAN VIEW

CONDUIT 1

NOTE:

1. *HDD#69A CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 17 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
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Legend

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Bedrock	Bedrock
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CL-ML	SILTY CLAY
CONCRETE	Concrete
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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
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SW-SM	Well Graded SAND with SILT
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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

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69A, CONDUIT 1

DRAWN BY: JDL DESIGNED BY: JDL APPROVED BY: JEO

SCALE AS NOTED

REV. NO. X

KIEWIT PROJECT NO. 21162

CHA PROJECT NO. 066076

DRAWING NO. **C-311.2**

DATE 07/28/2023

SH.NO.

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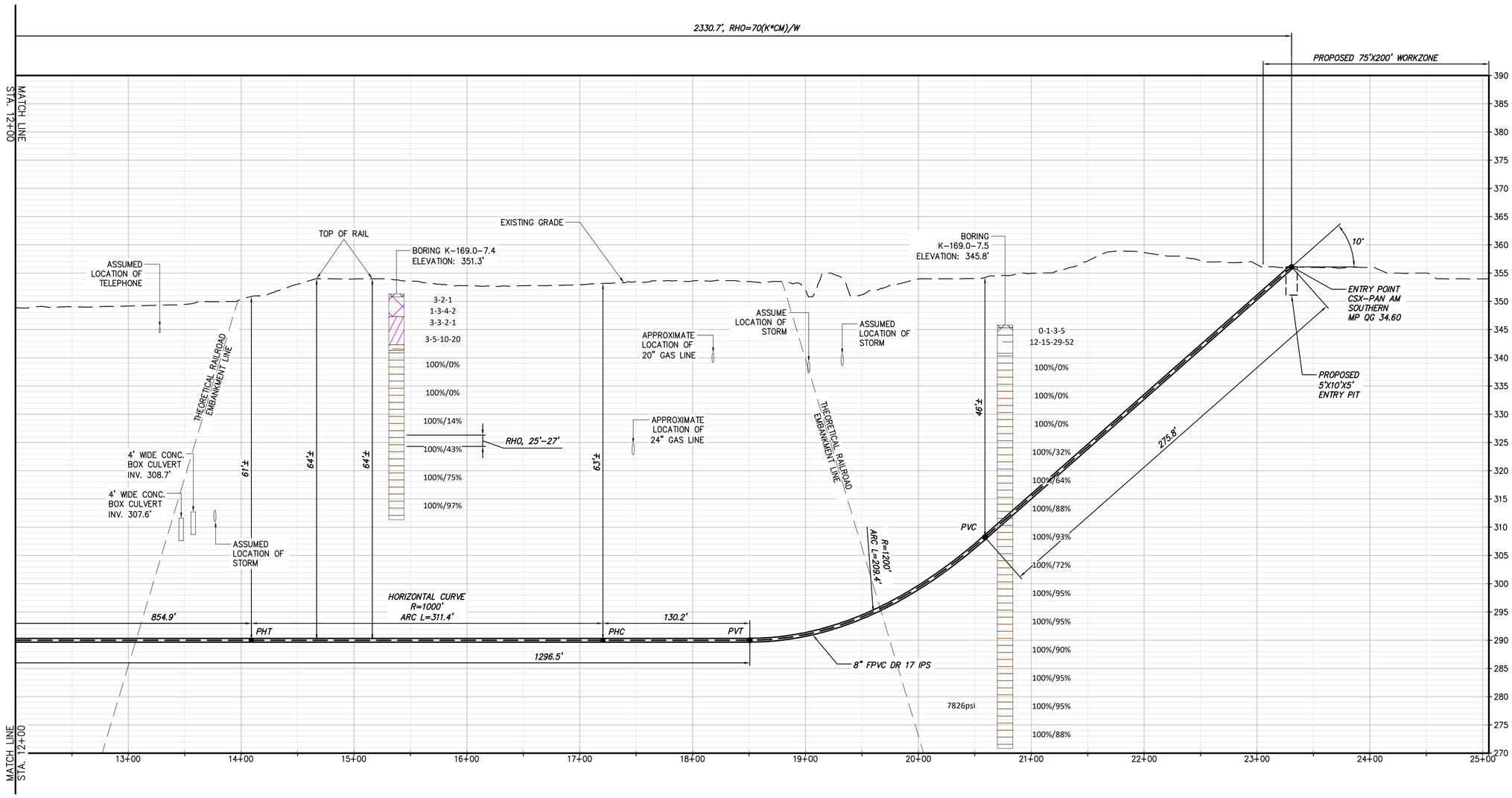

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Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	Boulder
	CH	Fat CLAY
	CH-MH	SILTY Fat CLAY
	CL	Lean CLAY
	CL-ML	SILTY CLAY
	CONCRETE	Concrete
	Fill	Fill
	GC	CLAYEY GRAVEL
	GC-GM	SILTY CLAYEY GRAVEL
	GM	SILTY GRAVEL
	GP	Poorly Graded GRAVEL
	GP-GC	Poorly Graded Gravel with CLAY
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	GW-GC	Well Graded GRAVEL with CLAY
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	Limestone	Limestone
	MH	Elastic SILT
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	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
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	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
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	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
	SW-SM	Well Graded SAND with SILT
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	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
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	USGS 705	Schist
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	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

20
10
0
0 50 100
Scale in feet

PROPOSED HDD 69A PROFILE

CONDUIT 1

NOTE:

1. *HDD#69A CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 17 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
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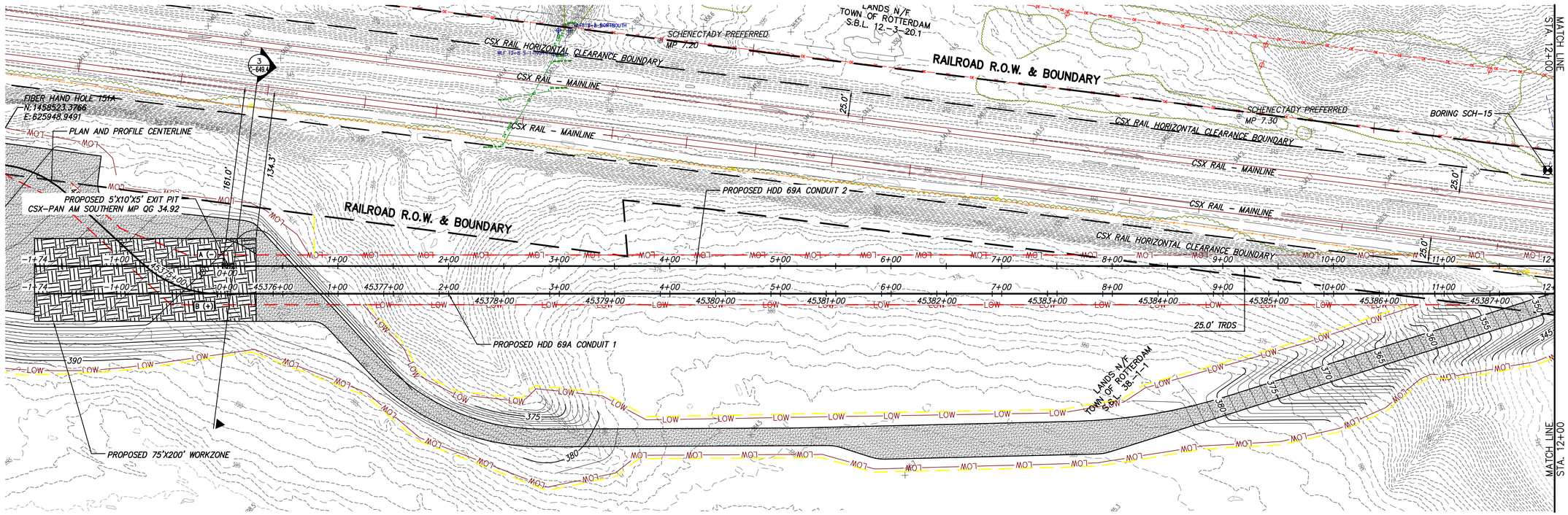
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69A, CONDUIT 1

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-311.3**

DRAWN BY: JDL | DESIGNED BY: DB | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 4\DESIGN PACKAGE B\066076_P4B - C-311 - C-311A3.DWG Saved: 7/26/2023 8:38:18 AM Plotted: 7/26/2023 9:50:14 AM Current User: Snyder, Morgan LastSavedBy: 6043



PROPOSED HDD 69A PLAN VIEW

CONDUIT 2

0 50 100
Scale in feet

NOTE:

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GW-GM	Well Graded GRAVEL with SILT
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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

CHPE Champlain Hudson Power Express

Kiewit

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Albany, NY 12205-0269
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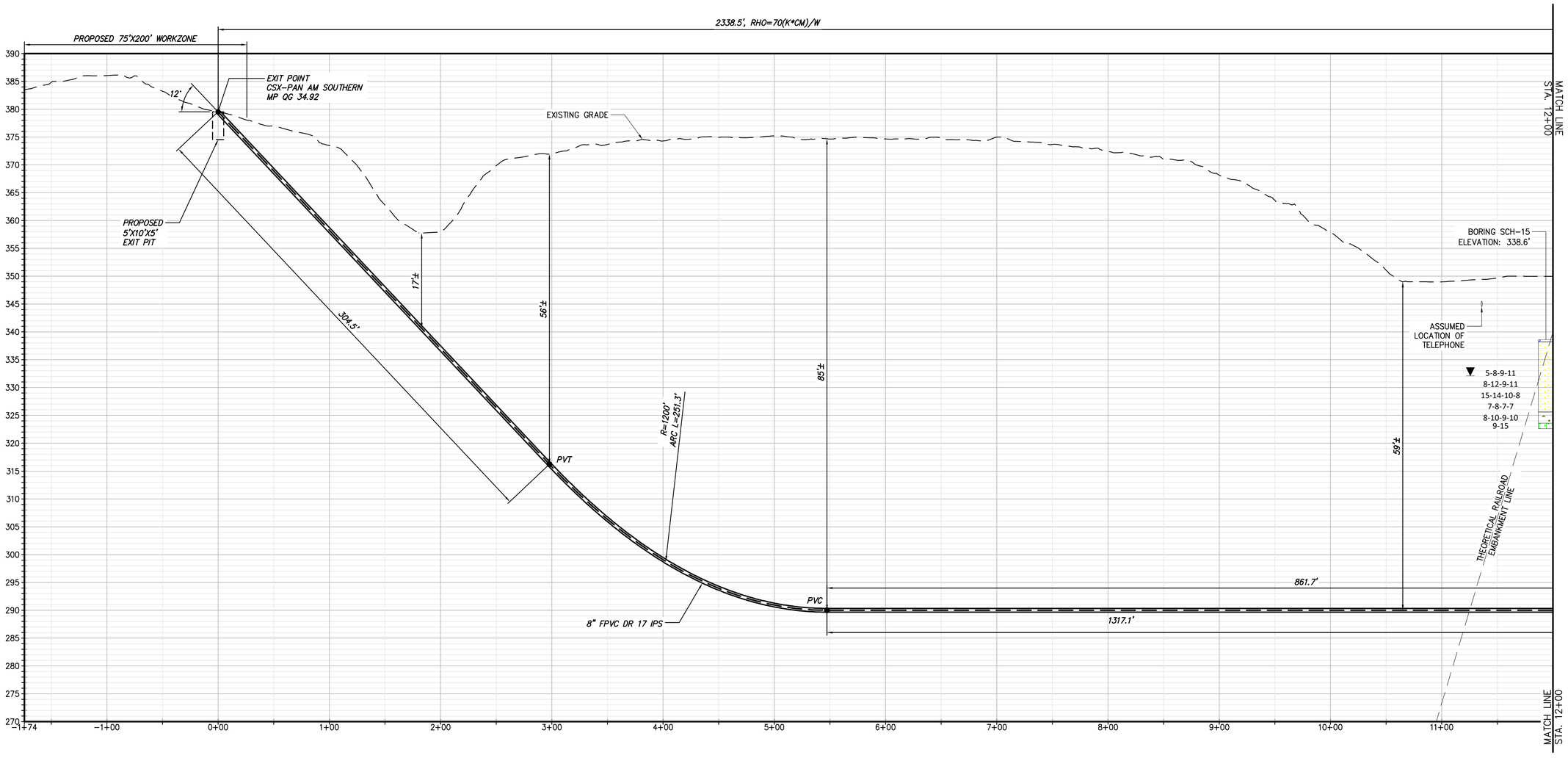
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	SPB	JEO

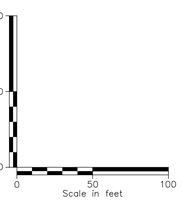
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69A, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-311A**

DRAWN BY: JDL | DESIGNED BY: JDL | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 4\DESIGN PACKAGE B\066076_P4B - C-311 - C-311A3.DWG Saved: 7/26/2023 8:38:18 AM Plotted: 7/26/2023 9:50:38 AM Current User: Snyder, Morgan LastSavedBy: 6043





PROPOSED HDD 69A PROFILE

CONDUIT 2

NOTE:

1. *HDD#69A CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 17 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
2. *A GEOTECHNICAL BORE KB-169.0-7.3 AND FINAL REPORTS WILL BE AVAILABLE IN MIDDLE AUGUST OF 2023. THESE WILL BE ADDED TO SHEETS C-311.2 AND C-311A.2. THIS INDIVIDUAL DRAWING IS P.E. SEALED FOR PERMIT AND OVERALL PACKAGE 4B IFC STATUS. THE ENGINEERING SUPPORTING THIS DRAWING SUGGESTS ADDITIONAL GEOTECHNICAL AND SUBSURFACE DATA WOULD BE BENFICIAL AND ONLY REPRESENTS THE ANALYSIS AVAILABLE WHEN SEALED. DO NOT USE THIS DRAWING FOR SUBSURFACE CONSTRUCTION ACTIVITIES.*
3. *A GEOTECHNICAL BORE COMMENSURATE WITH THE EXIT PIT AND COMPANION BOREAID ANALYSIS IS HIGHLY RECOMMENDED TO QUANTIFY INADVERTANT RETURN POTENTIAL APPROACHING HDD STATION 0+00. SEE NOTE 2. IF AND WHEN A FINAL REPORT IS MADE AVAILALE FOR SUCH A BORE, THIS DRAWING CAN BE MODIFIED AND RE-SEALED.*

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

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

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
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69A, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-311A.1**

DRAWN BY: JDL | DESIGNED BY: JDL | APPROVED BY: JEO | SCALE AS NOTED | DATE 07/28/2023 | REV. NO. X | SH.NO.

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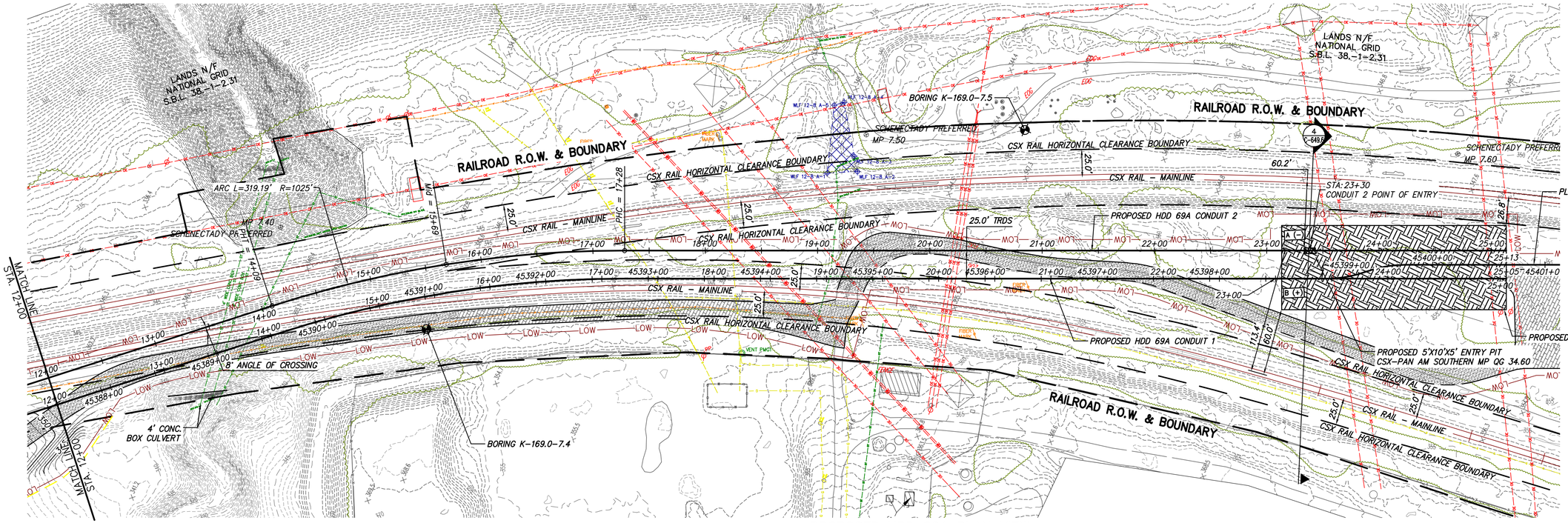

PROPOSED HDD 69A PLAN VIEW

CONDUIT 2

0 50 100
Scale in feet

NOTE:

1. *HDD#69A CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 17 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
2. *A GEOTECHNICAL BORE KB-169.0-7.3 AND FINAL REPORTS WILL BE AVAILABLE IN MIDDLE AUGUST OF 2023. THESE WILL BE ADDED TO SHEETS C-311.2 AND C-311A.2. THIS INDIVIDUAL DRAWING IS P.E. SEALED FOR PERMIT AND OVERALL PACKAGE 4B IFC STATUS. THE ENGINEERING SUPPORTING THIS DRAWING SUGGESTS ADDITIONAL GEOTECHNICAL AND SUBSURFACE DATA WOULD BE BENFICIAL AND ONLY REPRESENTS THE ANALYSIS AVAILABLE WHEN SEALED. DO NOT USE THIS DRAWING FOR SUBSURFACE CONSTRUCTION ACTIVITIES.*
3. *A GEOTECHNICAL BORE COMMENSURATE WITH THE EXIT PIT AND COMPANION BOREAID ANALYSIS IS HIGHLY RECOMMENDED TO QUANTIFY INADVERTANT RETURN POTENTIAL APPROACHING HDD STATION 0+00. SEE NOTE 2. IF AND WHEN A FINAL REPORT IS MADE AVAILALE FOR SUCH A BORE, THIS DRAWING CAN BE MODIFIED AND RE-SEALED.*

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi =UCS

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

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

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	SPB	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN VIEW - HDD 69A, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-311A.2**

DRAWN BY: JDL DESIGNED BY: JDL APPROVED BY: JEO SCALE AS NOTED DATE 07/28/2023 REV. NO. X SH.NO.

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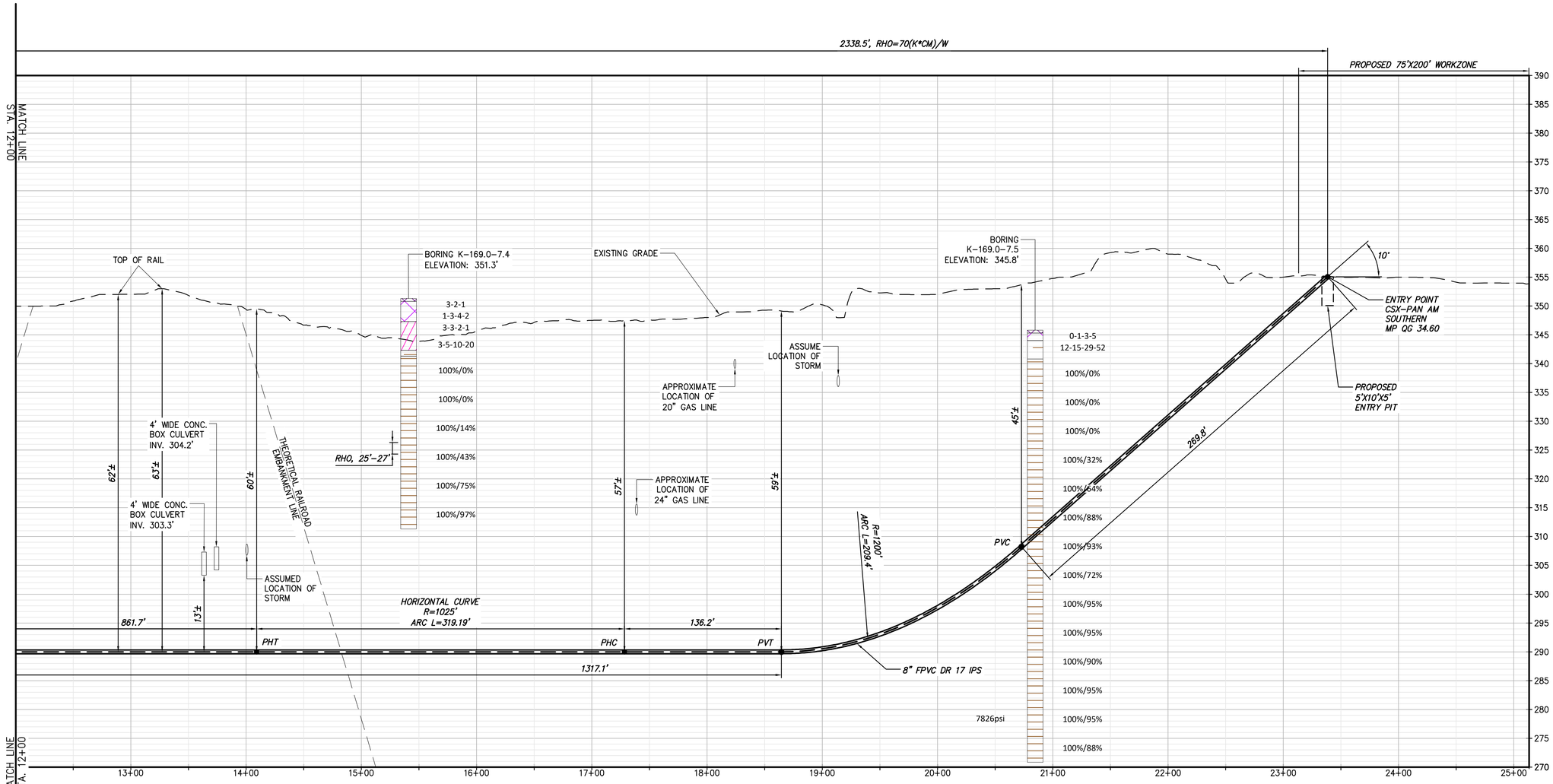

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi =UCS

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

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

NOTE:

1. *HDD#69A CONSISTS OF (2) HVDC ELECTRICAL TRANSMISSION CABLES HOUSED IN INDIVIDUAL 8" FPVC DR 17 DIAMETER CONDUITS. A THIRD 3" HDPE DR 7 CASING WILL BE BUNDLED WITH ONE OF THE 8" CONDUITS FOR A TELECOMMUNICATION LINE.*
2. *A GEOTECHNICAL BORE KB-169.0-7.3 AND FINAL REPORTS WILL BE AVAILABLE IN MIDDLE AUGUST OF 2023. THESE WILL BE ADDED TO SHEETS C-311.2 AND C-311A.2. THIS INDIVIDUAL DRAWING IS P.E. SEALED FOR PERMIT AND OVERALL PACKAGE 4B IFC STATUS. THE ENGINEERING SUPPORTING THIS DRAWING SUGGESTS ADDITIONAL GEOTECHNICAL AND SUBSURFACE DATA WOULD BE BENFICIAL AND ONLY REPRESENTS THE ANALYSIS AVAILABLE WHEN SEALED. DO NOT USE THIS DRAWING FOR SUBSURFACE CONSTRUCTION ACTIVITIES.*
3. *A GEOTECHNICAL BORE COMMENSURATE WITH THE EXIT PIT AND COMPANION BOREAID ANALYSIS IS HIGHLY RECOMMENDED TO QUANTIFY INADVERTANT RETURN POTENTIAL APPROACHING HDD STATION 0+00. SEE NOTE 2. IF AND WHEN A FINAL REPORT IS MADE AVAILALE FOR SUCH A BORE, THIS DRAWING CAN BE MODIFIED AND RE-SEALED.*

PROPOSED HDD 69A PROFILE

CONDUIT 2

0 10 20
0 50 100
Scale in feet

CHPE Champlain Hudson Power Express

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PROFILE VIEW - HDD 69A, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-311A.3**

DRAWN BY: JDL DESIGNED BY: JDL APPROVED BY: JEO
SCALE AS NOTED DATE 07/28/2023
REV. NO. X SH.NO.

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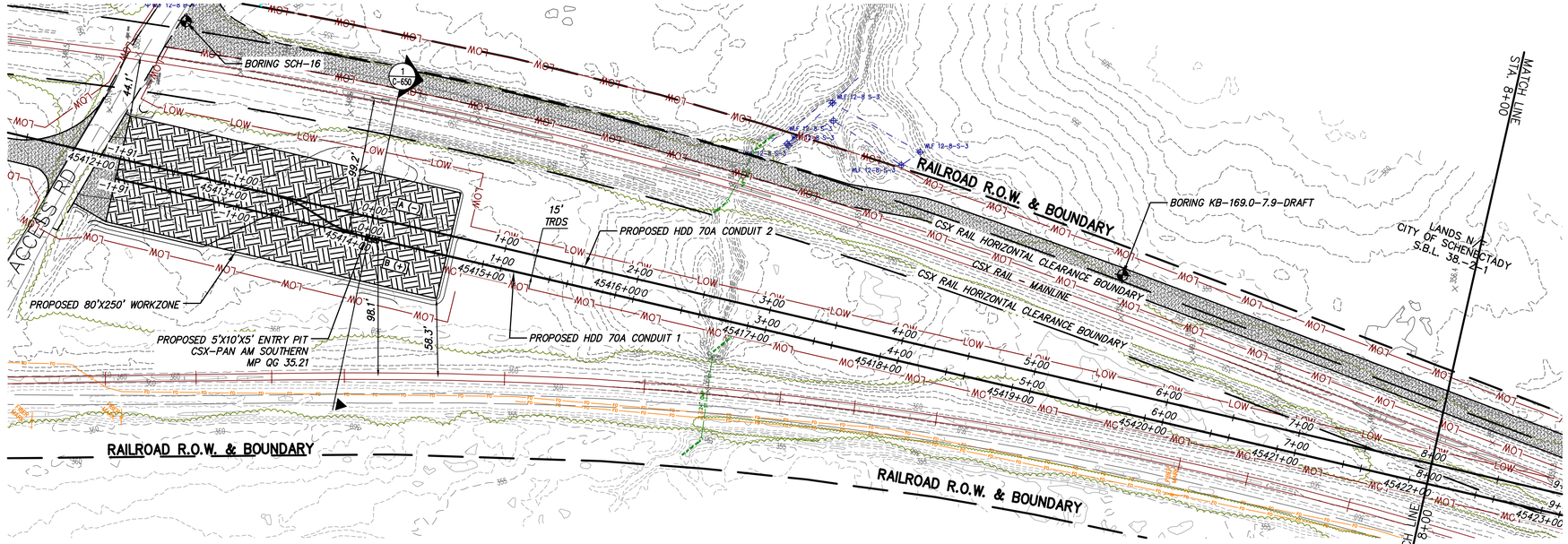
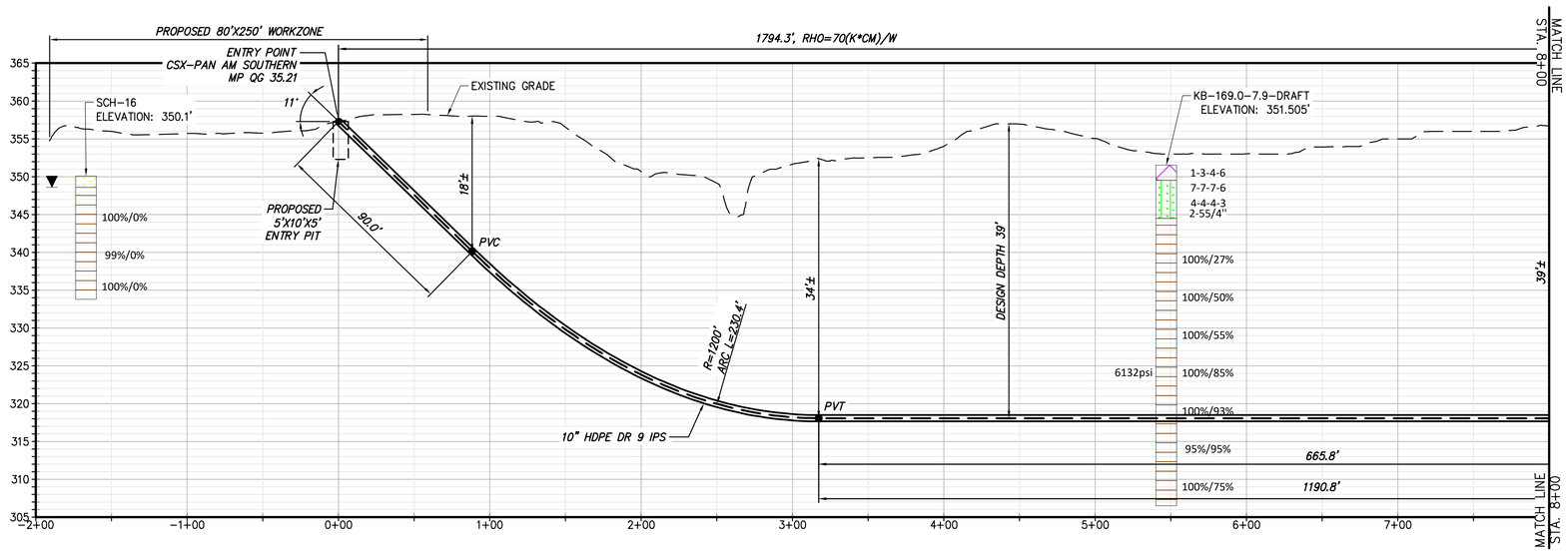


PROPOSED HDD 70A PLAN VIEW

CONDUIT 1



PROPOSED HDD 70A PROFILE

CONDUIT 1

NOTES:

1. GEOTECHNICAL BORES KB-169.0-8.1 AND KB-169.0-8.2 AND FINAL REPORTS WILL BE AVAILABLE IN MIDDLE AUGUST OF 2023. THESE WILL BE ADDED TO SHEETS C-312.1 AND C-312A.1. BASED OF INITIAL REPORTS IT IS ANTICIPATED THE LOGS WILL SUPPORT THE PROFILE DEVELOPED. THIS INDIVIDUAL DRAWING IS P.E. SEALED FOR PERMIT AND OVERALL PACKAGE 4B IFC STATUS. THE ENGINEERING SUPPORTING THIS DRAWING SUGGESTS ADDITIONAL GEOTECHNICAL AND SUBSURFACE DATA WOULD BE BENFICIAL AND ONLY REPRESENTS THE ANALYSIS AVAILABLE WHEN SEALED. DO NOT USE THIS DRAWING FOR SUBSURFACE CONSTRUCTION ACTIVITIES.

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

11000psi=UCS

2D strip logs shown at 10x exaggeration

3D strip logs have no exaggeration

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
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GC-GM	SILTY CLAYEY GRAVEL
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GP	Poorly Graded GRAVEL
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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
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SC-SM	SILT, CLAYEY SAND
SHALE	Shale
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SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
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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 I
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN AND PROFILE - HDD 70A, CONDUIT 1

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-312**

DRAWN BY: JAS | DESIGNED BY: ZSH | APPROVED BY: JEO | SCALE AS NOTED | DATE 07/28/2023 | REV. NO. X | SH.NO.

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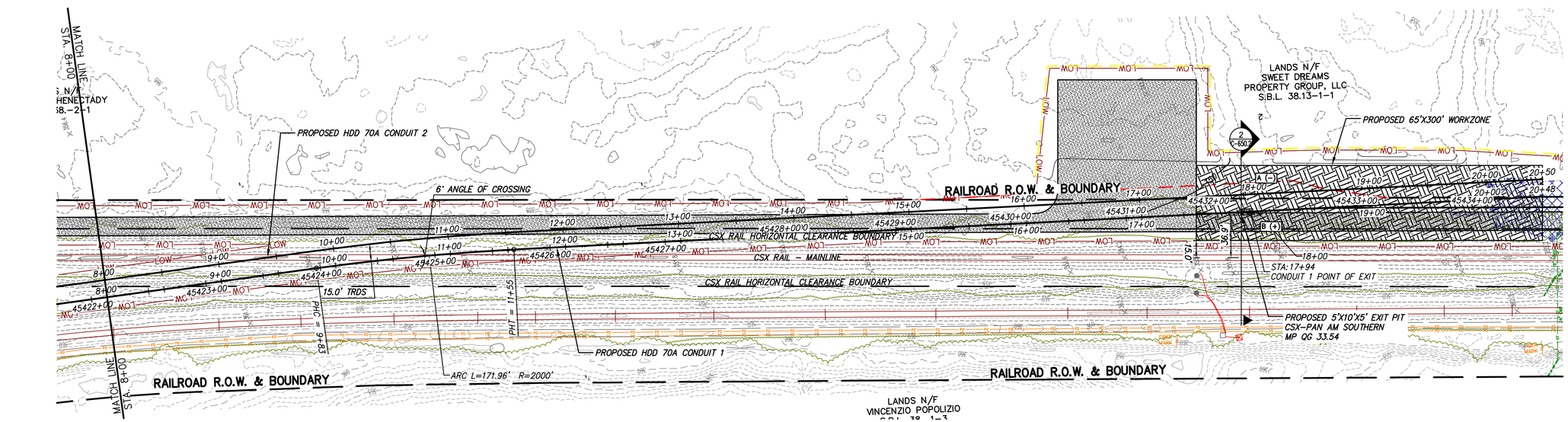
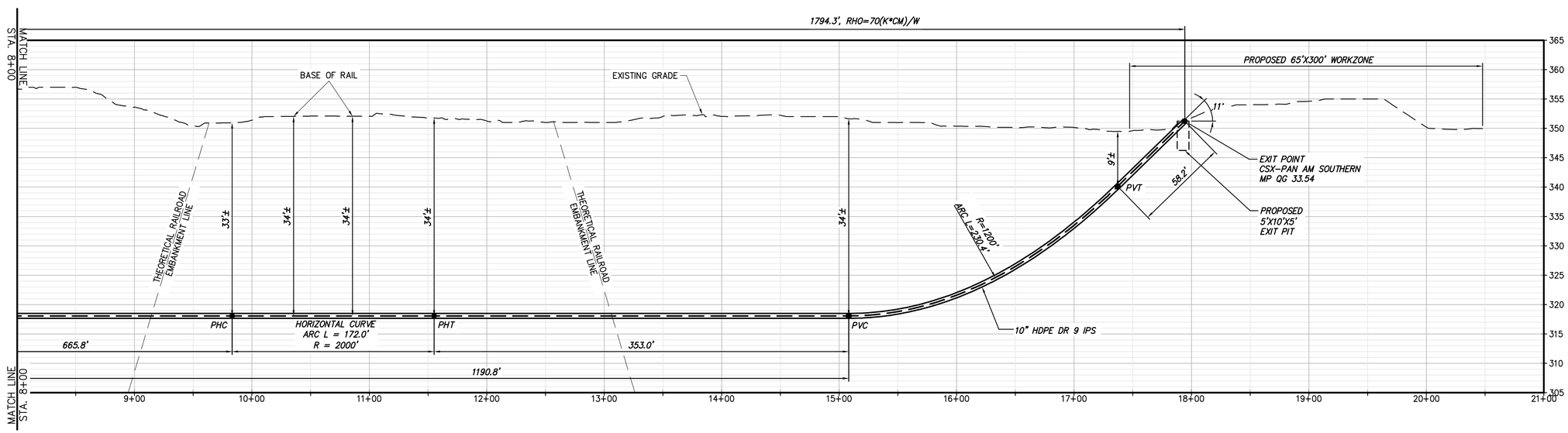


0 50 100
Scale in feet

PROPOSED HDD 70A PLAN VIEW
CONDUIT 1



20
10
0
0 50 100
Scale in feet

PROPOSED HDD 70A PROFILE
CONDUIT 1

NOTES:
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BORING LOG STRIP LEGEND
B101
Blow Counts per 6" = 10-10-10
Recovery %/RQD % = 95%/90%
11000psi=UCS
2D strip logs shown at 10x exaggeration
3D strip logs have no exaggeration

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
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GC-GM	SILTY CLAYEY GRAVEL
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Limestone	Limestone
MH	Elastic SILT
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OH	ORGANIC Fat CLAY
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OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN AND PROFILE - HDD 70A, CONDUIT 1

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-312.1**

DRAWN BY: JAS | DESIGNED BY: ZSH | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

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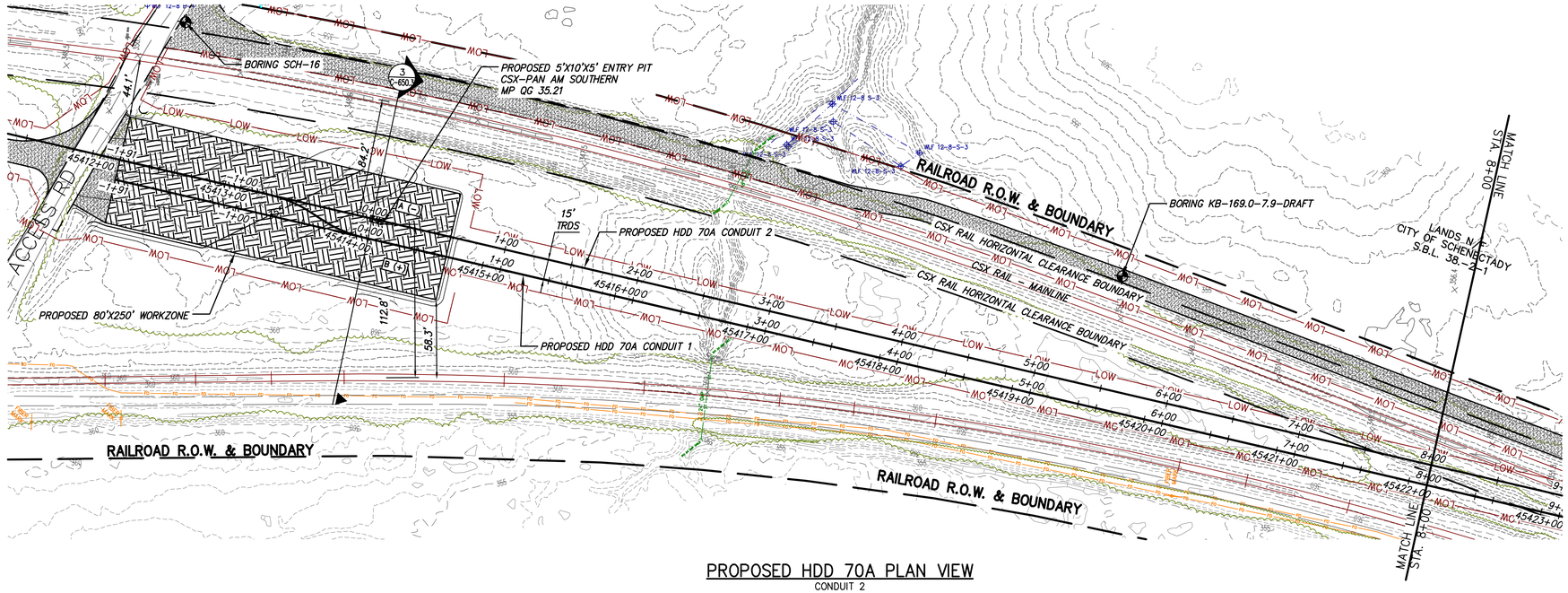
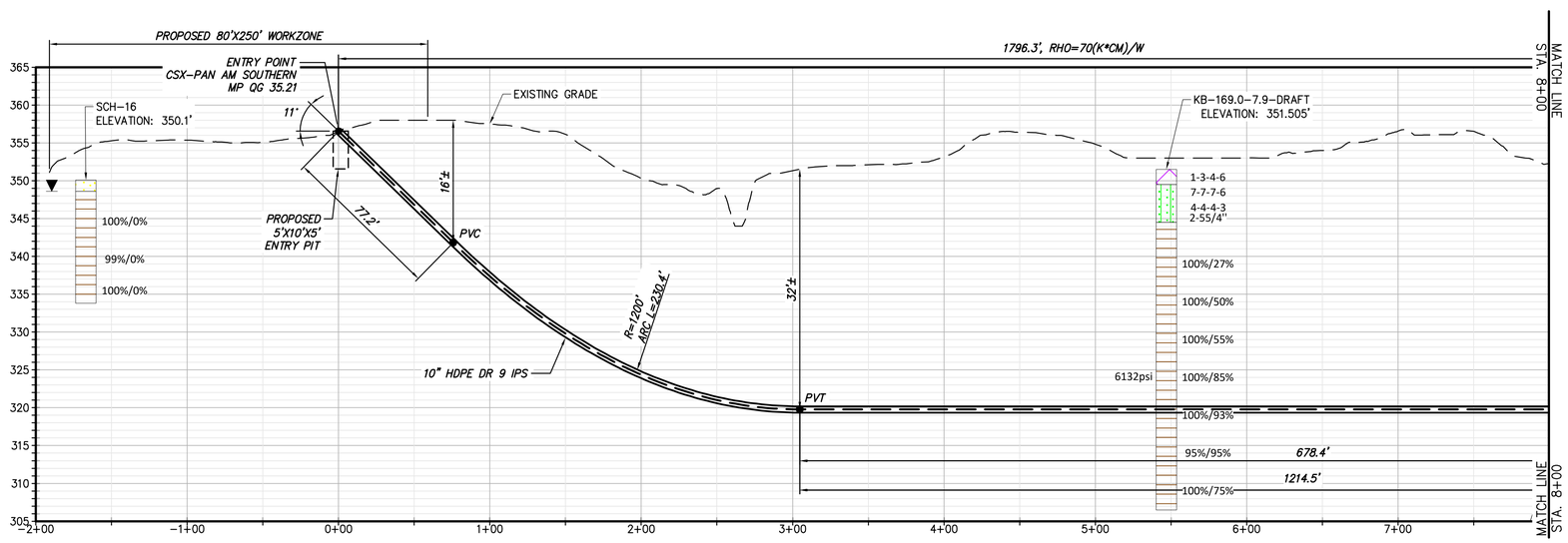


PROPOSED HDD 70A PLAN VIEW

CONDUIT 2



PROPOSED HDD 70A PROFILE

CONDUIT 2

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SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN AND PROFILE - HDD 70A, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 068076
DRAWING NO. **C-312A**

DRAWN BY: JAS | DESIGNED BY: ZSH | APPROVED BY: JEO | SCALE AS NOTED | DATE 07/28/2023 | REV. NO. X | SH.NO.

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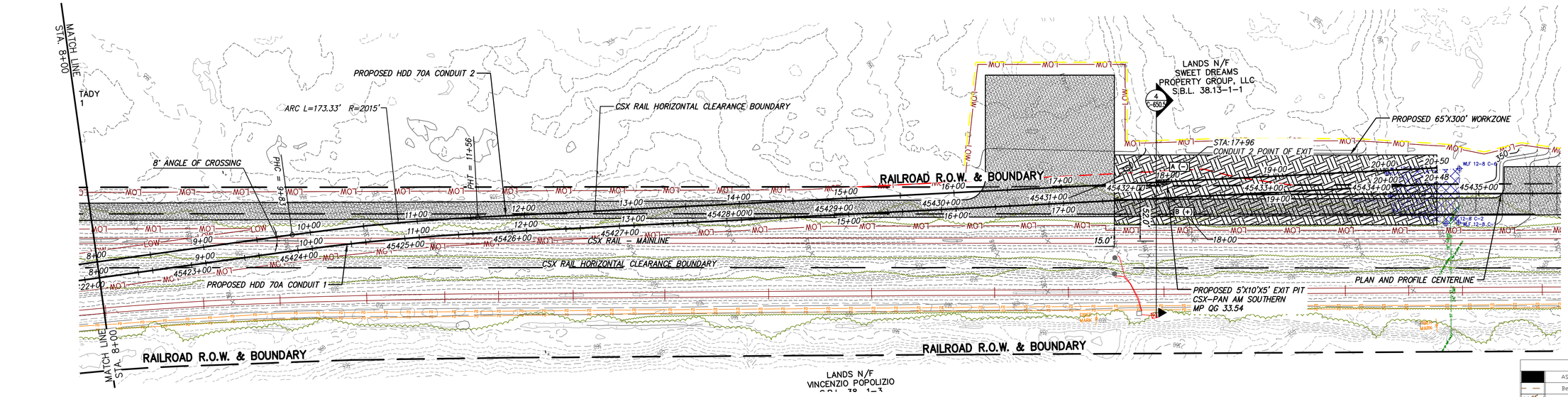
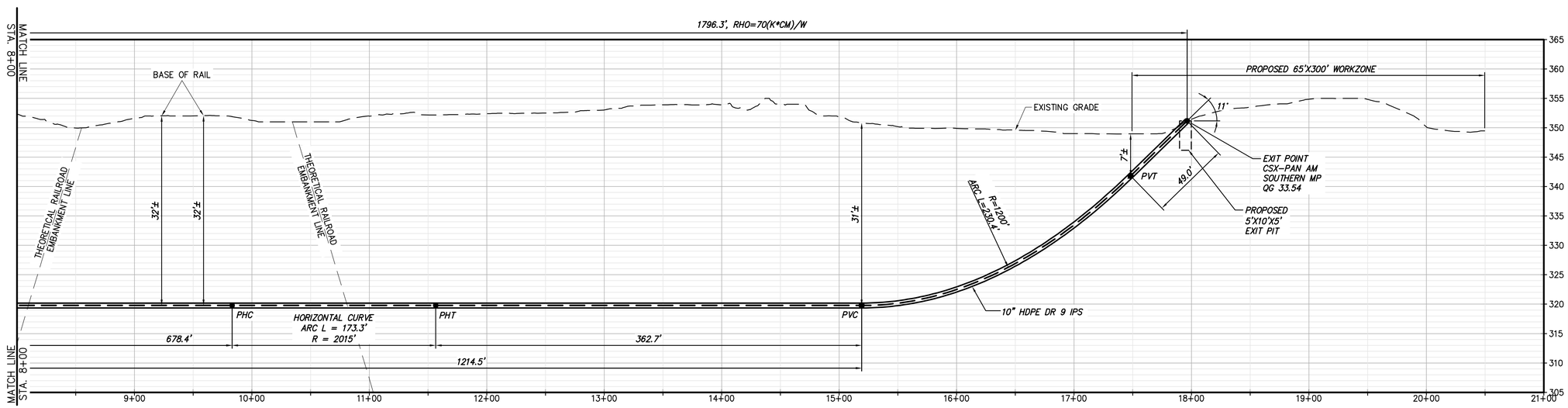


0 50 100
Scale in feet

PROPOSED HDD 70A PLAN VIEW
CONDUIT 2



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PROPOSED HDD 70A PROFILE
CONDUIT 2

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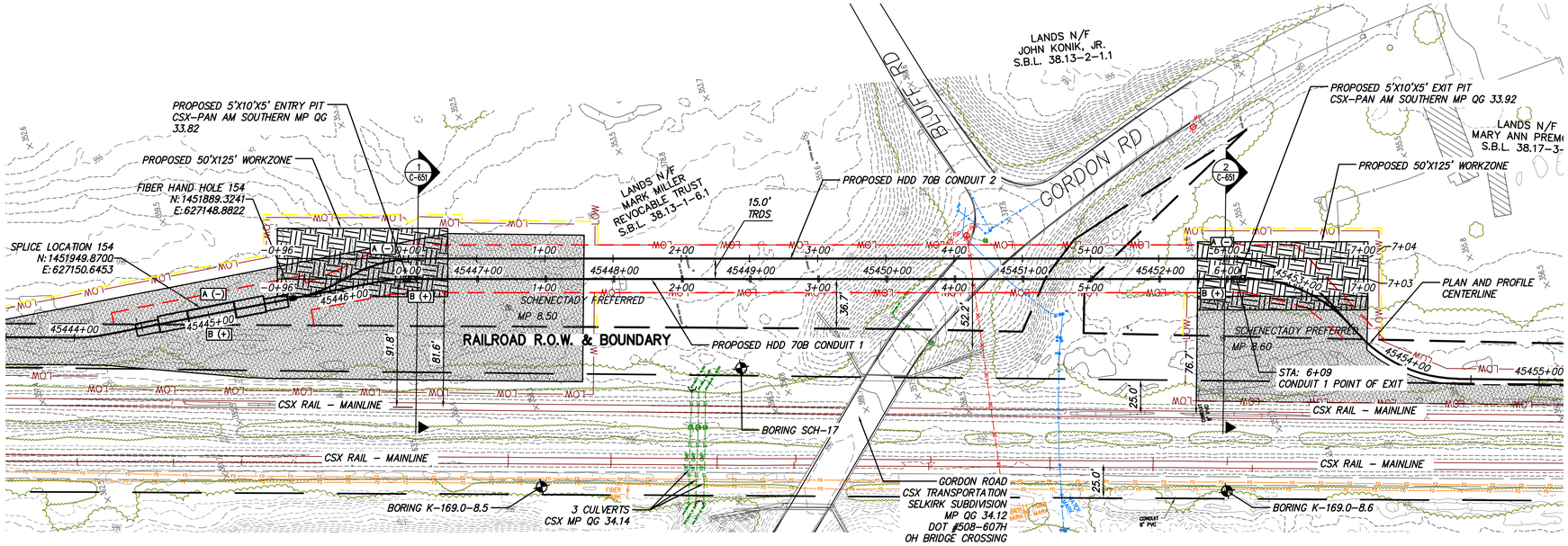
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN AND PROFILE - HDD 70A, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. C-312A.1

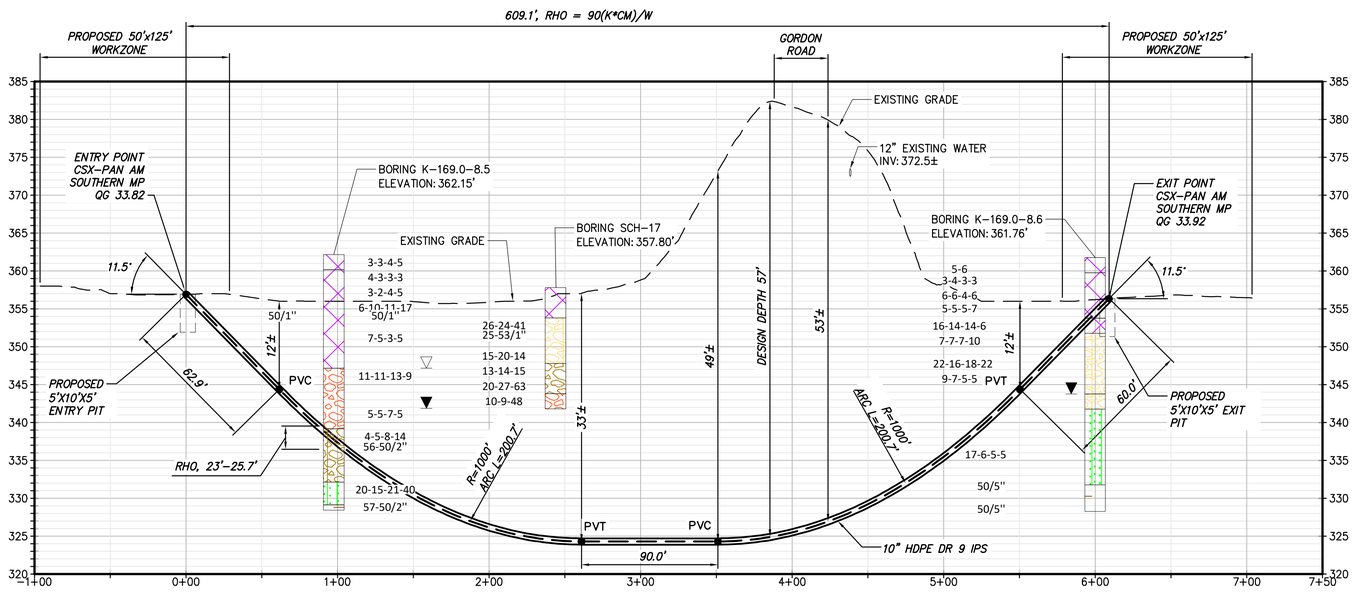
DRAWN BY: JAS | DESIGNED BY: ZSH | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 4\DESIGN PACKAGE 4B\066076_P4B - C-312 - C-312A1.DWG Saved: 7/26/2023 8:45:55 AM Plotted: 7/26/2023 9:56:54 AM Current User: Snyder, Morgan LastSavedBy: 6043



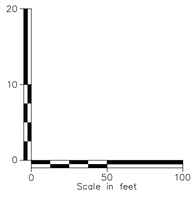
PROPOSED HDD 70B PLAN VIEW

CONDUIT 1



PROPOSED HDD 70B PROFILE

CONDUIT 1



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CHAMPLAIN HUDSON POWER EXPRESS

SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN

PLAN AND PROFILE - HDD 70B, CONDUIT 1

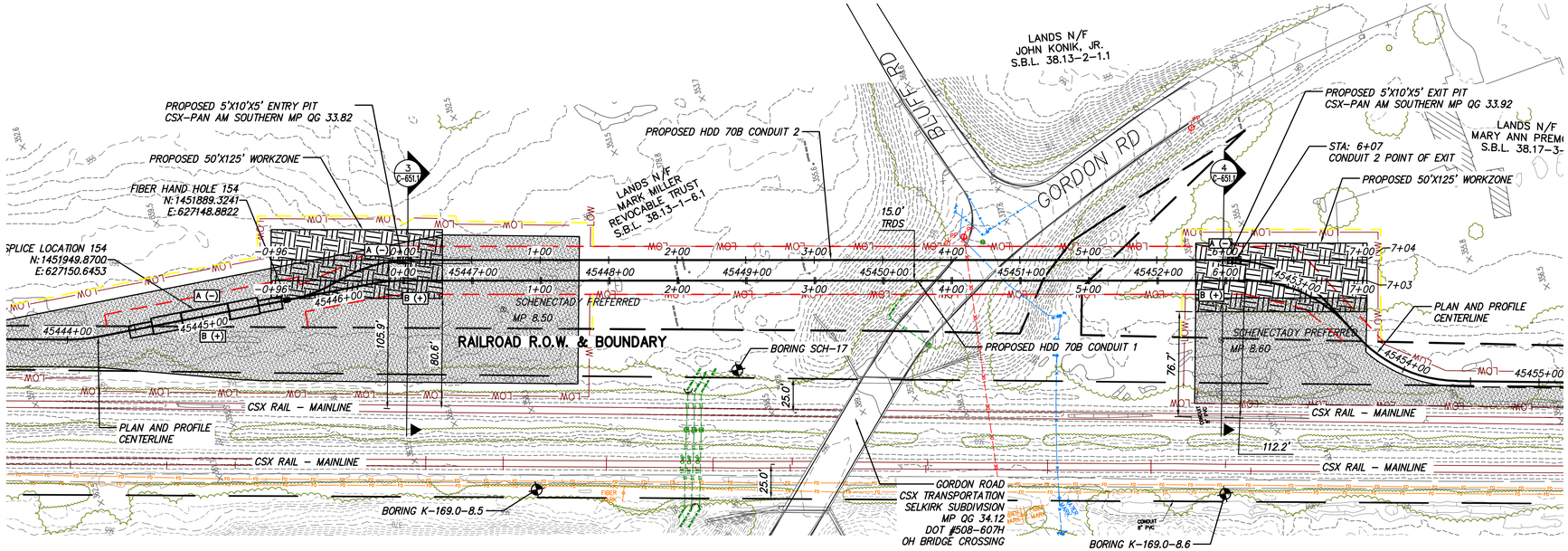
KIEWIT PROJECT NO. 21162

CHA PROJECT NO. 066076

DRAWING NO. **C-313**

DRAWN BY: ZH | DESIGNED BY: ZH | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 4\DESIGN PACKAGE B\066076_P4B - C-313 - C-313A.DWG Saved: 7/26/2023 6:15:15 AM Plotted: 7/26/2023 10:00:21 AM Current User: Snyder, Morgan LastSavedBy: 8275



0 50 100
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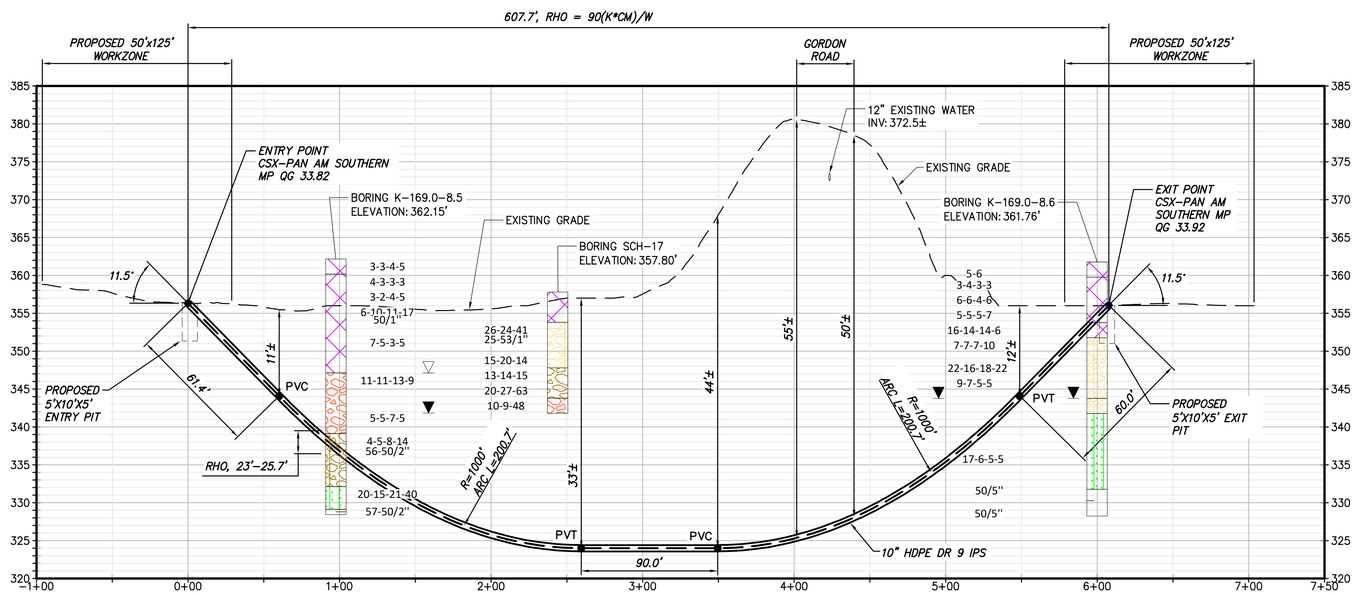
PROPOSED HDD 70B PLAN VIEW

CONDUIT 2



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PROPOSED HDD 70B PROFILE

CONDUIT 2

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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.

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	07/28/2023	ISSUED FOR CONSTRUCTION SUBMISSION	SPB	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 7 (PACKAGE 4B) - CSX - PAN AM SOUTHERN
PLAN AND PROFILE - HDD 70B, CONDUIT 2

KIEWIT PROJECT NO. 21162
CHA PROJECT NO. 066076
DRAWING NO. **C-313A**

DRAWN BY: ZH | DESIGNED BY: ZH | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. X | DATE 07/28/2023 | SH.NO.

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 4\DESIGN PACKAGE B\066076_P4B - C-313 - C-313A.DWG Saved: 7/26/2023 6:15:15 AM Plotted: 7/26/2023 10:00:57 AM Current User: Snyder, Morgan LastSavedBy: 8275

Appendix F

Proposed Soil Properties for CHPE Segment 7 - Package 4B HDDs

Proposed Soil Properties for CHPE Segment 7 – Package 4B HDDs

Soil Type	N	Wet unit wgt, pcf	Dry unit wgt, pcf	Bouyant unit wgt, pcf	Φ, °	Undrained Shear strength, su, psf	Maximum Shear Modulus, psi*
Loose Sand	4-10	115	105	53	30	---	200
Med. Dense Sand	10-30	125	110	63	34	---	500
V Soft to Soft clay	0-4	100	70	38	---	450	200
Med Stiff Clay (approx. 40 feet deep)	4-8	110	80	48	---	800	300
Stiff Clay (approx. 80 ft deep)	8-16	120	100	58	---	1200	400
Loose Silt	4-10	100	80	38	28	---	50
Med Dense Silt	10-30	110	90	48	32	---	100
Rock Fill/Highly Weather Rock	>50	140	120	80	37	---	1000
Jointed Rock Mass – Shale	---	170	160	110	37	3000 psi	2000 psi

- where BoreAid default values are less than these shear moduli, use the default values.