GENERAL NOTES:

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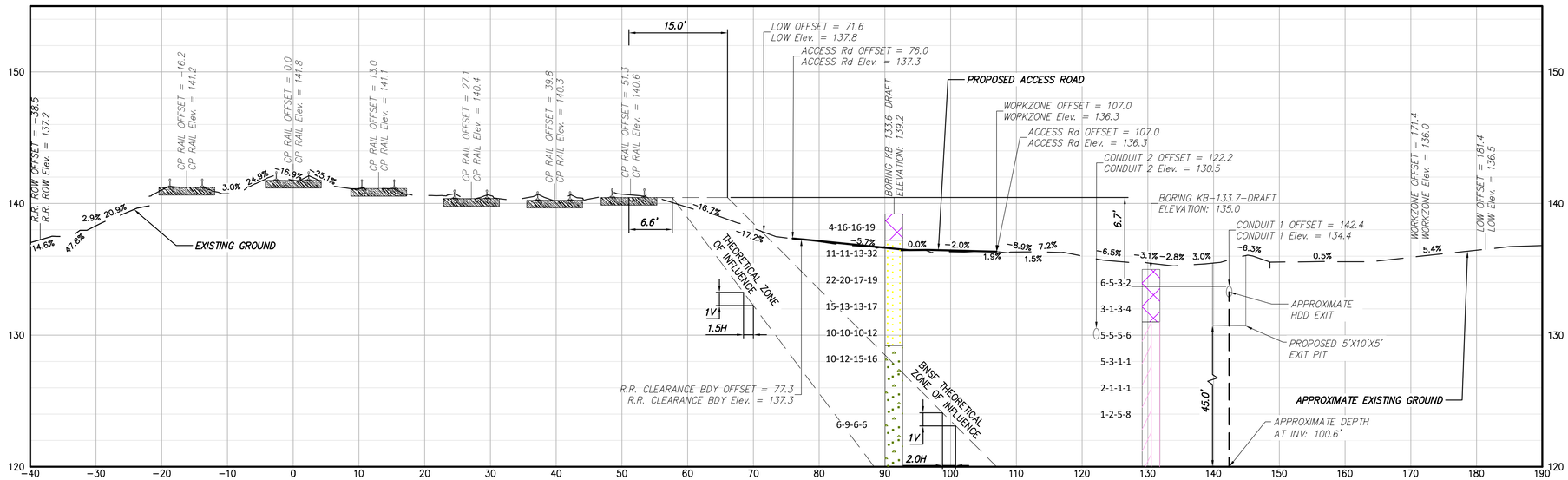
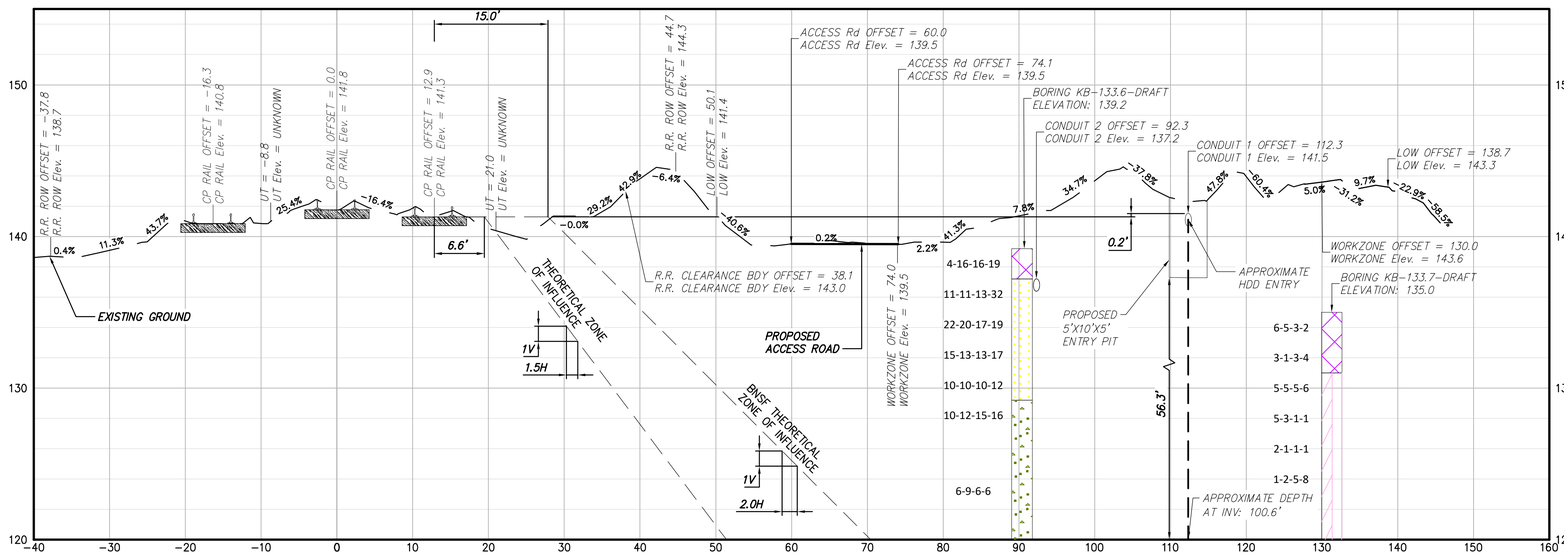


2 HDD #21B CONDUIT 1 EXIT PIT CUT SECTION; STA. 30068+07
CP RAIL CANADIAN MAINLINE MP: 56.36



1 HDD #21B CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30059+16
CP RAIL CANADIAN MAINLINE MP: 56.53

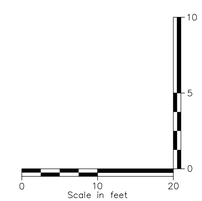
BORING LOG STRIP LEGEND

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	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 21B RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-641

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\NY\K\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-300 - C-300A.DWG Saved: 3/31/2023 3:11:39 PM Plotted: 4/4/2023 8:39:46 AM Current User: Snyder, Morgan LastSavedBy: 7894

GENERAL NOTES:

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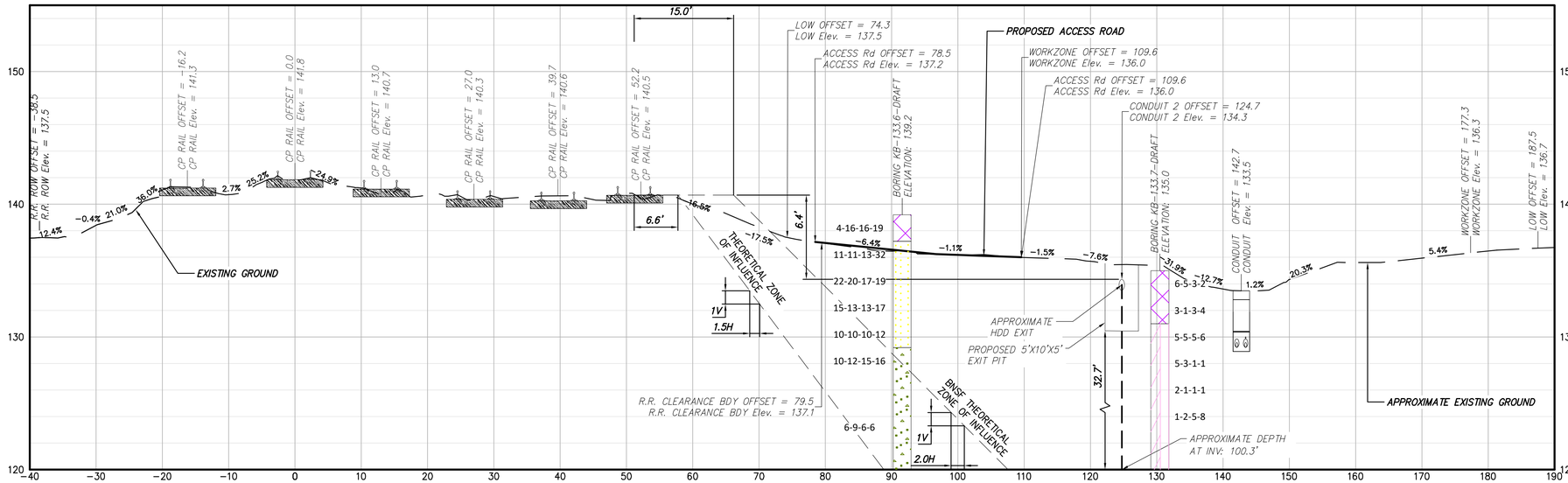
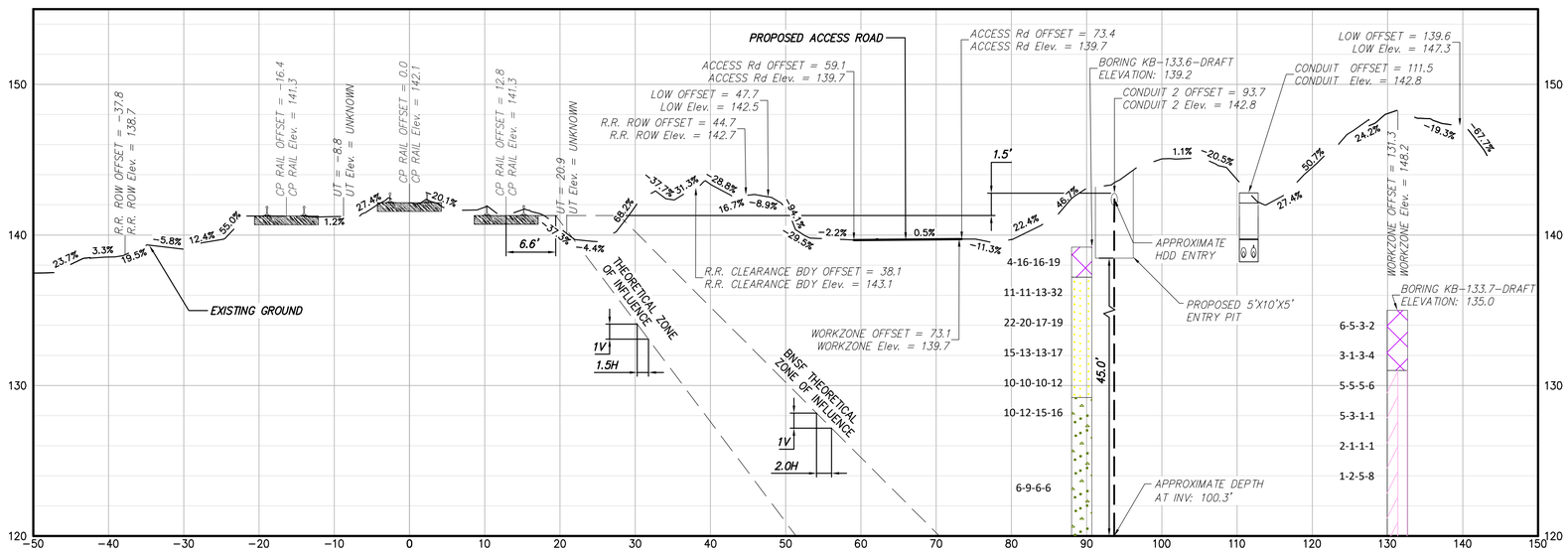


4 HDD #21B CONDUIT 2 EXIT PIT CUT SECTION; STA. 30068+25
CP RAIL CANADIAN MAINLINE MP: 56.36



3 HDD #21B CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30058+90
CP RAIL CANADIAN MAINLINE MP: 56.54

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
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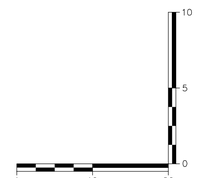
	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
	SP	Poorly Graded SAND
	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND 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



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 21B RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-641.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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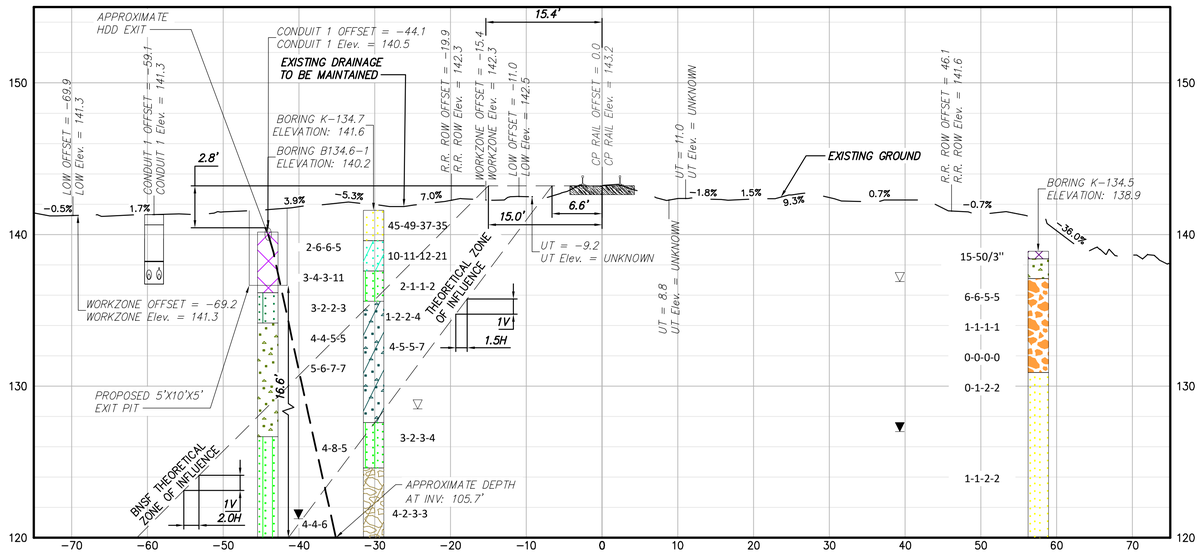
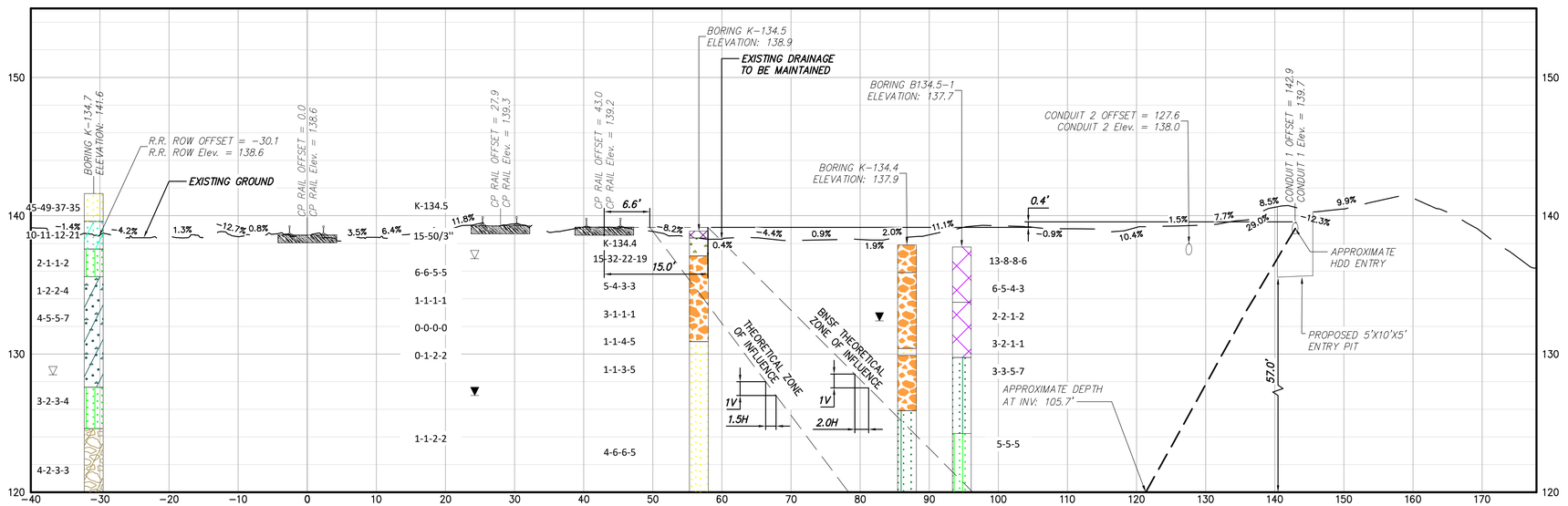
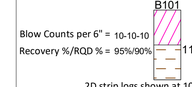


2 HDD #22 CONDUIT 1 EXIT PIT CUT SECTION; STA. A−P3−33+17
CP RAIL CANADIAN MAINLINE MP: 55.46



1 HDD #22 CONDUIT 1 ENTRY PIT CUT SECTION; STA. A−P3−20+52
CP RAIL CANADIAN MAINLINE MP: 55.69

BORING LOG STRIP LEGEND



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
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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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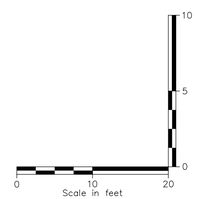
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	MCS	JEO
0	04/05/2023	FINAL EM&CP SUBMISSION	DB	APP

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 22 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-642

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-301 - C-301A.DWG Saved: 4/12/2023 8:03:41 AM Plotted: 4/12/2023 8:41:17 AM Current User: Snyder, Morgan LastSavedBy: 6043

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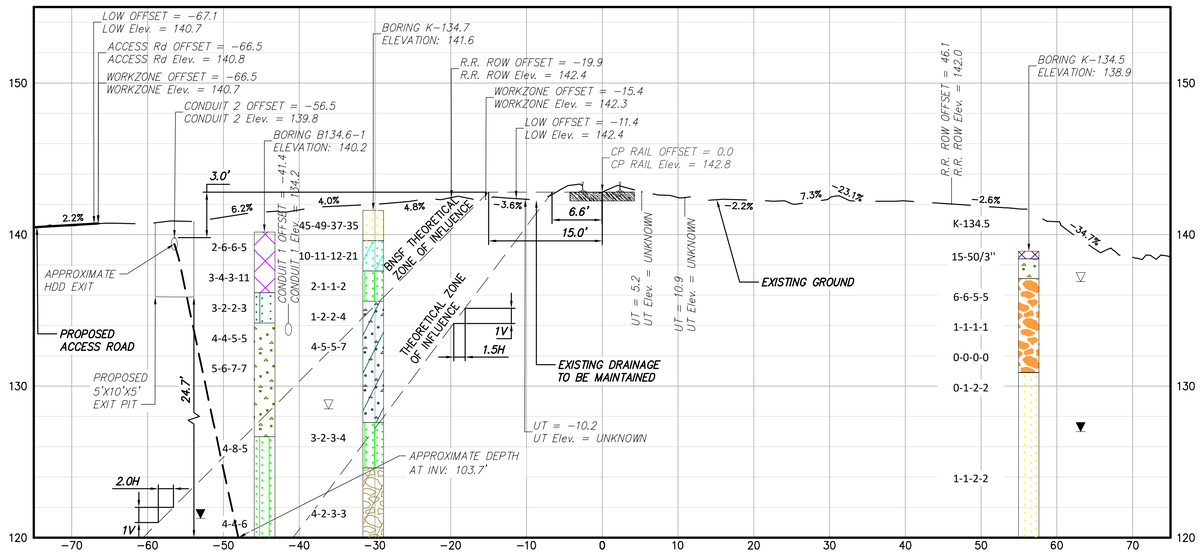
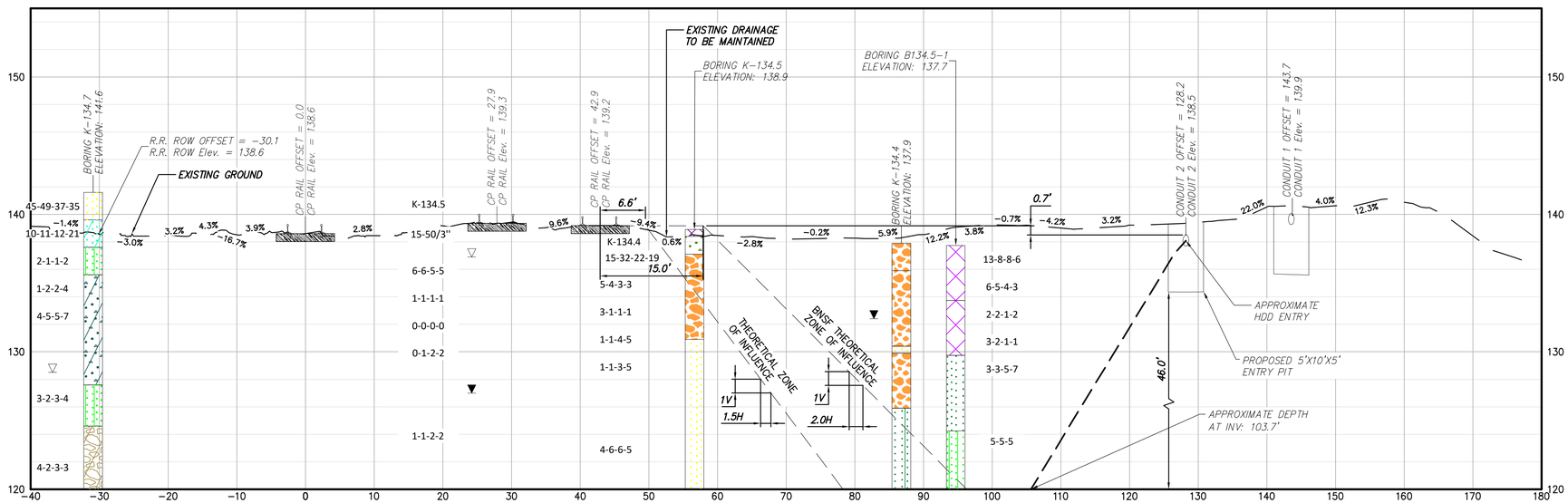


4 HDD #22 CONDUIT 2 EXIT PIT CUT SECTION; STA. A−P3−32+89
CP RAIL CANADIAN MAINLINE MP: 55.54



3 HDD #22 CONDUIT 2 ENTRY PIT CUT SECTION; STA. A−P3−20+52
CP RAIL CANADIAN MAINLINE MP: 55.69

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
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	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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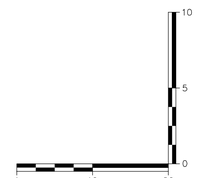

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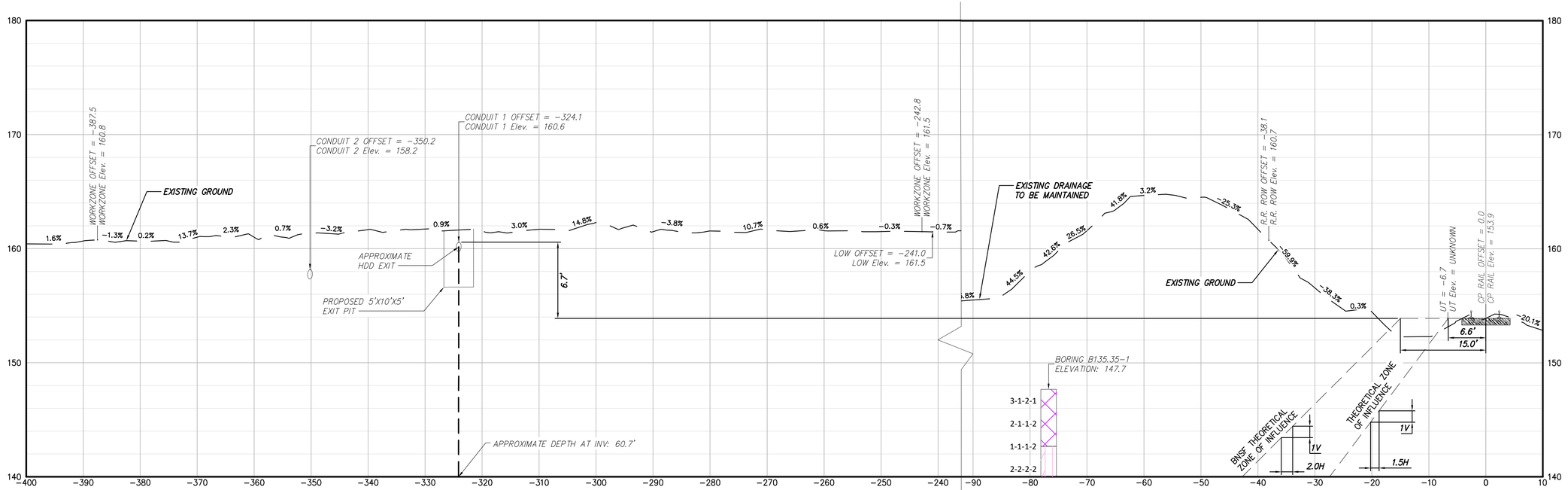
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 22 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-642.1

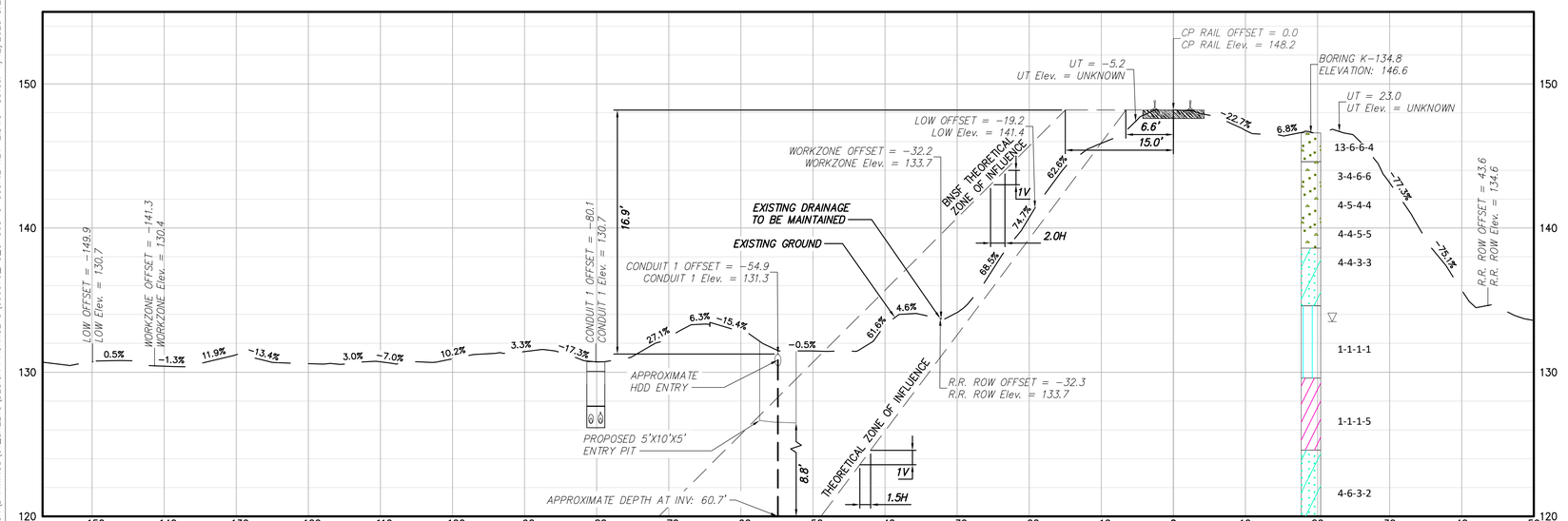
DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\VAN\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-301 - C-301A.DWG Saved: 4/12/2023 8:03:41 AM Plotted: 4/12/2023 8:03:47 AM Current User: Snyder, Morgan LastSavedBy: 6043



2 HDD #24 CONDUIT 1 EXIT PIT CUT SECTION; STA. A-P3-74+09

CP RAIL CANADIAN MAINLINE MP: 54.66



1 HDD #24 CONDUIT 1 ENTRY PIT CUT SECTION; STA. A-P3-38+72

CP RAIL CANADIAN MAINLINE MP: 55.36

GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.

Scale in feet: 0, 10, 20 / 0, 5, 10

BORING LOG STRIP LEGEND



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

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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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
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SW-SC	Well Graded SAND with CLAY
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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

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 24 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-643

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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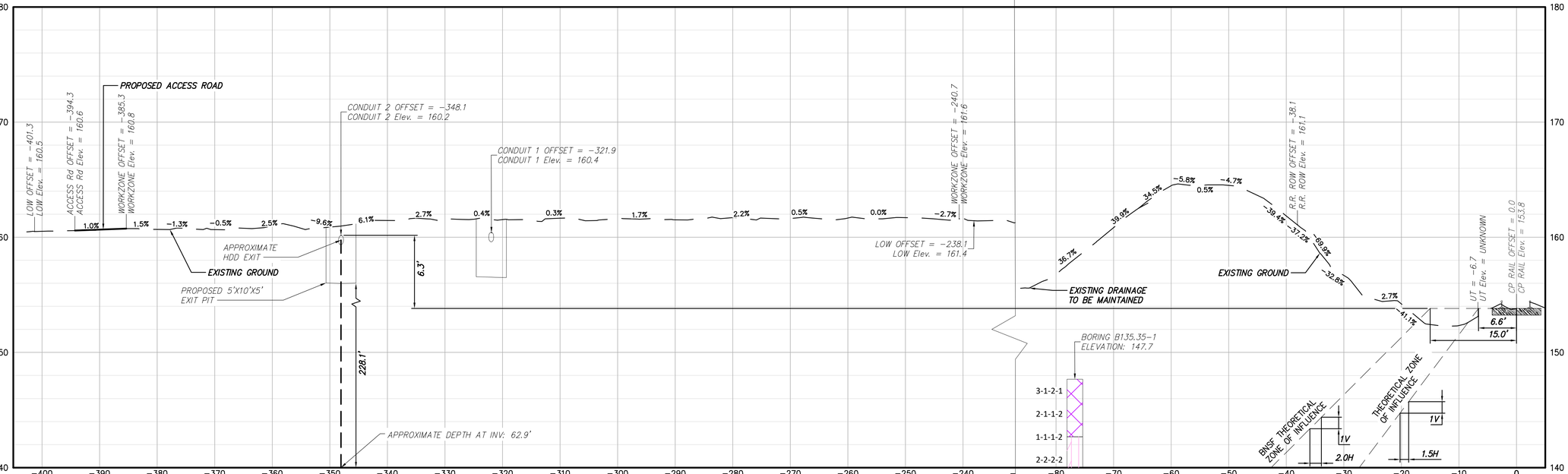
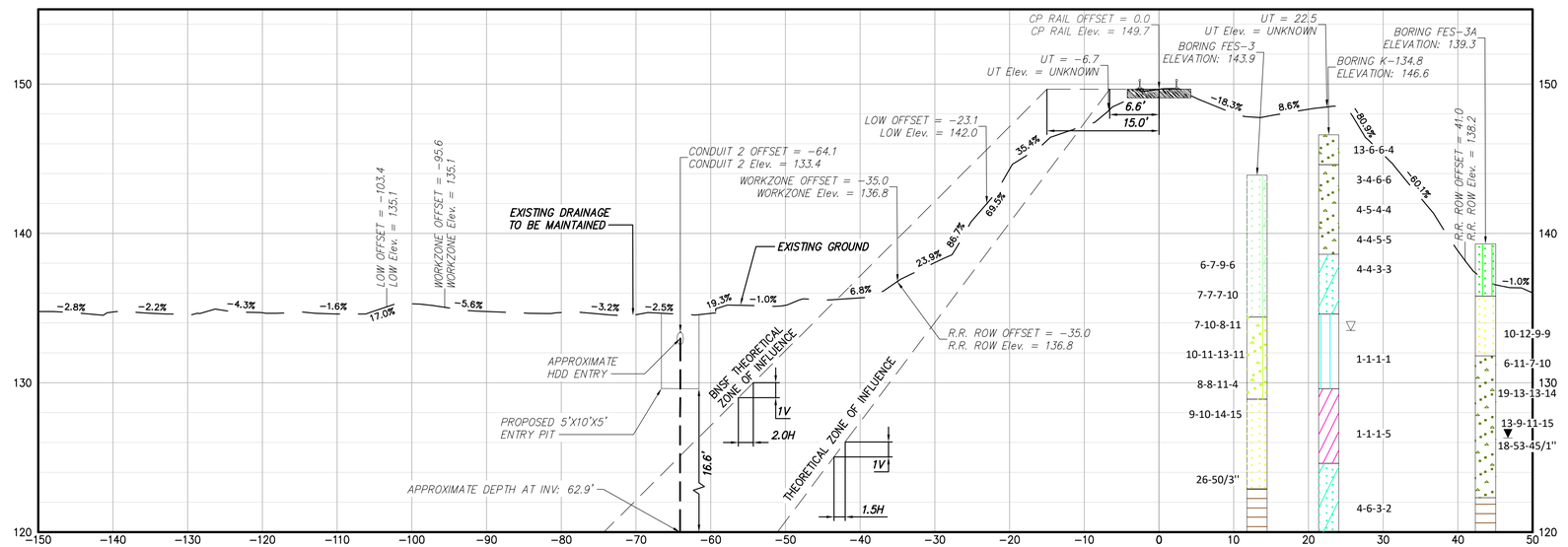


4 HDD #24 CONDUIT 2 EXIT PIT CUT SECTION; STA. A-P3-74+09

CP RAIL CANADIAN MAINLINE MP: 54.66

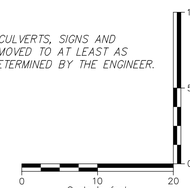


3 HDD #24 CONDUIT 2 ENTRY PIT CUT SECTION; STA. A-P3-40+08

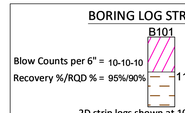
CP RAIL CANADIAN MAINLINE MP: 55.33

GENERAL NOTES:

1. *THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.*



BORING LOG STRIP LEGEND



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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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 24 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-643.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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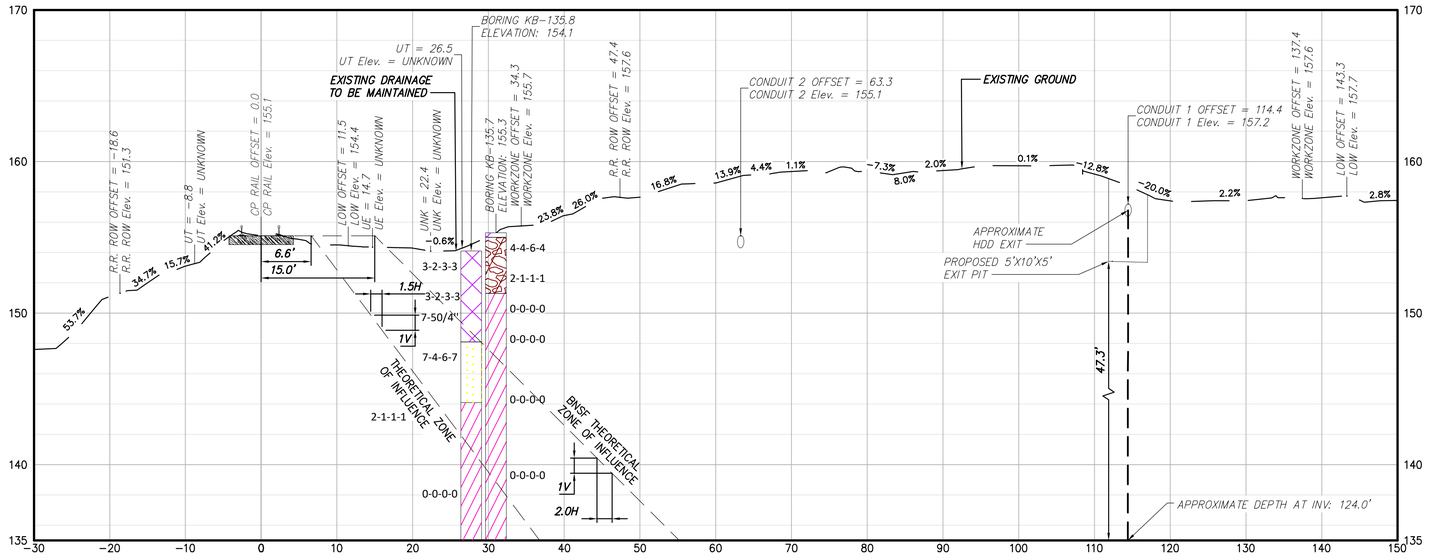
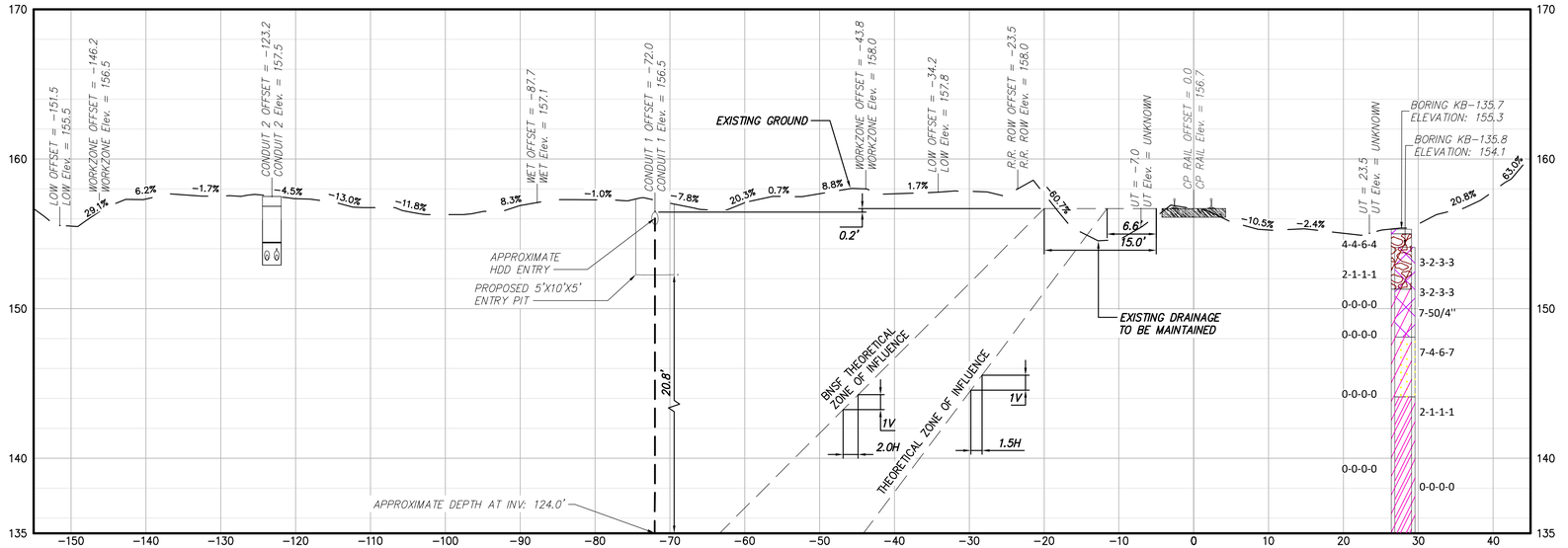
GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.



2 HDD #24A CONDUIT 1 EXIT PIT CUT SECTION; STA. A-P3-92+64
CP RAIL CANADIAN MAINLINE MP: 54.34



1 HDD #24A CONDUIT 1 ENTRY PIT CUT SECTION; STA. A-P3-83+90
CP RAIL CANADIAN MAINLINE MP: 54.50

BORING LOG STRIP LEGEND

B101

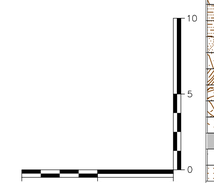
Blow Counts per 6" = 10-10-10

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	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 24A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-643A

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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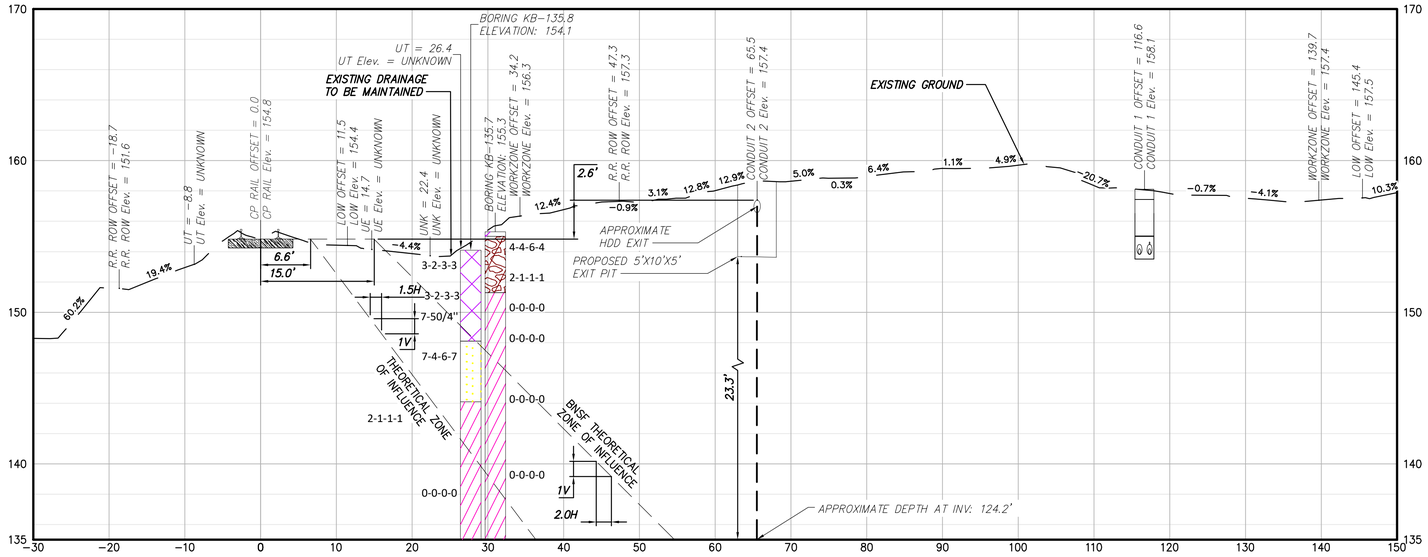
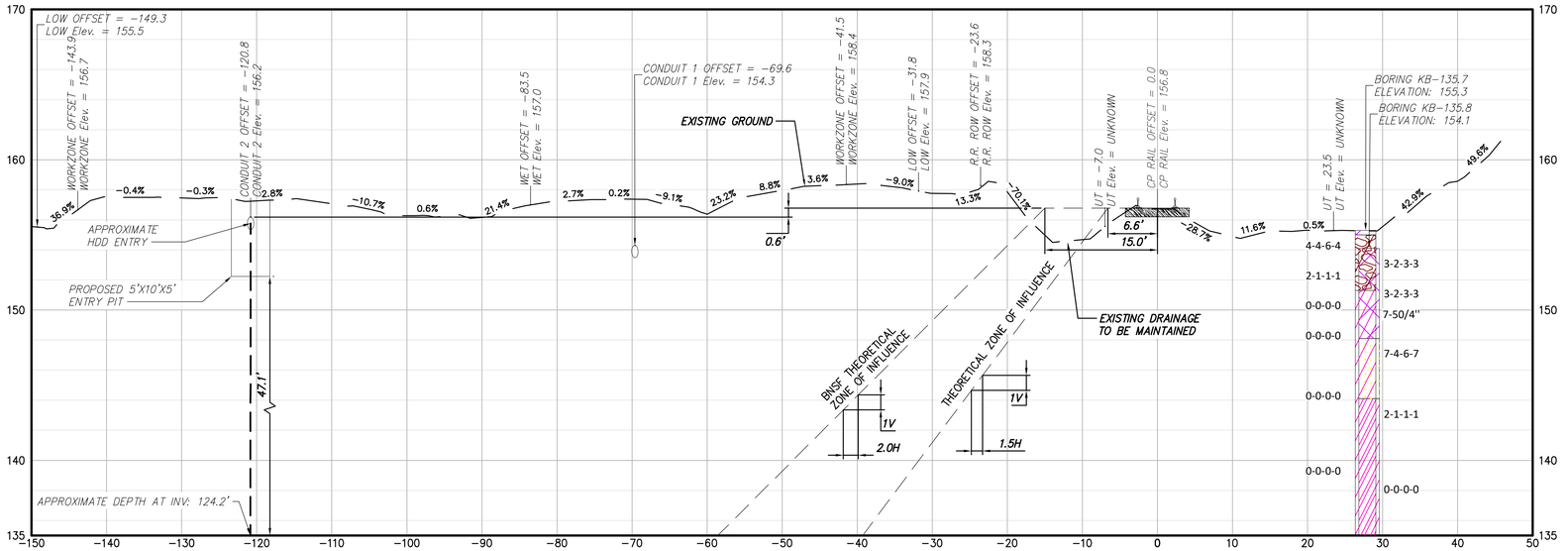
GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.



4 HDD #24A CONDUIT 2 EXIT PIT CUT SECTION; STA. A-P3-92+64
CP RAIL CANADIAN MAINLINE MP: 55.54



3 HDD #24A CONDUIT 2 ENTRY PIT CUT SECTION; STA. A-P3-83+91
CP RAIL CANADIAN MAINLINE MP: 54.50

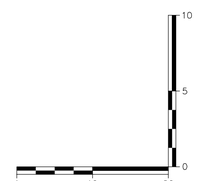
BORING LOG STRIP LEGEND

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
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 24A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-643A.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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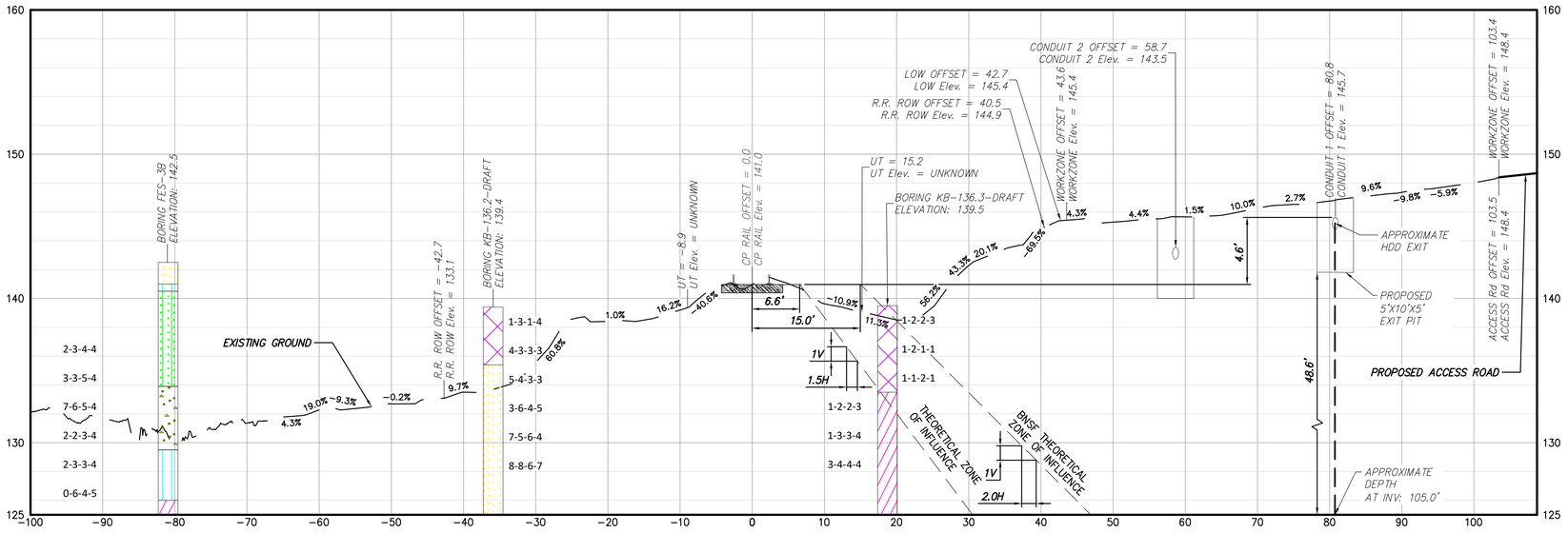
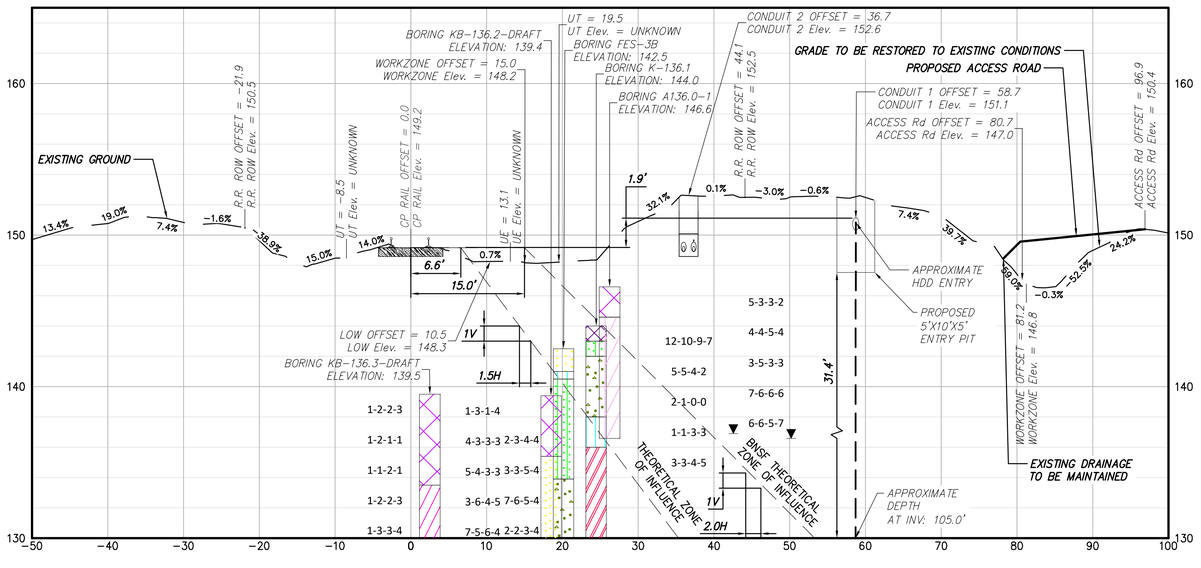
GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.



2 HDD #25 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30204+33
CP RAIL CANADIAN MAINLINE MP: 53.82



1 HDD #25 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30186+92
CP RAIL CANADIAN MAINLINE MP: 54.15

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
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SM	SILTY SAND
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SP-SC	Poorly Graded SAND with CLAY
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SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
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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

Scale in feet: 0, 10, 20 — 0, 5, 10

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

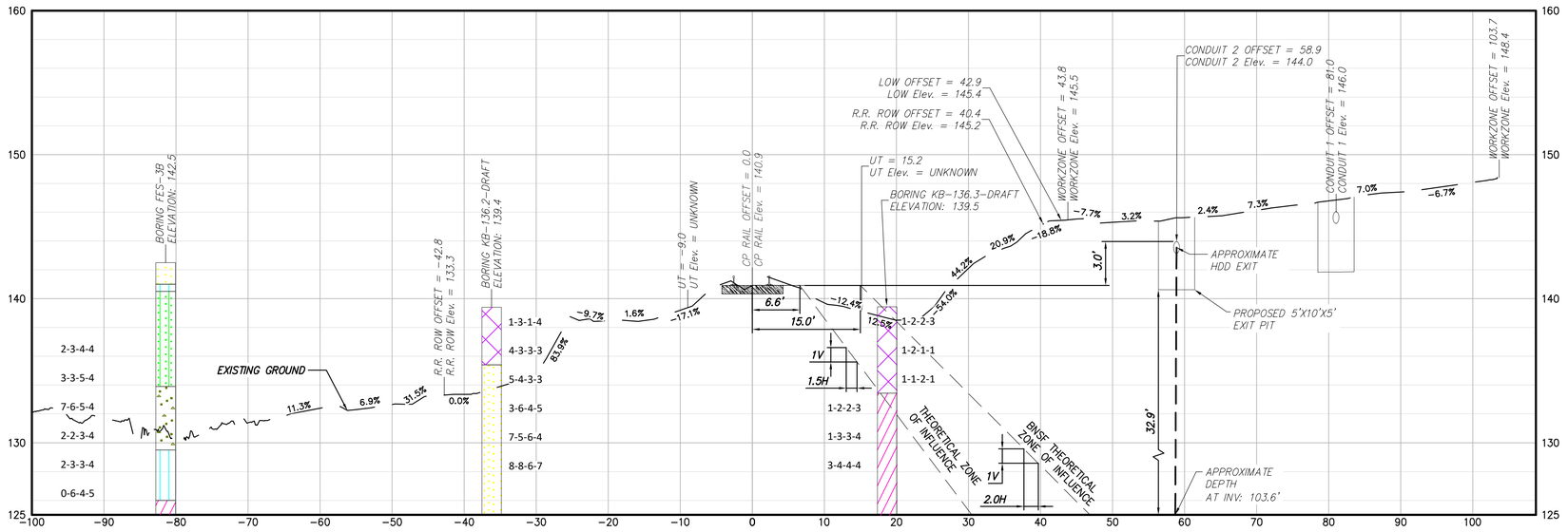
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 25 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-644

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

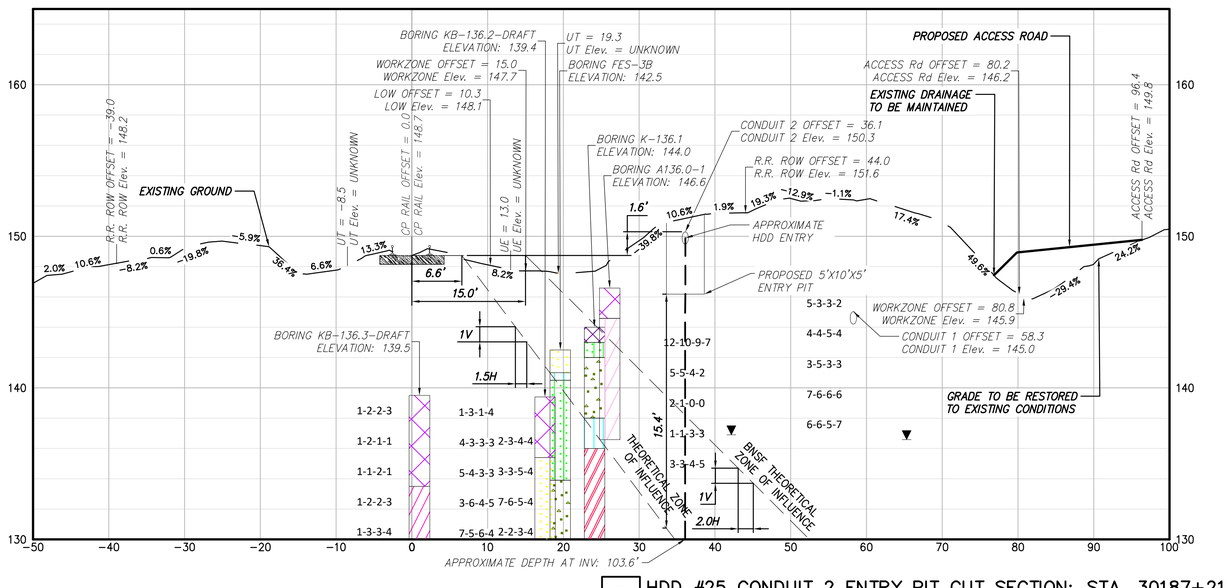
GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.



4 HDD #25 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30204+35

CP RAIL CANADIAN MAINLINE MP: 53.82



3 HDD #25 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30187+21

CP RAIL CANADIAN MAINLINE MP: 54.15

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

Scale in feet

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 25 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-644.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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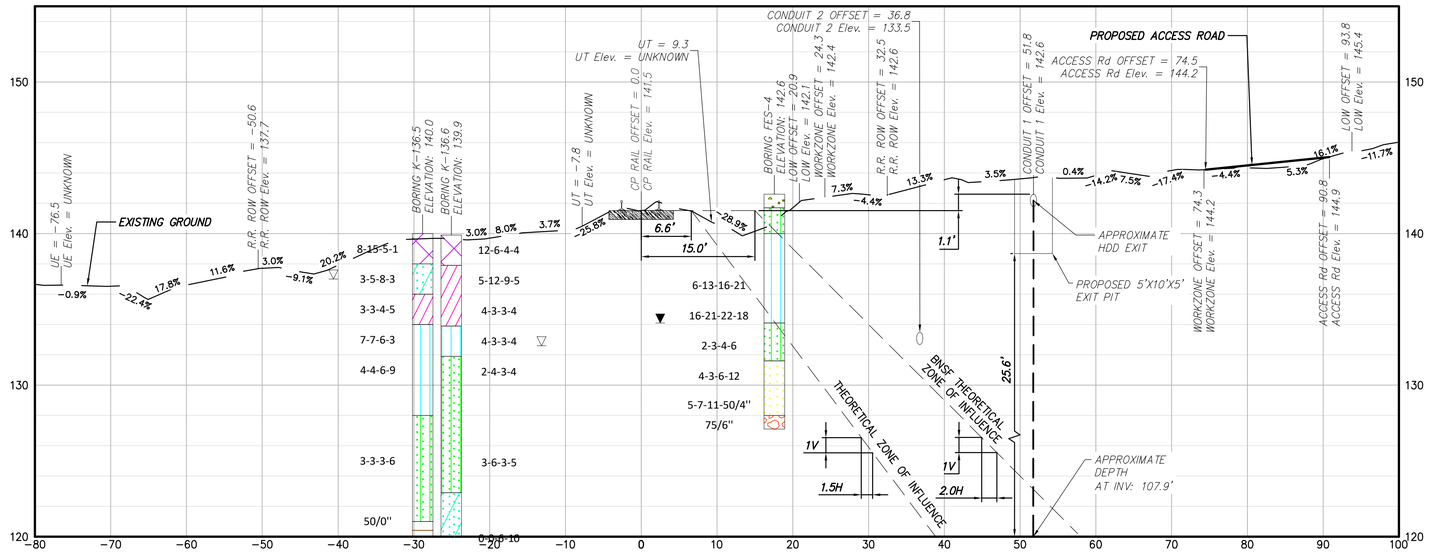
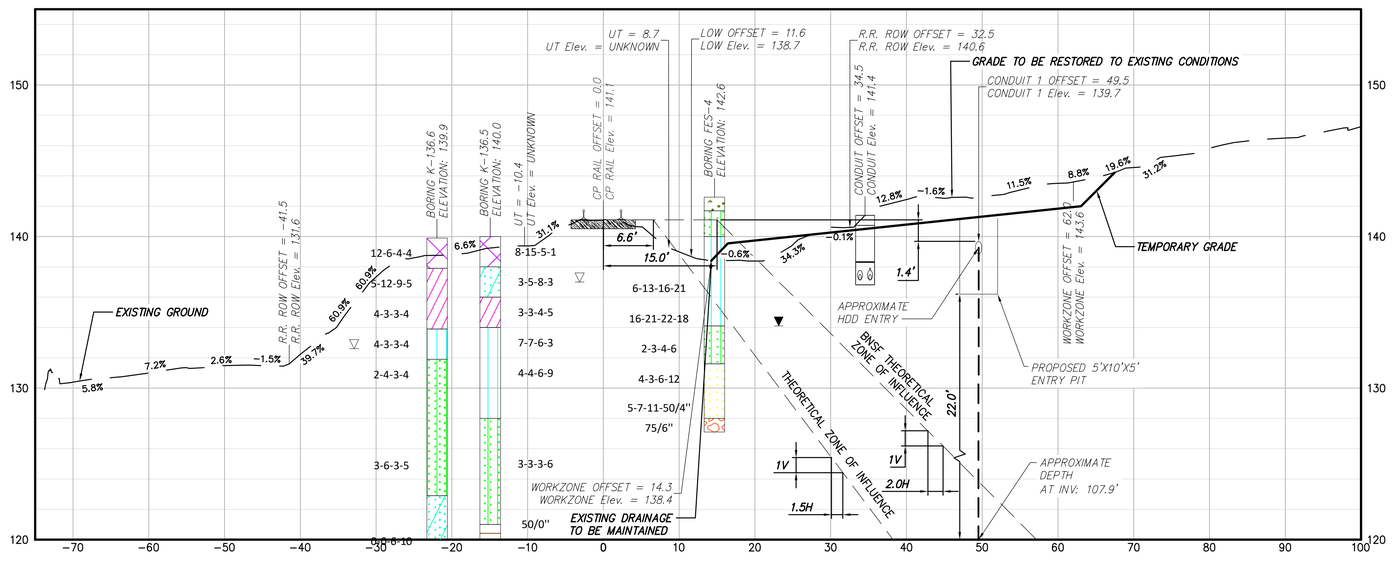
GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.

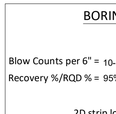


2 HDD #25A CONDUIT 1 EXIT PIT CUT SECTION; STA. 30220+91
CP RAIL CANADIAN MAINLINE MP: 53.51



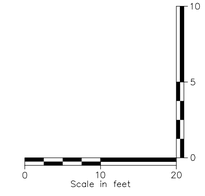
1 HDD #25A CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30213+41
CP RAIL CANADIAN MAINLINE MP: 53.65

BORING LOG STRIP LEGEND



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	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 25A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-645

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-305-C-305A.DWG Saved: 4/4/2023 9:37:13 AM Plotted: 4/4/2023 11:52:41 AM Current User: Snyder, Morgan LastSavedBy: 6043

GENERAL NOTES:

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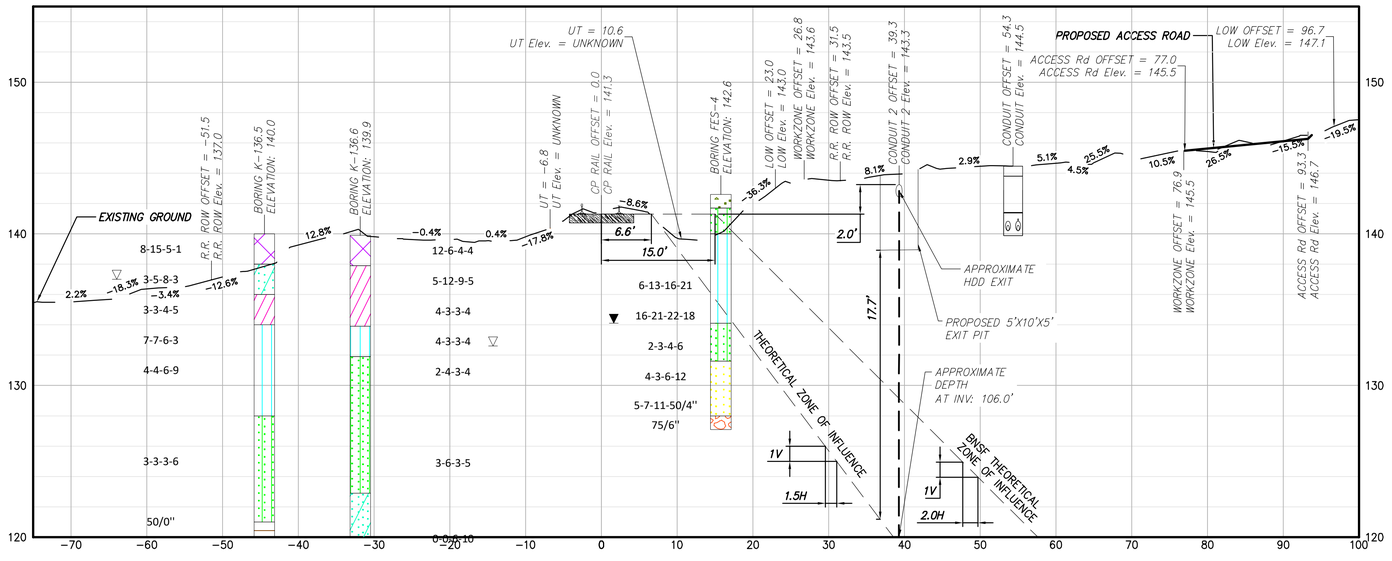
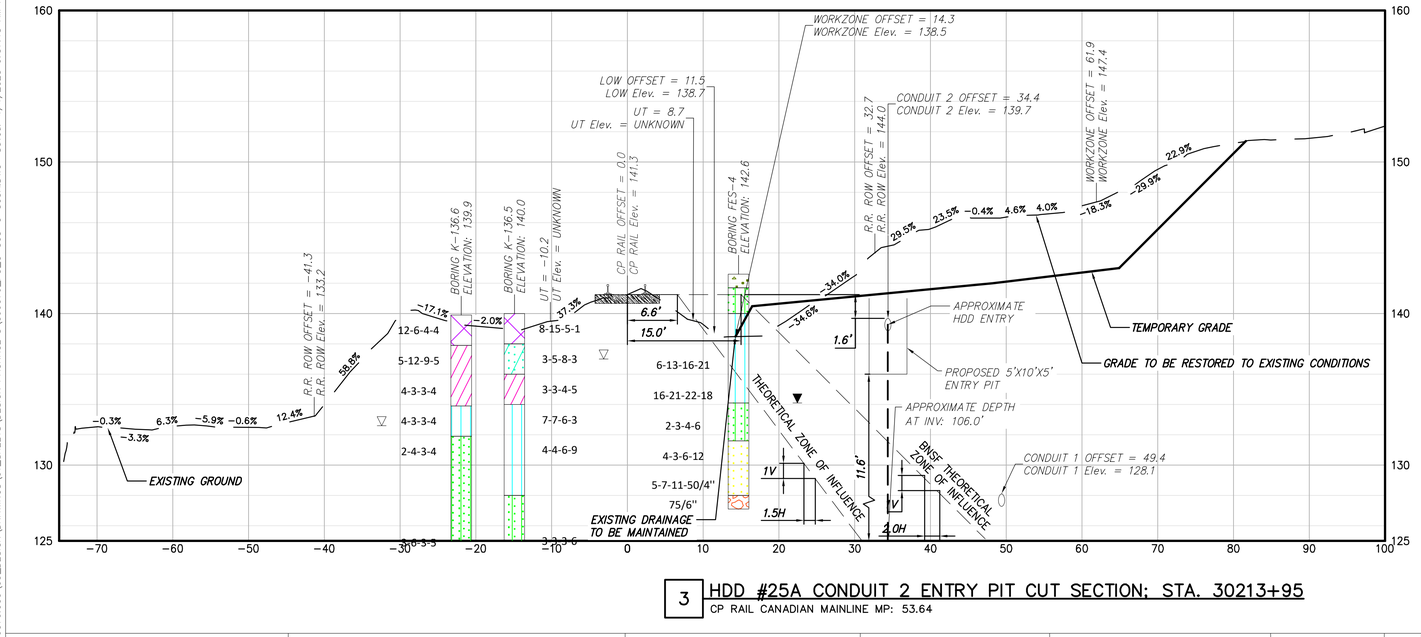
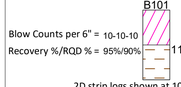


4 HDD #25A CONDUIT 2 EXIT PIT CUT SECTION; STA. 30221+46
CP RAIL CANADIAN MAINLINE MP: 53.50



3 HDD #25A CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30213+95
CP RAIL CANADIAN MAINLINE MP: 53.64

BORING LOG STRIP LEGEND



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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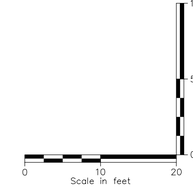
GP-GM	Poorly Graded GRAVEL with SILT
GW	Well Graded GRAVEL
GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY 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	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 25A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-645.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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GENERAL NOTES:

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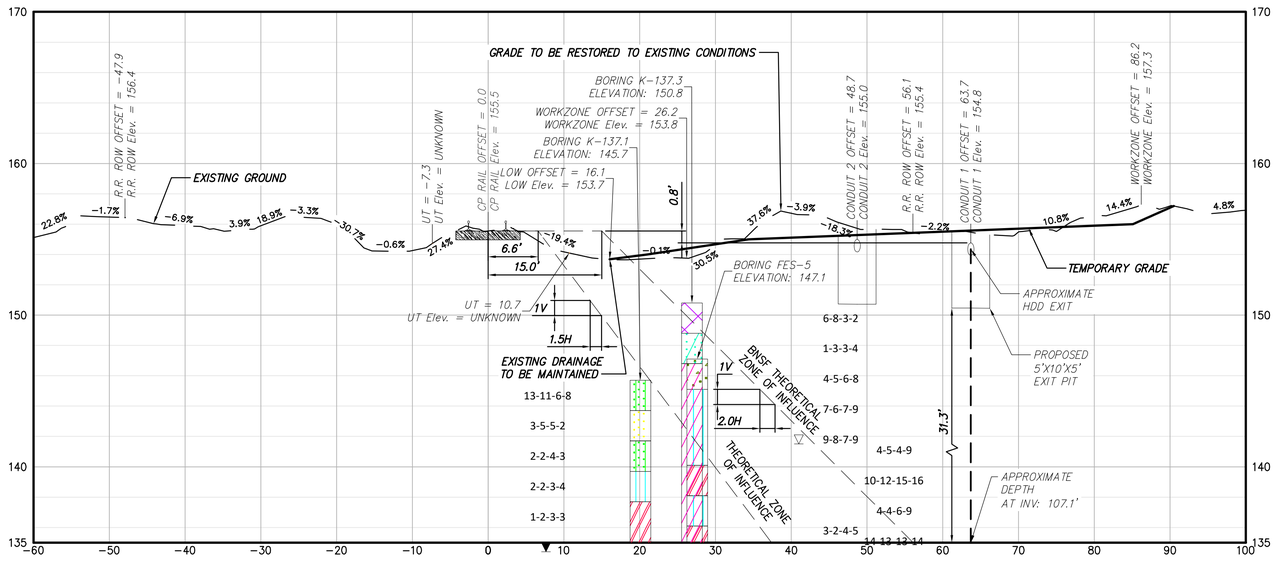
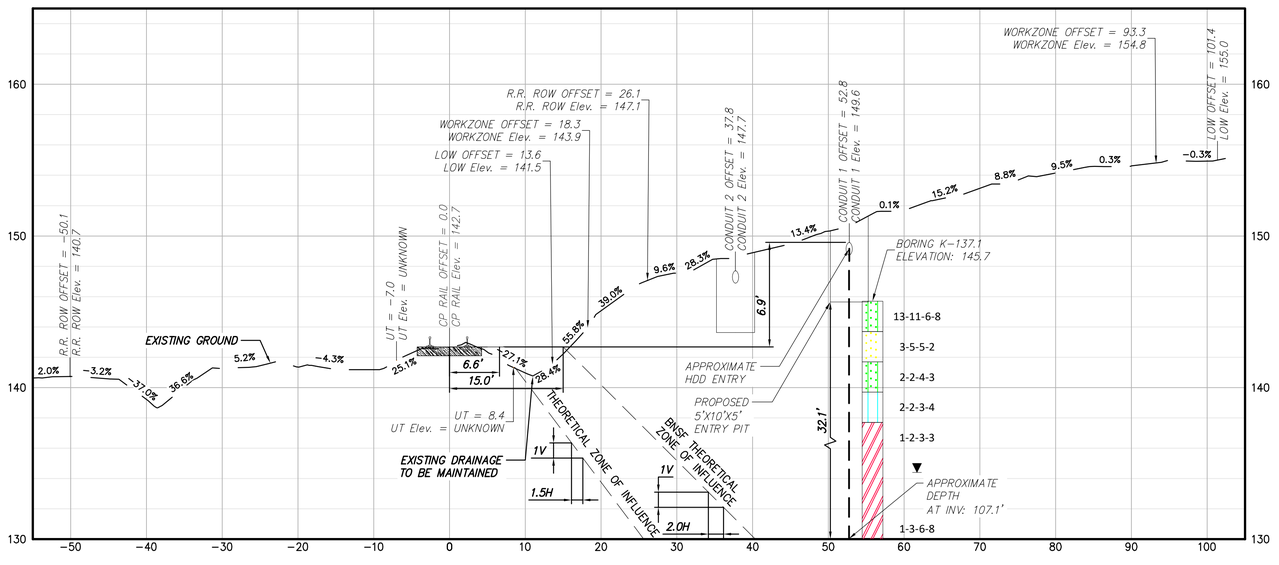
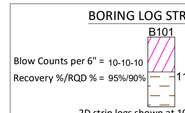


2 HDD #26 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30260+92
CP RAIL CANADIAN MAINLINE MP: 52.75



1 HDD #26 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30240+63
CP RAIL CANADIAN MAINLINE MP: 53.14

BORING LOG STRIP LEGEND



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
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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
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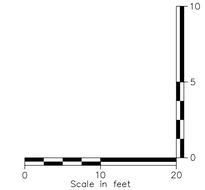
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 26 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-646

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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GENERAL NOTES:

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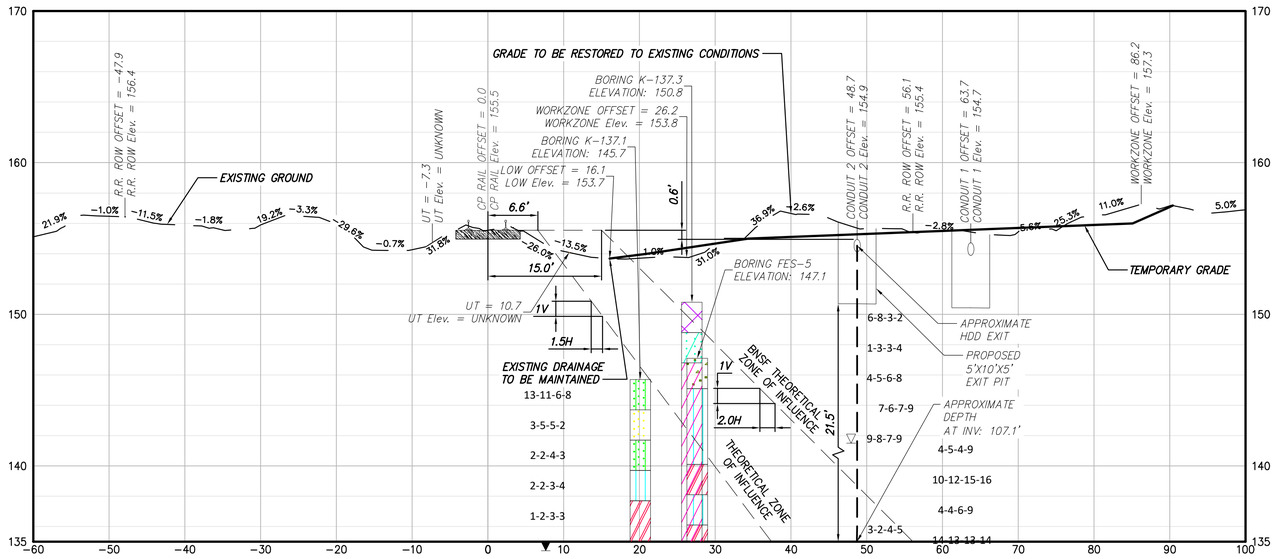
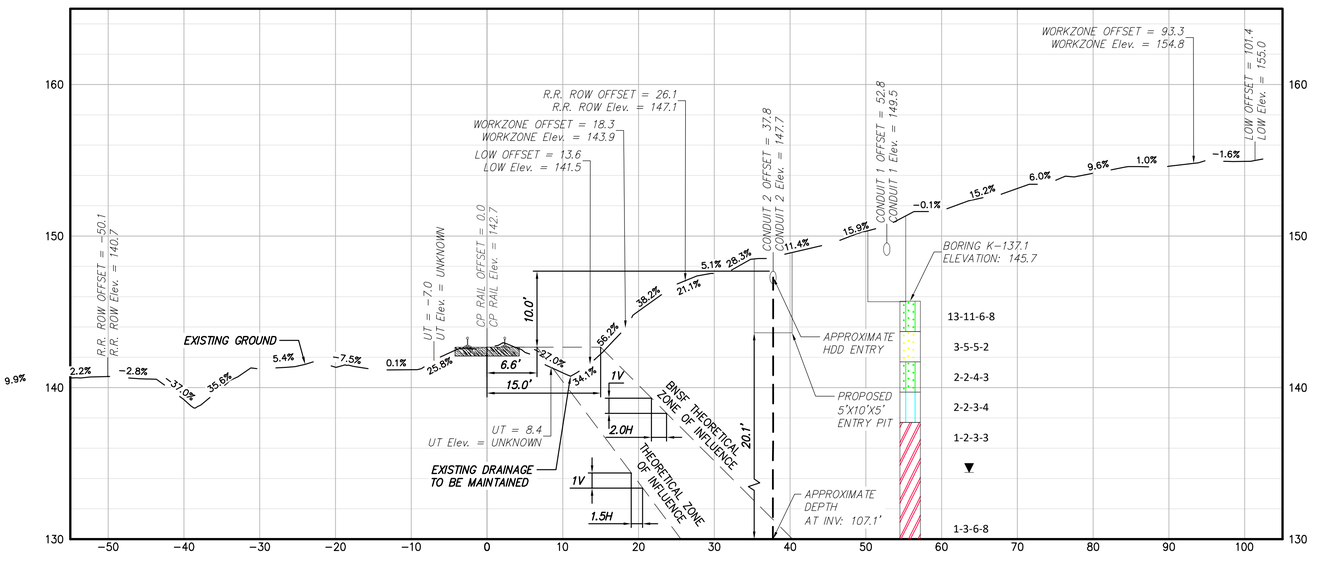
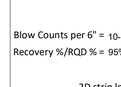


4 HDD #26 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30260+92
CP RAIL CANADIAN MAINLINE MP: 52.75



3 HDD #26 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30240+63
CP RAIL CANADIAN MAINLINE MP: 53.14

BORING LOG STRIP LEGEND



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
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OL/OH	ORGANIC SOIL
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Rock	Rock
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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
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
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Weathered Rock	Undefined
Water Table	Water Table during drilling
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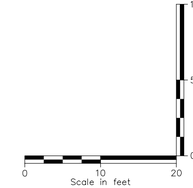

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 26 RAILROAD CROSS SECTION CUT

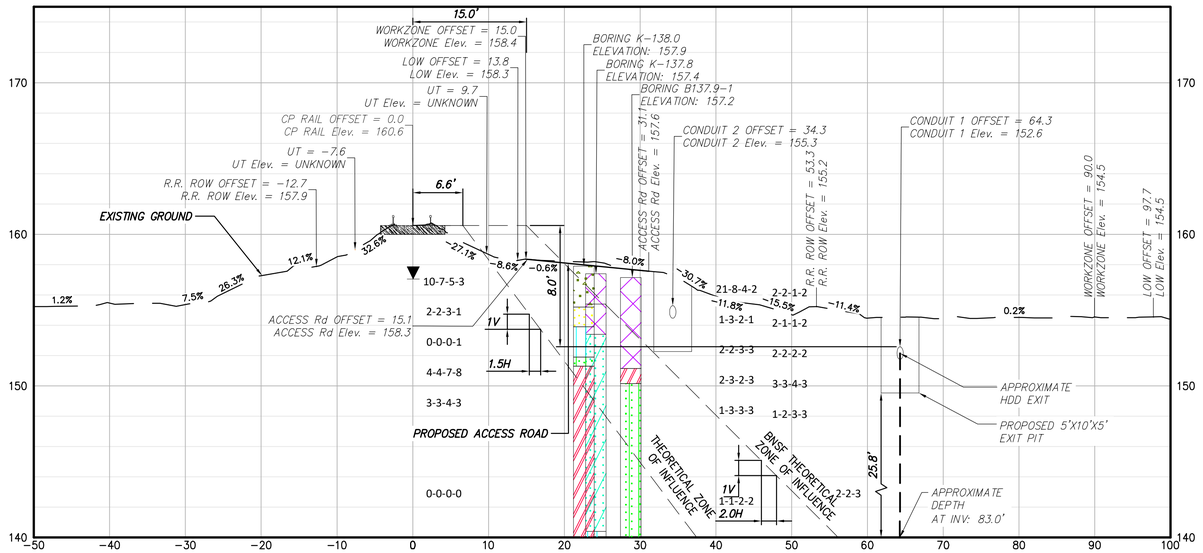
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-646.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

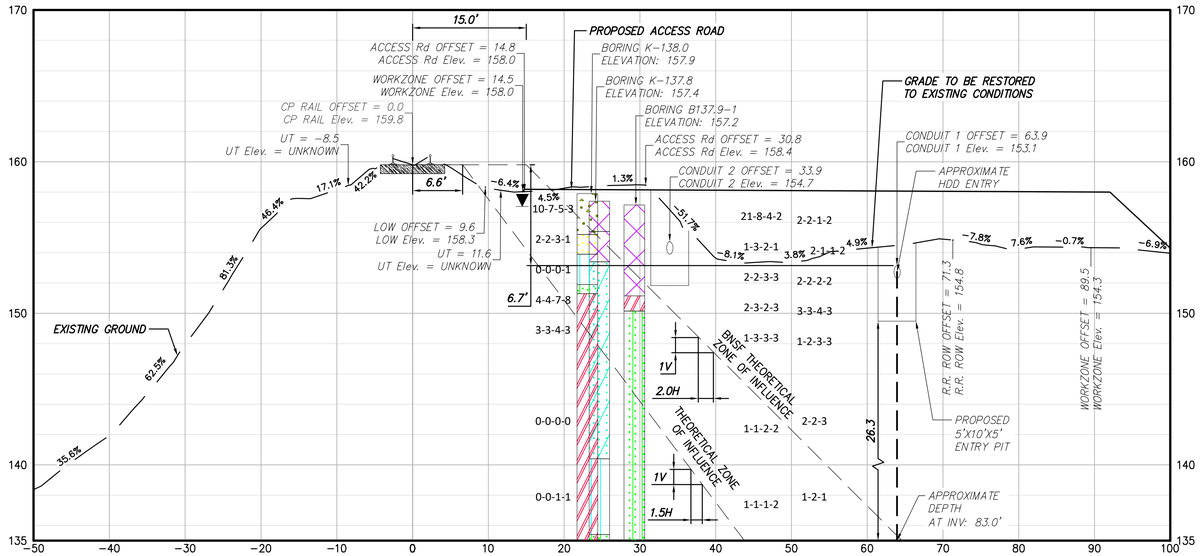
File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-306-C-306A.DWG Saved: 4/4/2023 12:02:39 PM Plotted: 4/4/2023 12:09:45 PM Current User: Snyder, Morgan LastSavedBy: 6043

GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.



2 HDD #27 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30291+51
CP RAIL CANADIAN MAINLINE MP: 52.17



1 HDD #27 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30280+80
CP RAIL CANADIAN MAINLINE MP: 52.37

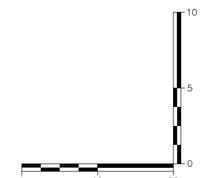
BORING LOG STRIP LEGEND

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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Albany, NY 12205-0269
518.453.4500 . www.chacompanies.com

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 27 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-647

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-307-C-307A.DWG Saved: 4/4/2023 8:03:57 AM Plotted: 4/4/2023 9:09:42 AM Current User: Snyder, Morgan LastSavedBy: 8275

GENERAL NOTES:

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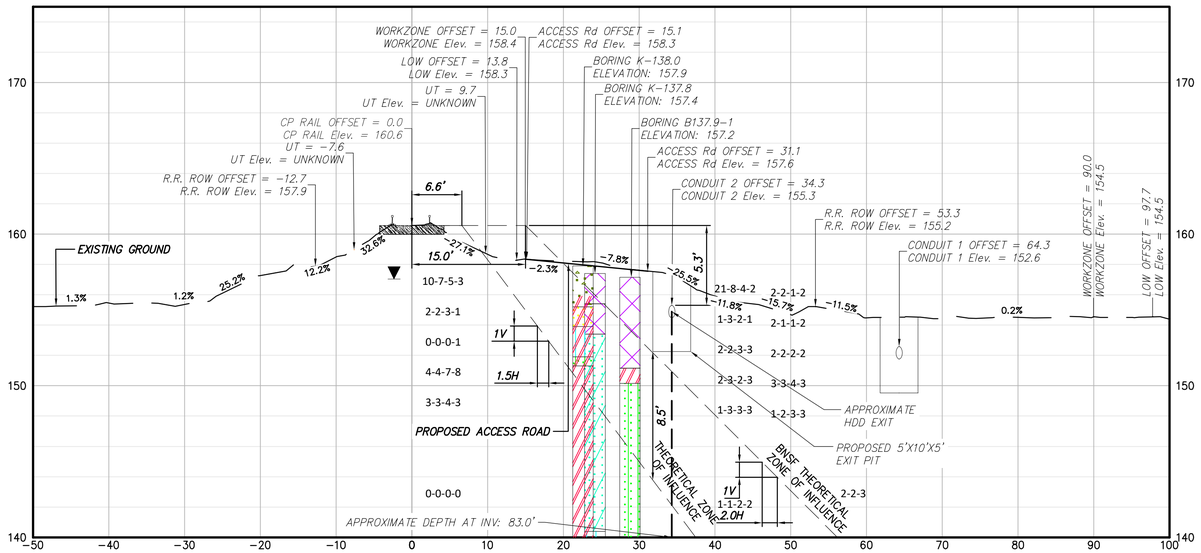
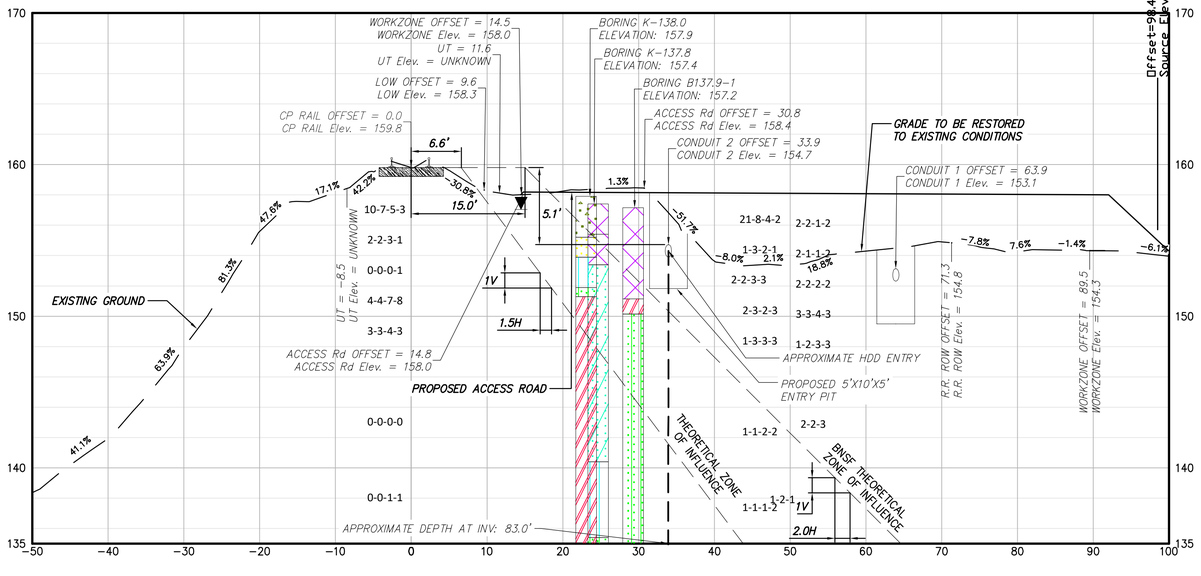


4 HDD #27 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30291+51
CP RAIL CANADIAN MAINLINE MP: 52.19



3 HDD #27 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30280+80
CP RAIL CANADIAN MAINLINE MP: 52.37

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10
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2D strip logs shown at 10x exaggeration
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	Bedrock	Bedrock
	Boulder	Boulder
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	CL-ML	SILTY CLAY
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	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
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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
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	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 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

0 10 20
Scale in feet

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 27 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-647.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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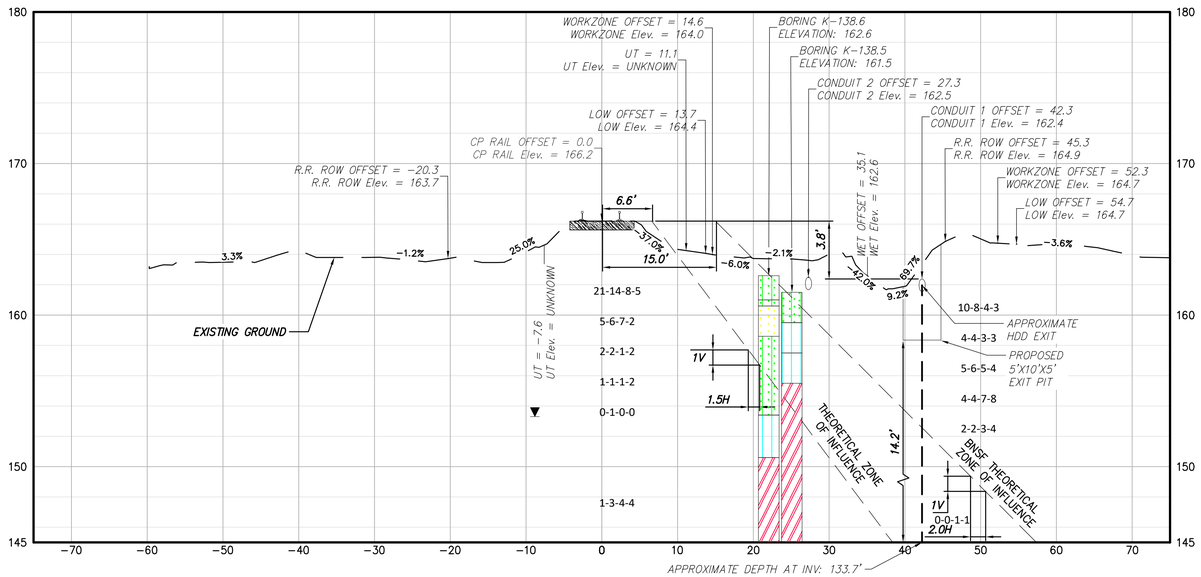
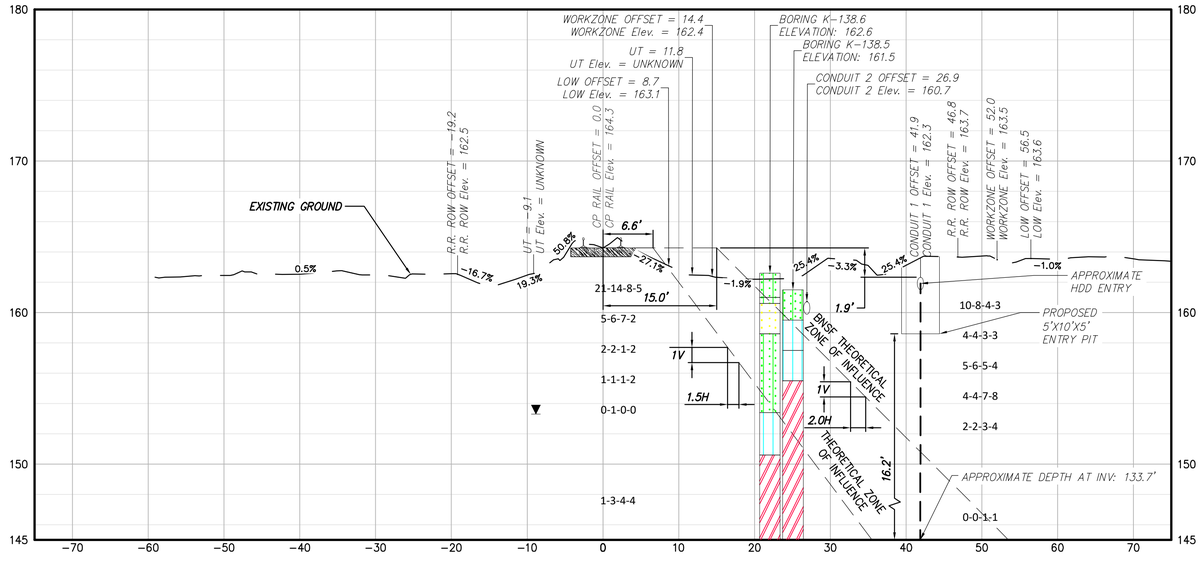
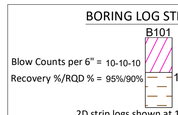


2 HDD #28 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30325+03
CP RAIL CANADIAN MAINLINE MP: 51.54



1 HDD #28 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30318+80
CP RAIL CANADIAN MAINLINE MP: 51.65

BORING LOG STRIP LEGEND



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
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OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
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SC-SM	SILT, CLAYEY SAND
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SP-SM	Poorly Graded SAND with SILT
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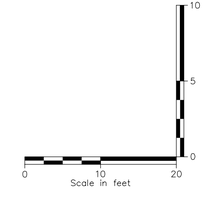
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 28 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-648

DRAWN BY: SJM | DESIGNED BY: SJM | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-308-C-308A.DWG Saved: 4/3/2023 5:25:31 PM Plotted: 4/4/2023 9:14:56 AM Current User: Snyder, Morgan LastSavedBy: 8275

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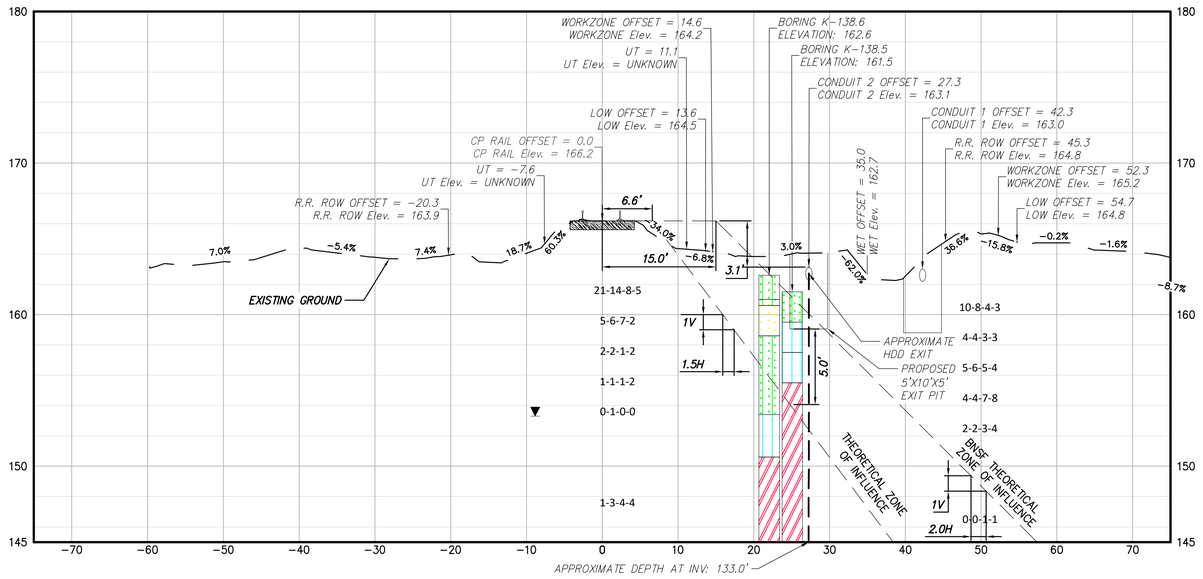
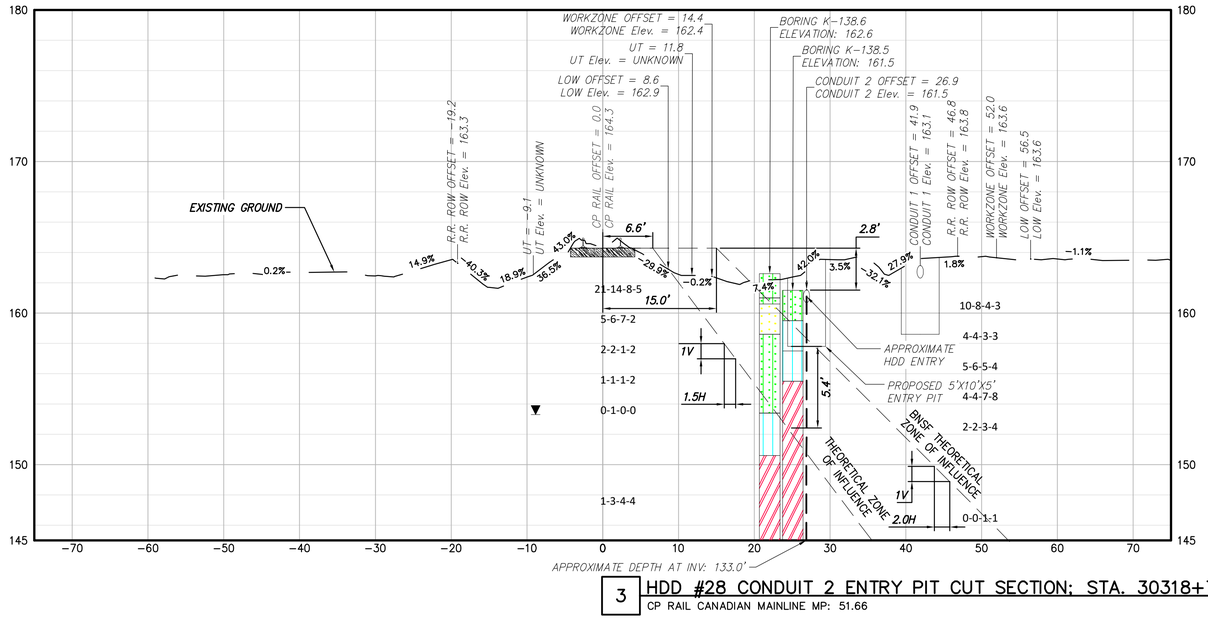


4 HDD #28 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30325+07

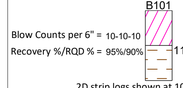
CP RAIL CANADIAN MAINLINE MP: 51.54



3 HDD #28 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30318+76

CP RAIL CANADIAN MAINLINE MP: 51.66

BORING LOG STRIP LEGEND



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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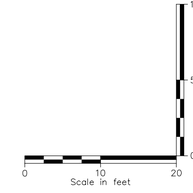

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 28 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-648.1

DRAWN BY: SJM | DESIGNED BY: SJM | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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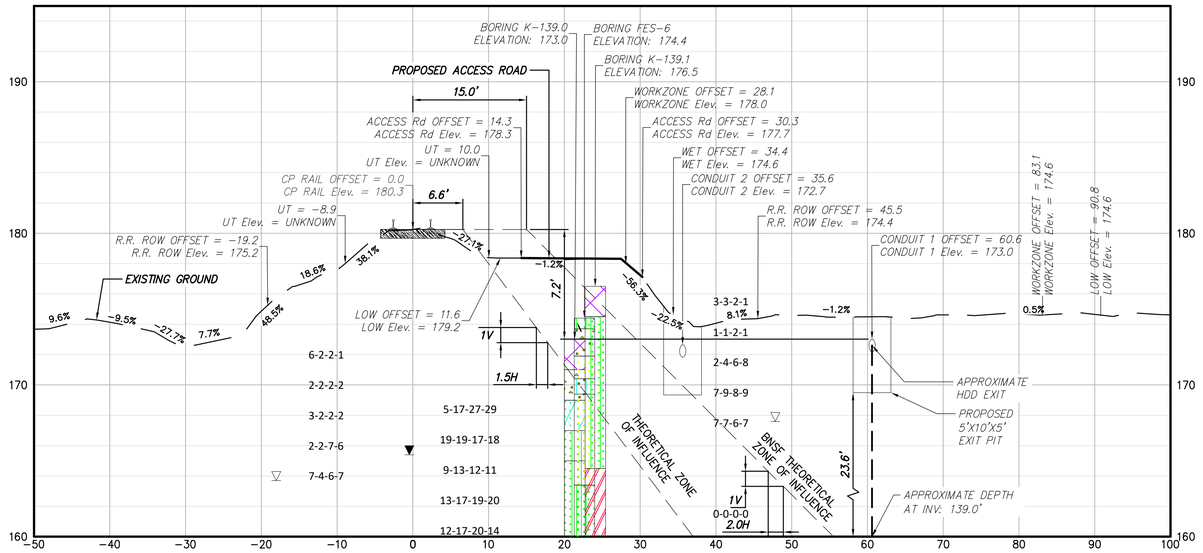
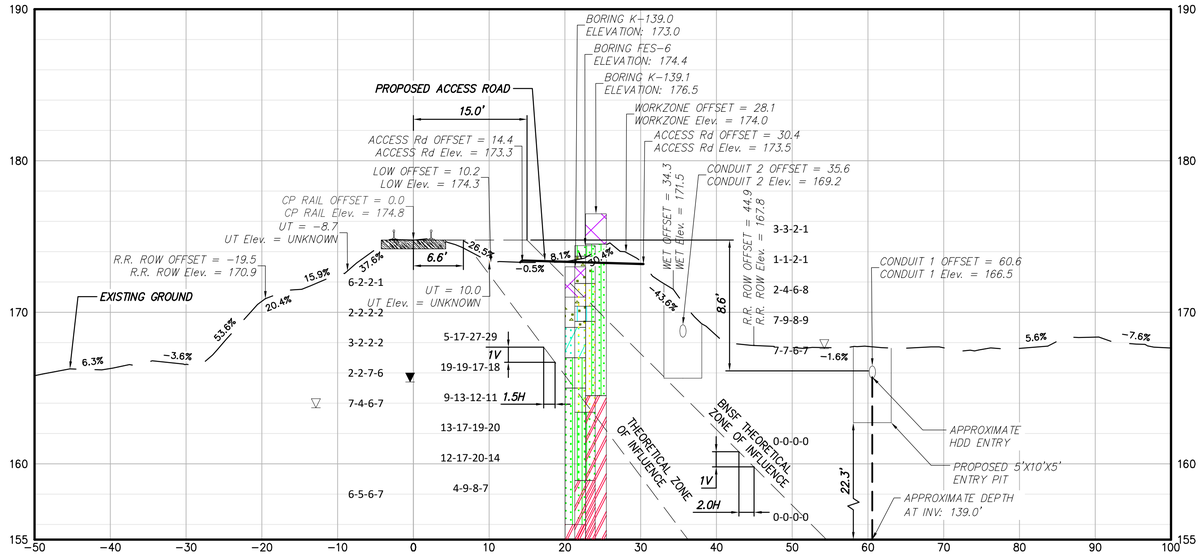


2 HDD #29 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30355+10
CP RAIL CANADIAN MAINLINE MP: 50.96



1 HDD #29 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30344+79
CP RAIL CANADIAN MAINLINE MP: 51.16

BORING LOG STRIP LEGEND



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

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
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CH-MH	SILTY Fat CLAY
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OL/OH	ORGANIC SOIL
PT	PEAT
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Sandstone	Sandstone
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SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
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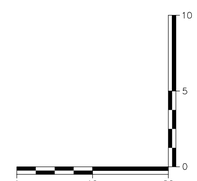
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
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
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 29 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-649

DRAWN BY: SJM | DESIGNED BY: SJM | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-309-C-309A.DWG Saved: 4/3/2023 5:09:54 PM Plotted: 4/4/2023 9:19:28 AM Current User: Snyder, Morgan LastSavedBy: 8275

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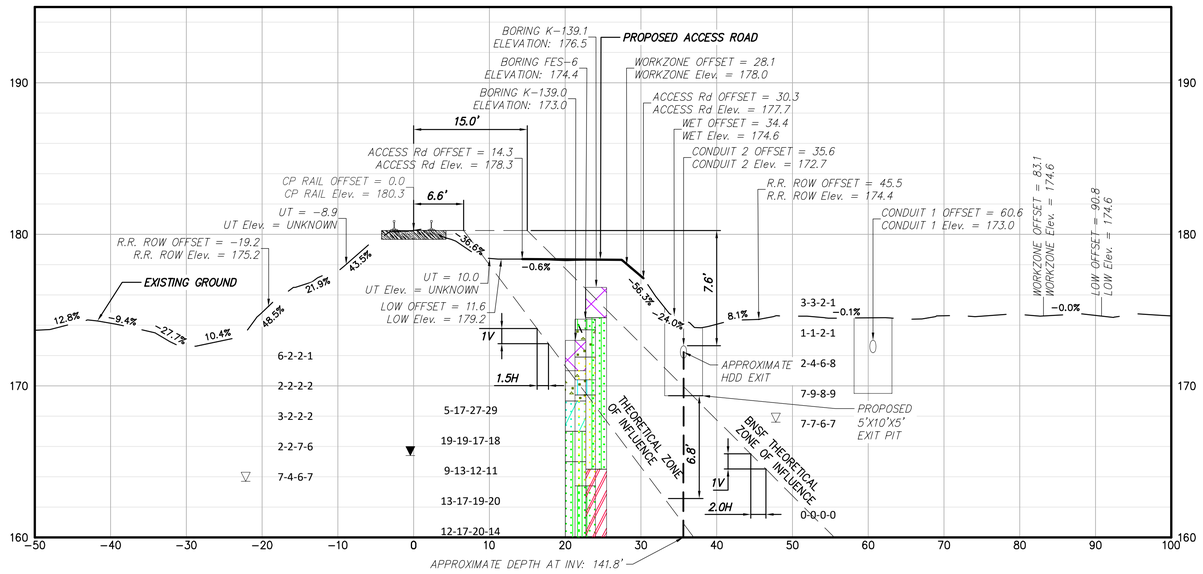
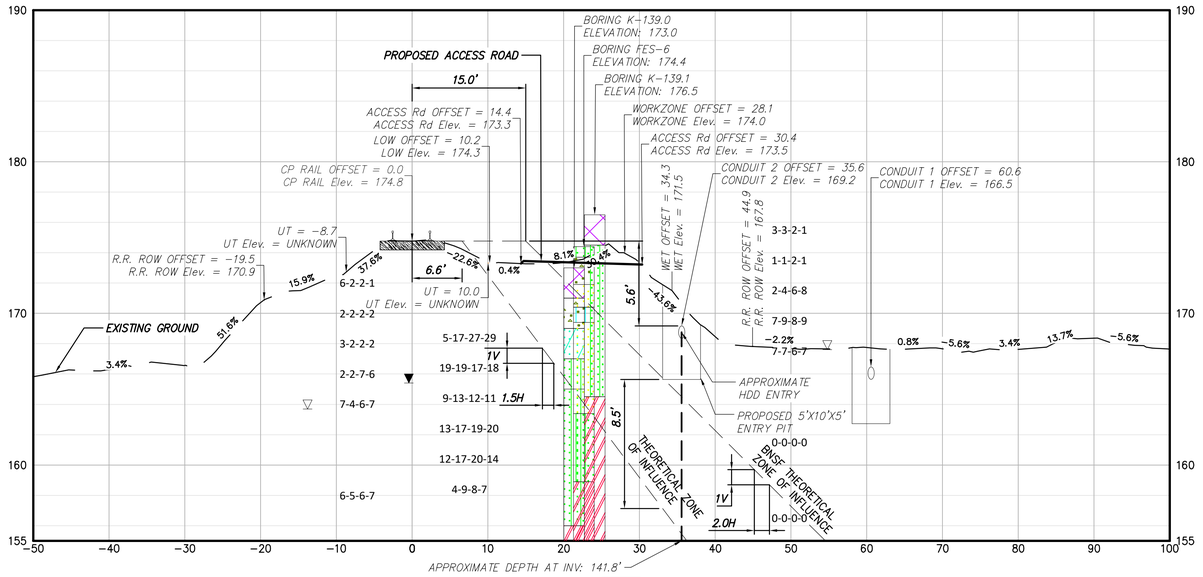


4 HDD #29 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30355+10

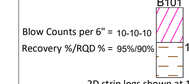
CP RAIL CANADIAN MAINLINE MP: 50.96



3 HDD #29 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30344+79

CP RAIL CANADIAN MAINLINE MP: 51.16

BORING LOG STRIP LEGEND



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
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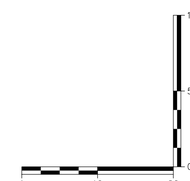
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 29 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-649.1

DRAWN BY: SJM | DESIGNED BY: SJM | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-309-C-309A.DWG Saved: 4/3/2023 5:09:54 PM Plotted: 4/4/2023 9:21:00 AM Current User: Snyder, Morgan LastSavedBy: 8275

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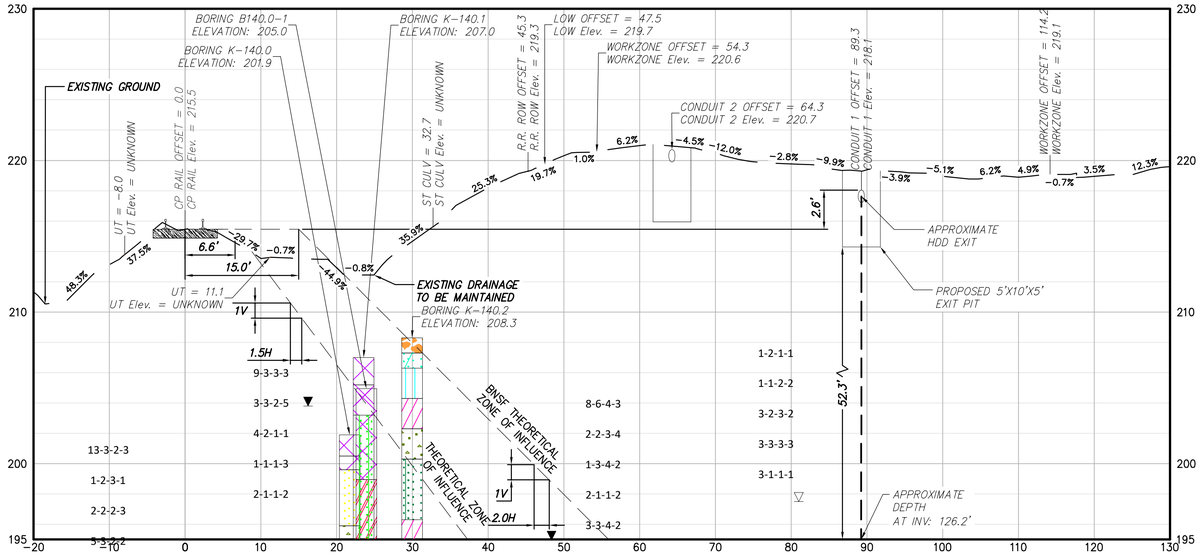
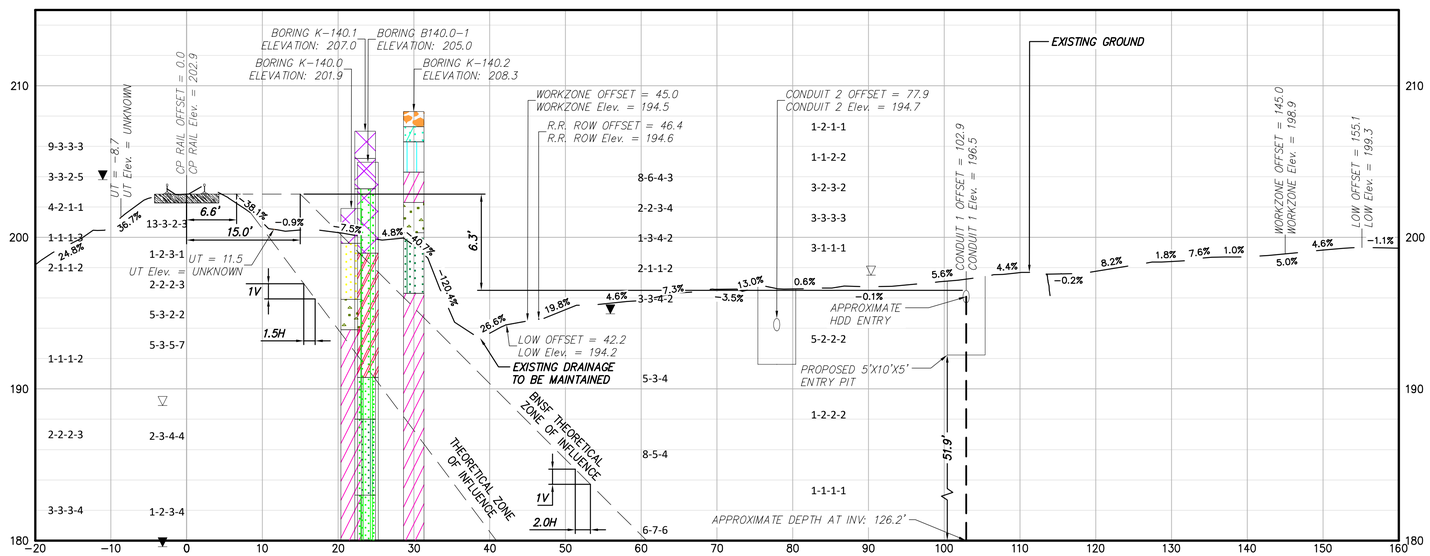


2 HDD #30 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30411+55
CP RAIL CANADIAN MAINLINE MP: 49.90



1 HDD #30 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30392+46
CP RAIL CANADIAN MAINLINE MP: 50.26

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
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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
	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
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	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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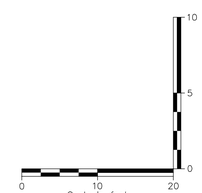

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 30 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-650

DRAWN BY: SJM | DESIGNED BY: SJM | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\K\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-310-C-310A.DWG Saved: 4/4/2023 8:49:43 AM Plotted: 4/4/2023 9:24:29 AM Current User: Snyder, Morgan LastSavedBy: 8275

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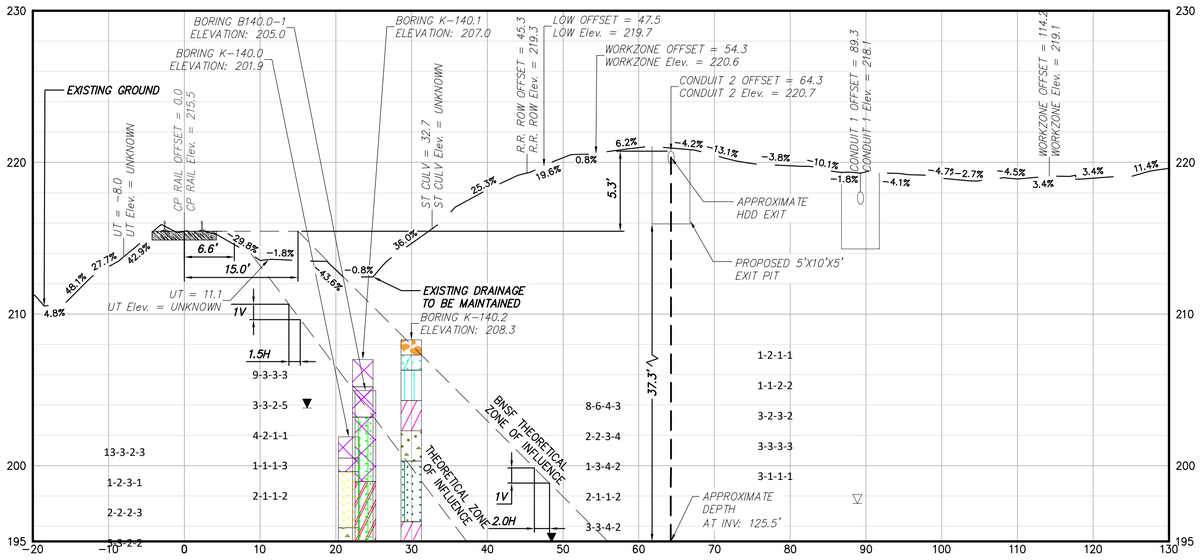
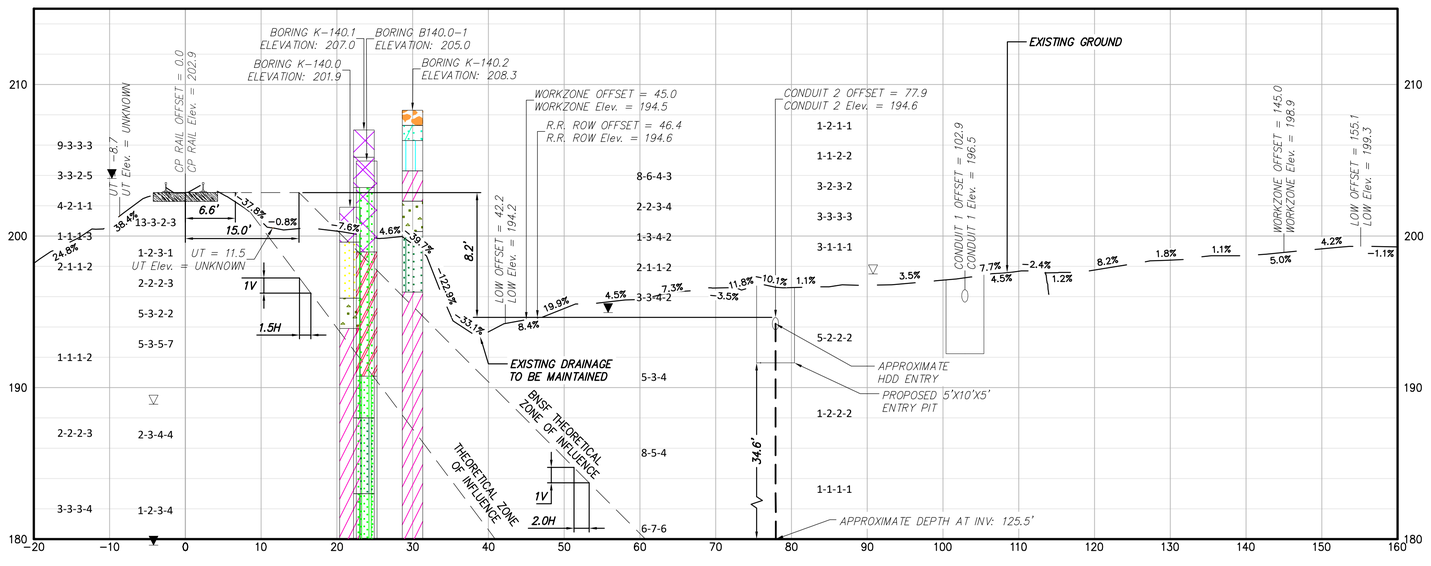


4 HDD #30 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30411+55
CP RAIL CANADIAN MAINLINE MP: 49.90



3 HDD #30 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30392+46
CP RAIL CANADIAN MAINLINE MP: 50.26

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
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	Water	Water
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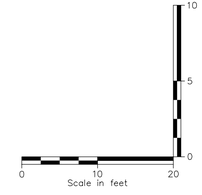

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 30 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-650.1

DRAWN BY: SJM | DESIGNED BY: SJM | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

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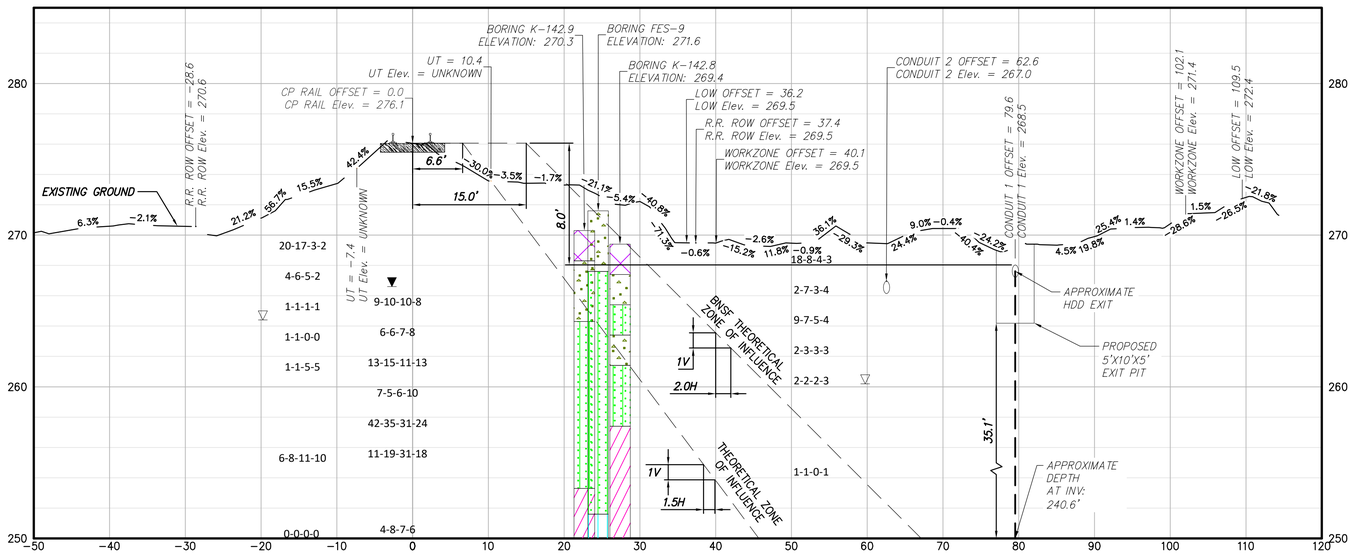
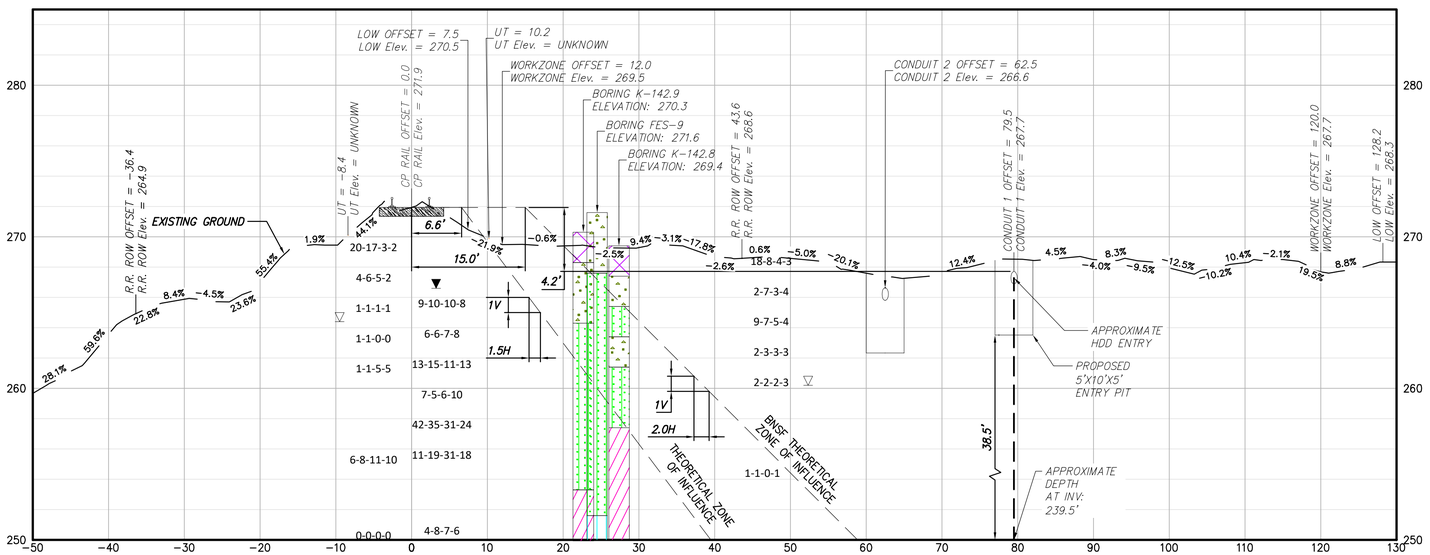


2 HDD #31 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30556+05
CP RAIL CANADIAN MAINLINE MP: 47.17



1 HDD #31 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30545+60
CP RAIL CANADIAN MAINLINE MP: 47.37

BORING LOG STRIP LEGEND

B101

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Recovery %/RQD % = 95%/90%
11000psi =UCS

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3D strip logs have no exaggeration

Legend		
	ASPHALT	Asphalt
	Bedrock	Bedrock
	Boulder	Boulder
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	Water	Water
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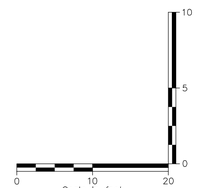

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 31 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-651

DRAWN BY: SJM | DESIGNED BY: SJM | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-311-C-311A.DWG Saved: 3/28/2023 9:03:05 AM Plotted: 4/4/2023 9:32:12 AM Current User: Snyder, Morgan LastSavedBy: 5759

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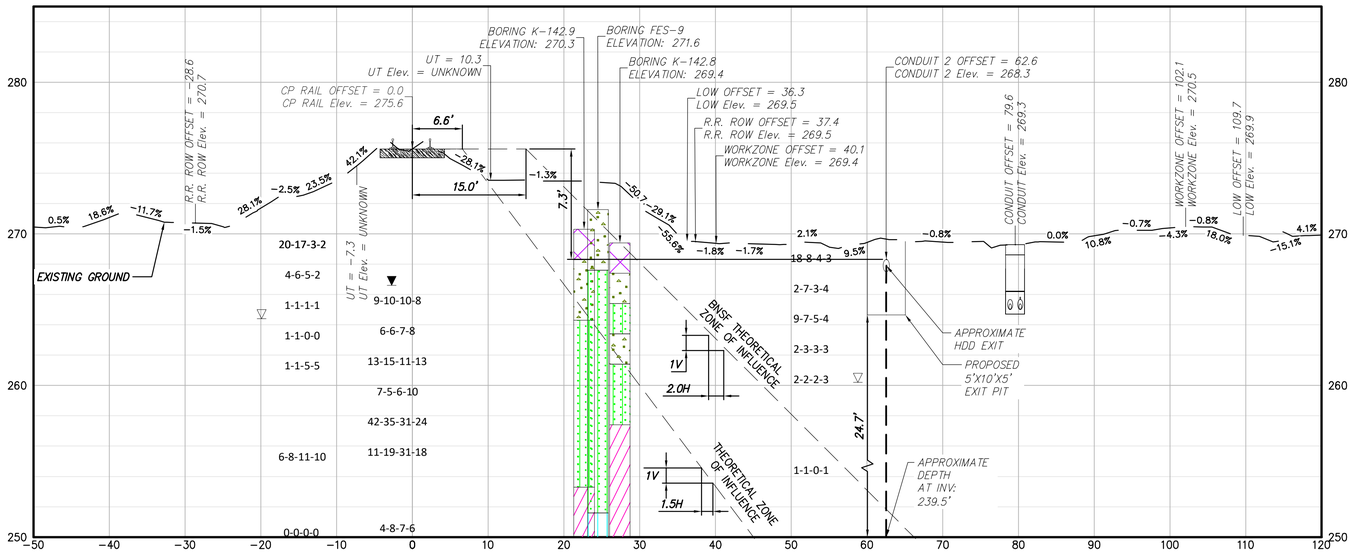
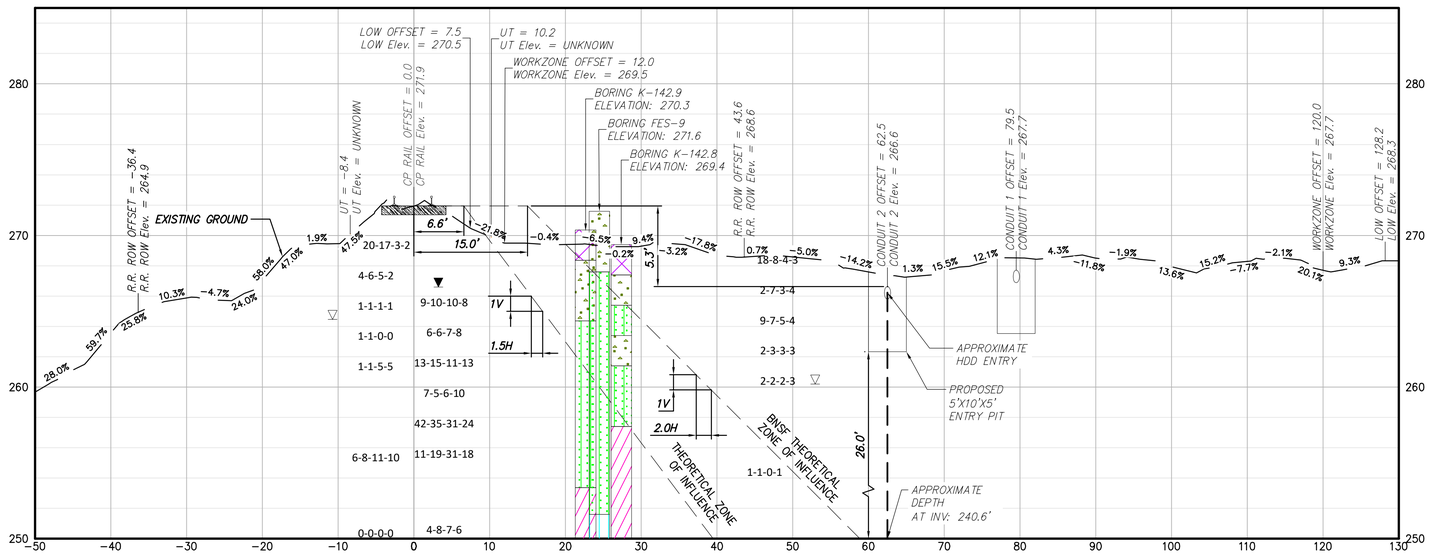


4 HDD #31 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30556+15
CP RAIL CANADIAN MAINLINE MP: 47.17



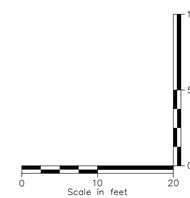
3 HDD #31 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30545+60
CP RAIL CANADIAN MAINLINE MP: 47.37

BORING LOG STRIP LEGEND



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	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 31 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-651.1

DRAWN BY: SJM | DESIGNED BY: SJM | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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GENERAL NOTES:

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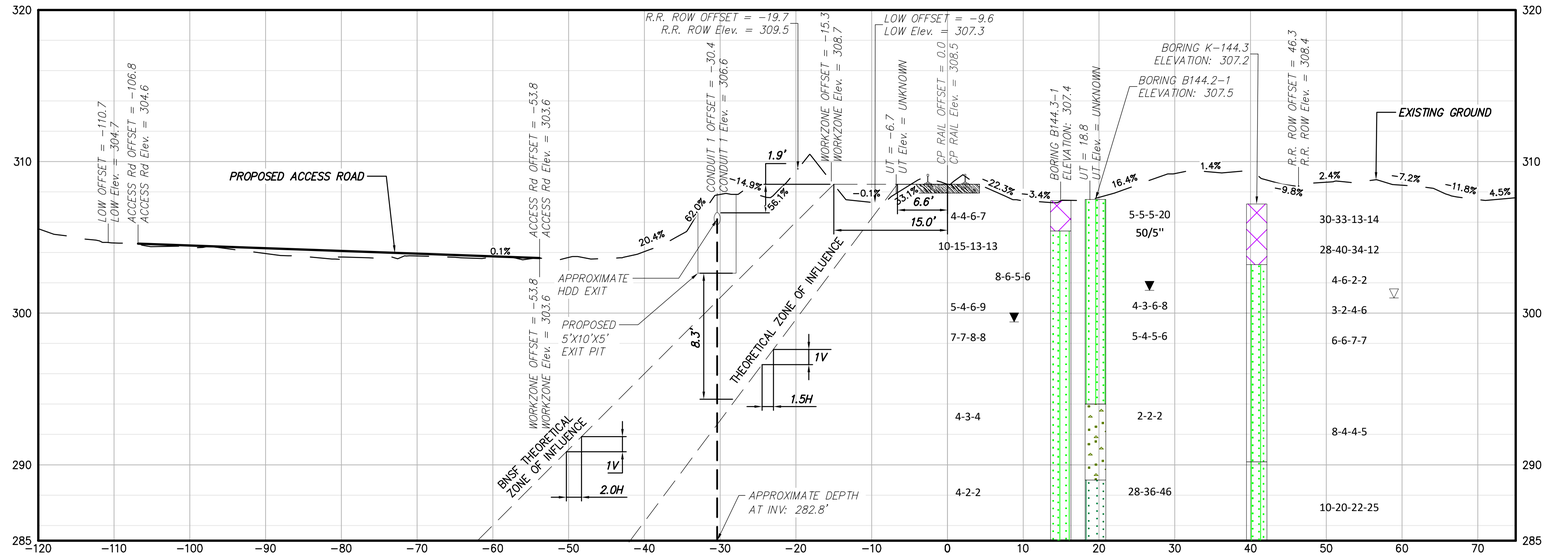
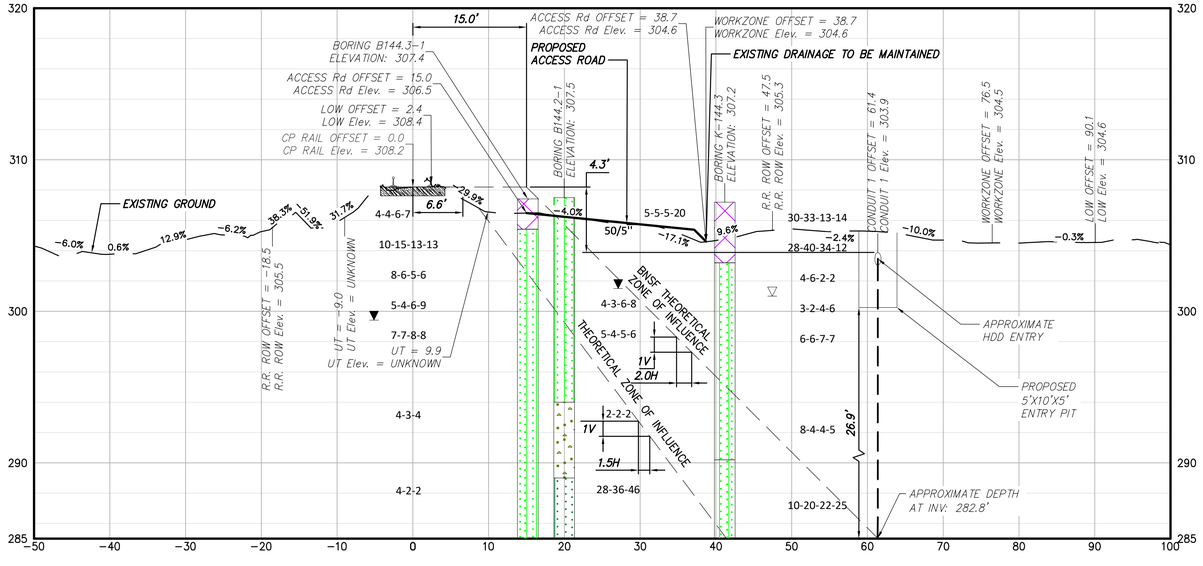


2 HDD #32 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30627+91

CP RAIL CANADIAN MAINLINE MP: 45.82



1 HDD #32 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30619+37

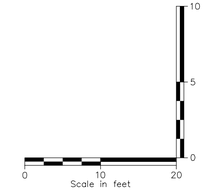
CP RAIL CANADIAN MAINLINE MP: 45.98

BORING LOG STRIP LEGEND



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	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 32 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-652

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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GENERAL NOTES:

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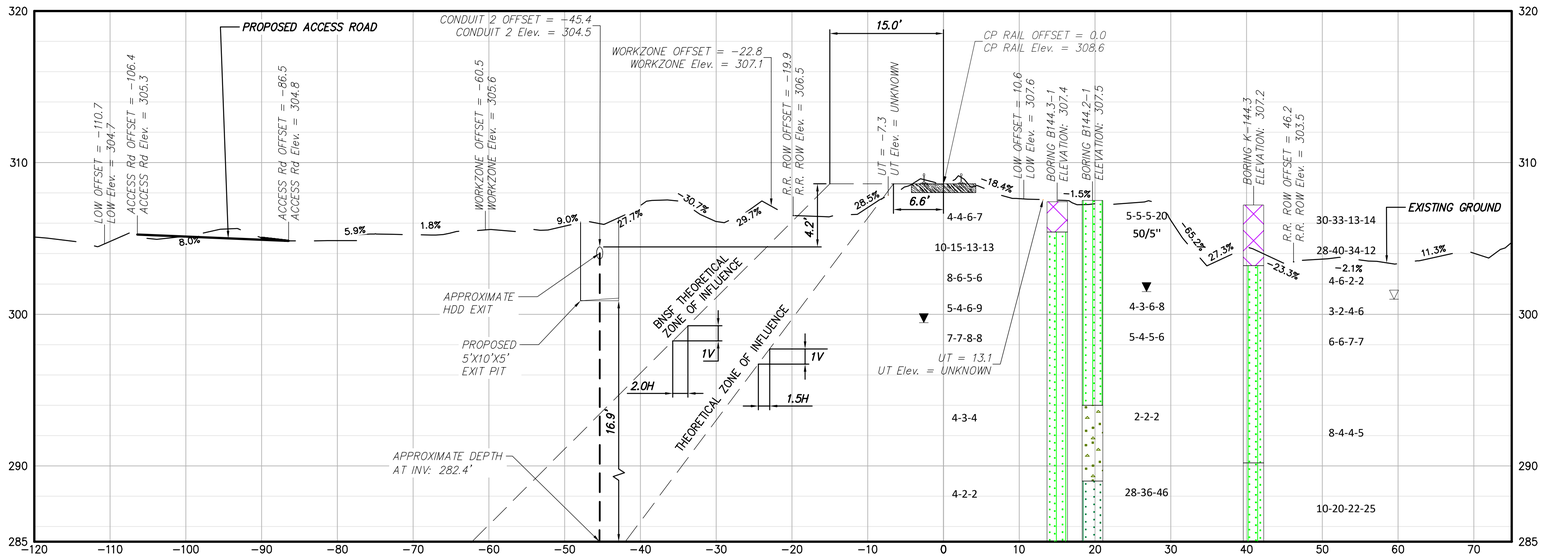
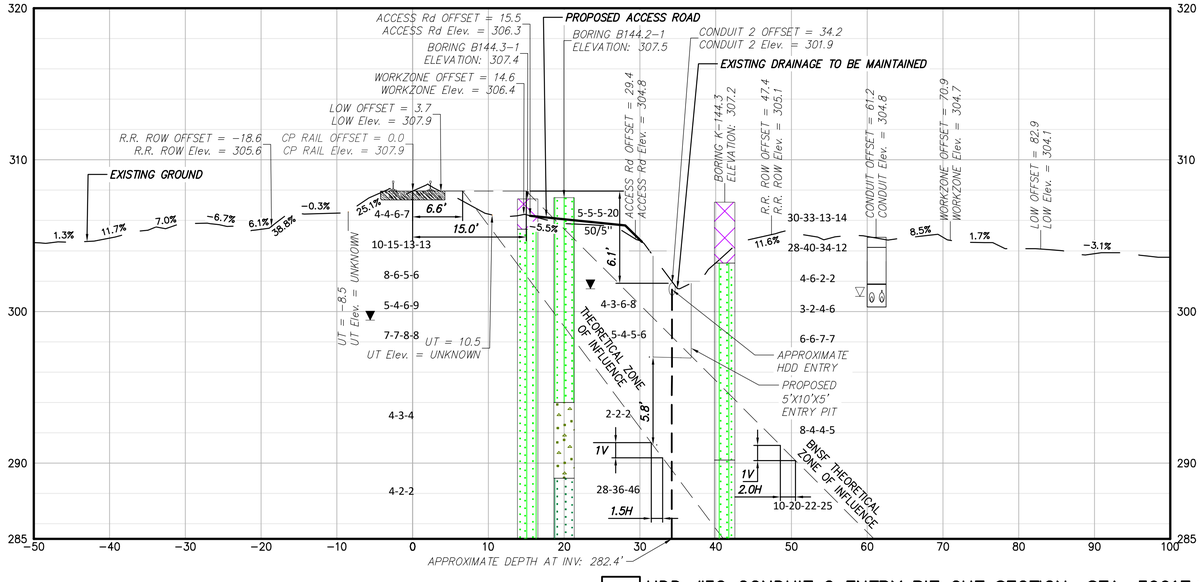


4 HDD #32 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30625+13
CP RAIL CANADIAN MAINLINE MP: 45.87



3 HDD #32 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30617+61
CP RAIL CANADIAN MAINLINE MP: 46.01

BORING LOG STRIP LEGEND



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-GM	Well Graded GRAVEL with SILT
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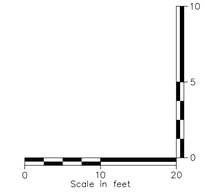
MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
SP	Poorly Graded SAND
SP-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	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



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 32 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-652.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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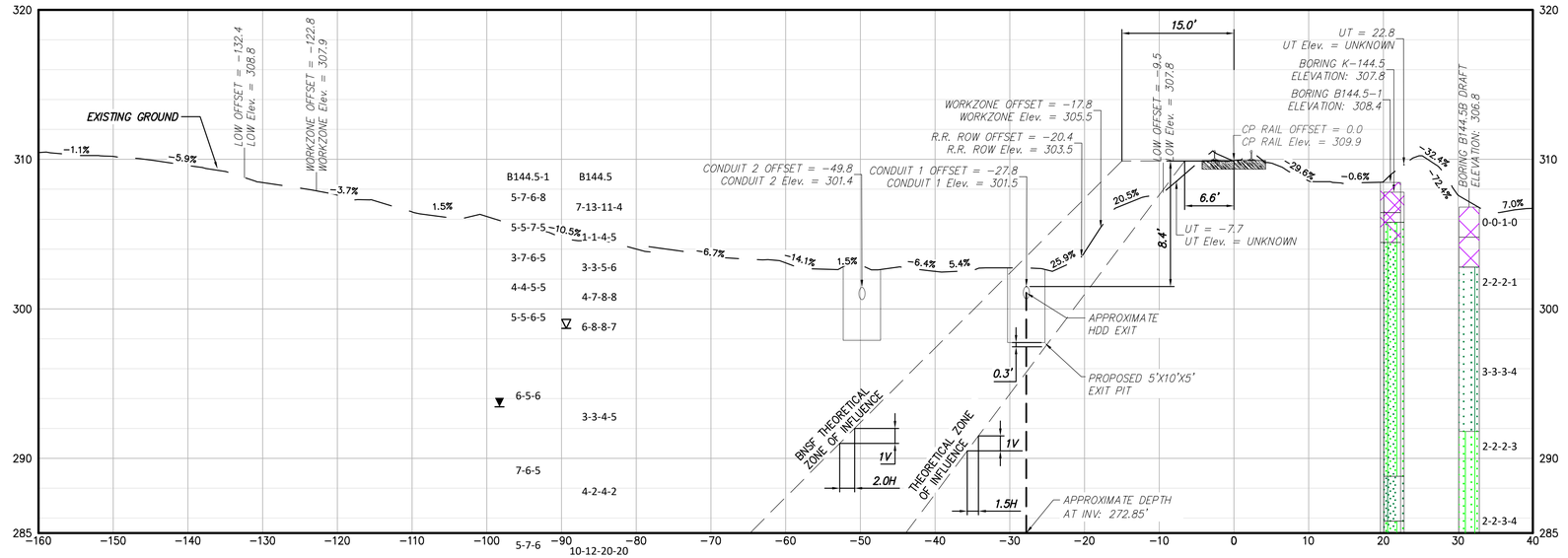
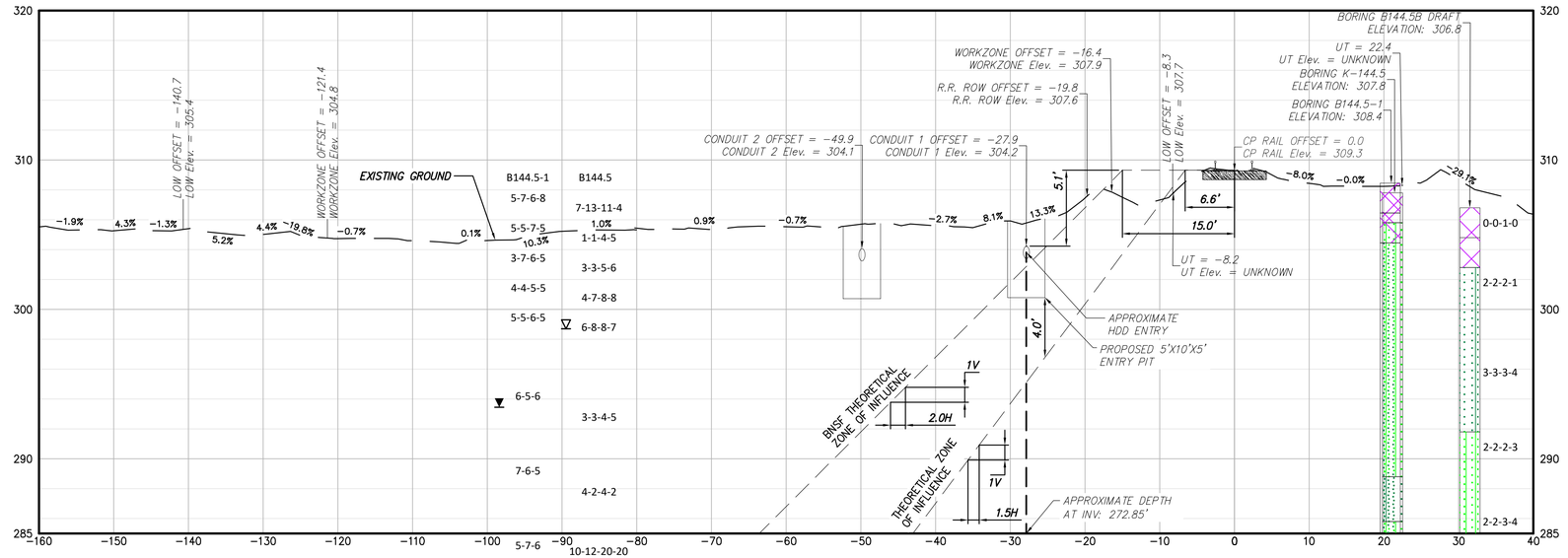


2 HDD #32A CONDUIT 1 EXIT PIT CUT SECTION; STA. 30639+20

CP RAIL CANADIAN MAINLINE MP: 45.60



1 HDD #32A CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30633+01

CP RAIL CANADIAN MAINLINE MP: 45.72

BORING LOG STRIP LEGEND



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
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GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
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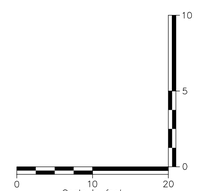
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC Lean CLAY
OL/OH	ORGANIC SOIL
PT	PEAT
Rock	Rock
Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
SP	Poorly Graded SAND
SP-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
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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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 32A RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-653

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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GENERAL NOTES:

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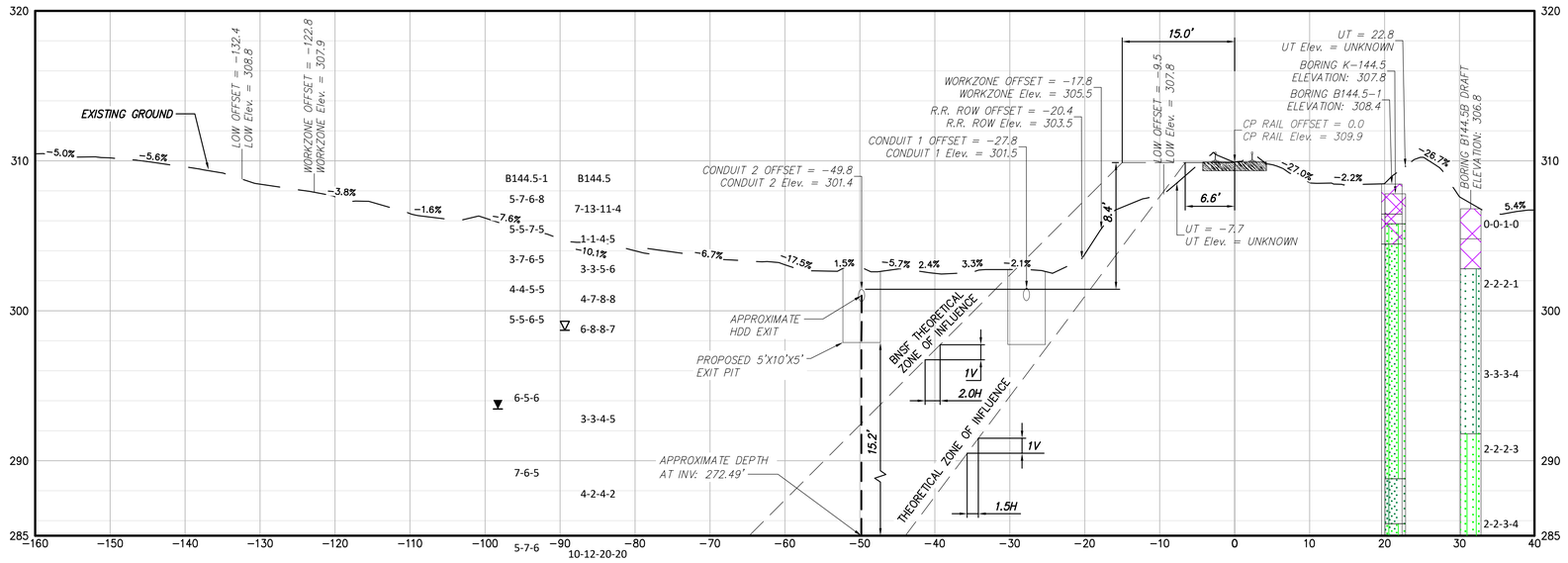
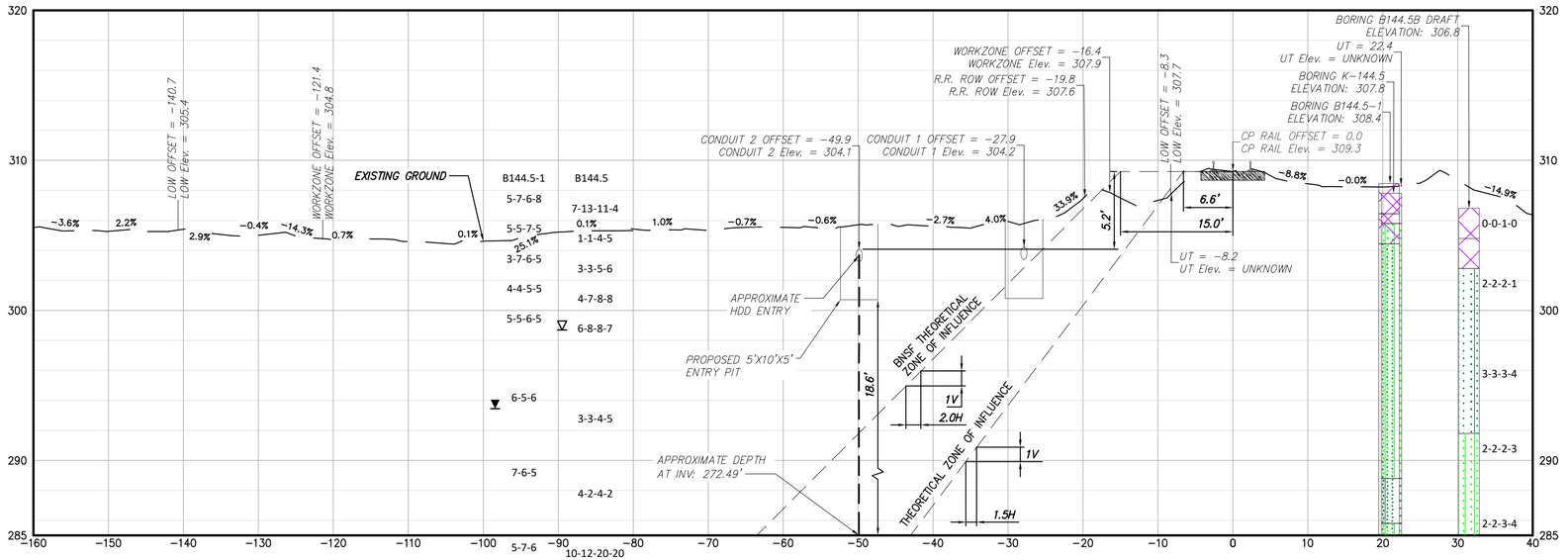
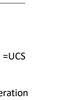


4 HDD #32A CONDUIT 2 EXIT PIT CUT SECTION; STA. 30639+20
CP RAIL CANADIAN MAINLINE MP: 45.60



3 HDD #32A CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30633+01
CP RAIL CANADIAN MAINLINE MP: 45.72

BORING LOG STRIP LEGEND



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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	OL/OH	ORGANIC SOIL
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	SHALE	Shale
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	SW	Well graded SAND
	SW-SC	Well Graded SAND with CLAY
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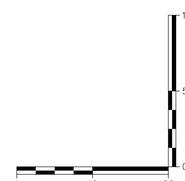
	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
	USGS 705	Schist
	USGS 705	Schist
	USGS 708	Gneiss
	USGS 708	Gneiss
	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
▽	Delayed Water Table	Water Table after drilling



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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 32A RAILROAD CROSS SECTION CUT

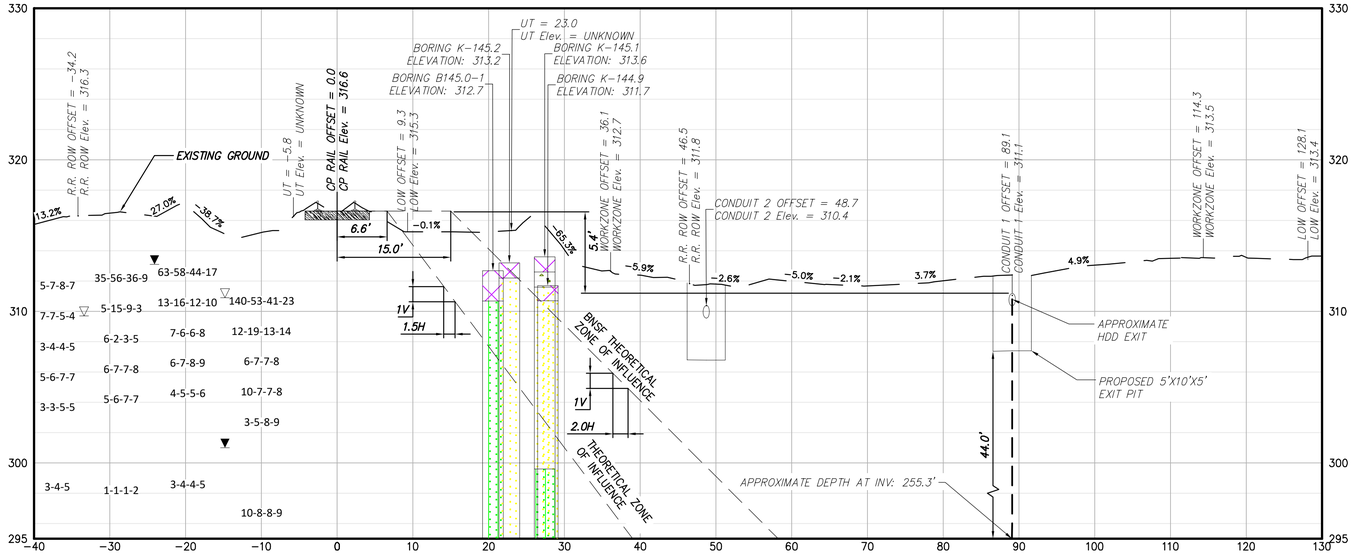
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-653.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

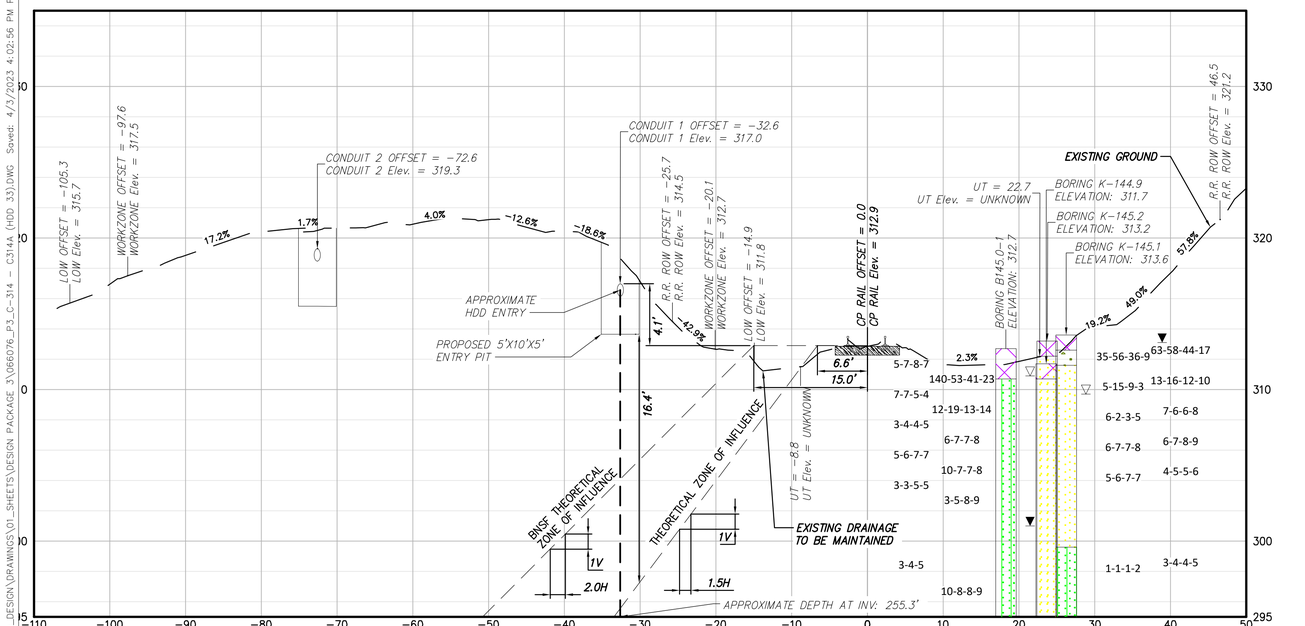
File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-313-C-313A.DWG Saved: 3/30/2023 12:23:22 PM Plotted: 4/4/2023 9:41:59 AM Current User: Snyder, Morgan LastSavedBy: 6043

GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.

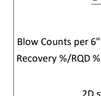


2 HDD #33 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30675+26
CP RAIL CANADIAN MAINLINE MP: 44.92



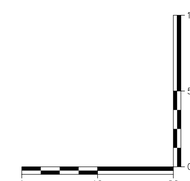
1 HDD #33 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30656+81
CP RAIL CANADIAN MAINLINE MP: 45.27

BORING LOG STRIP LEGEND



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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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 33 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-654

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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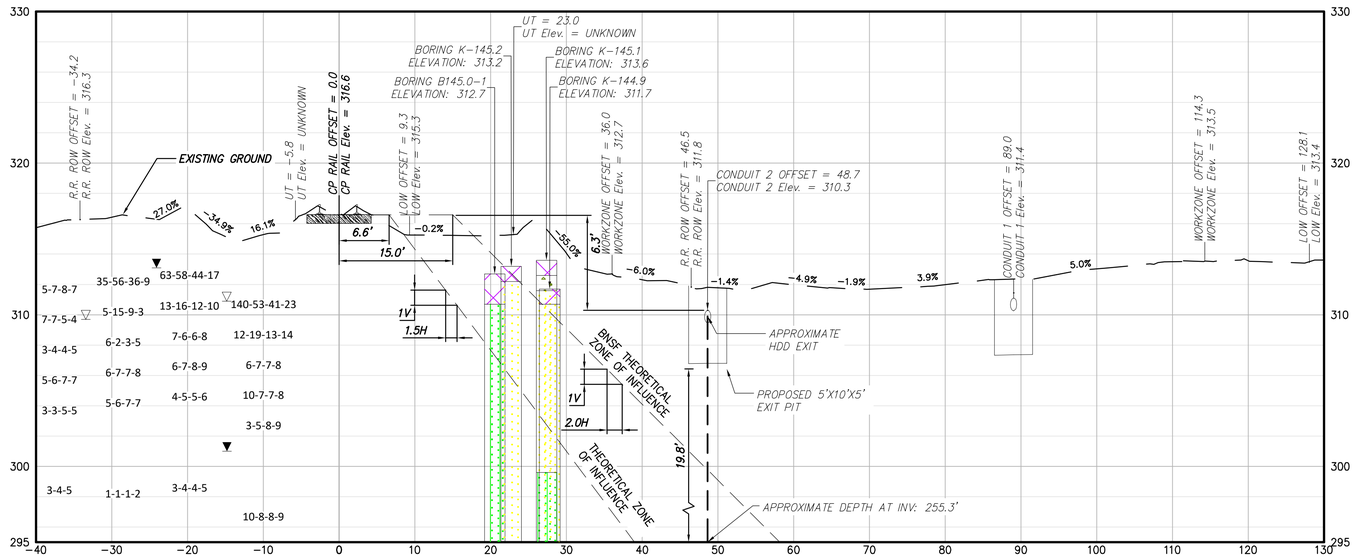
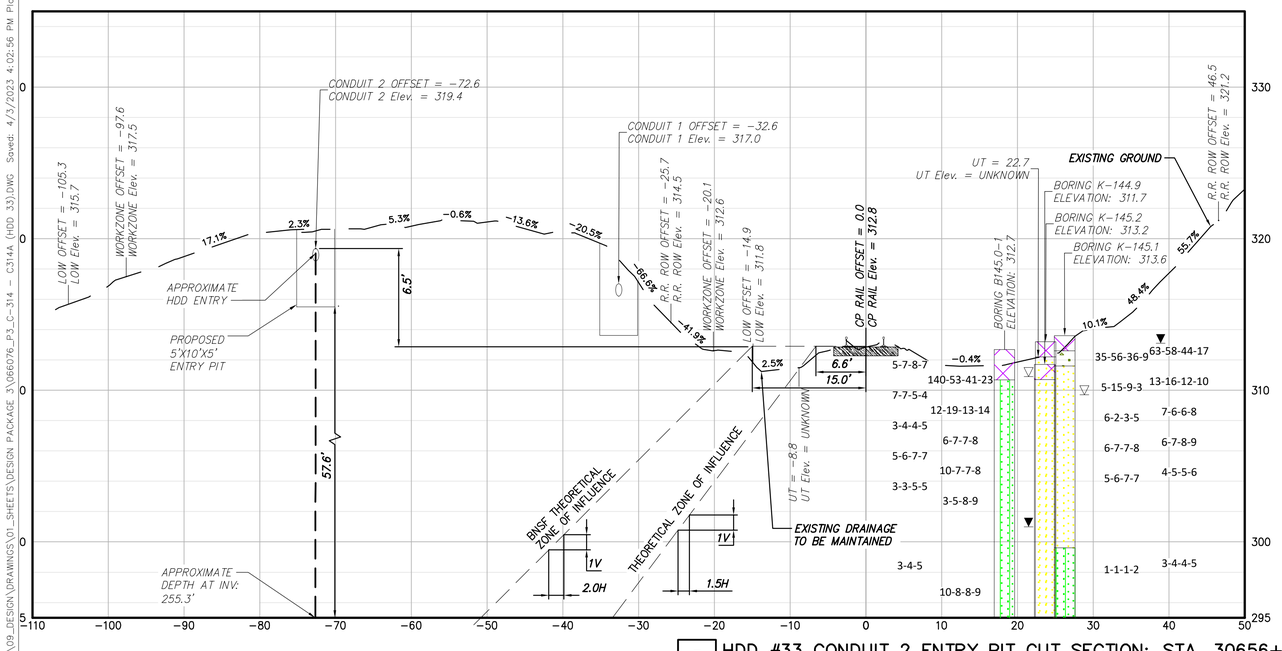
GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.



4 HDD #33 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30675+20
CP RAIL CANADIAN MAINLINE MP: 44.92



3 HDD #33 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30656+80
CP RAIL CANADIAN MAINLINE MP: 45.27

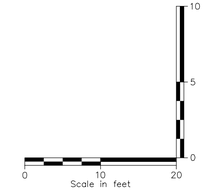
BORING LOG STRIP LEGEND

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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0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 33 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-654.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

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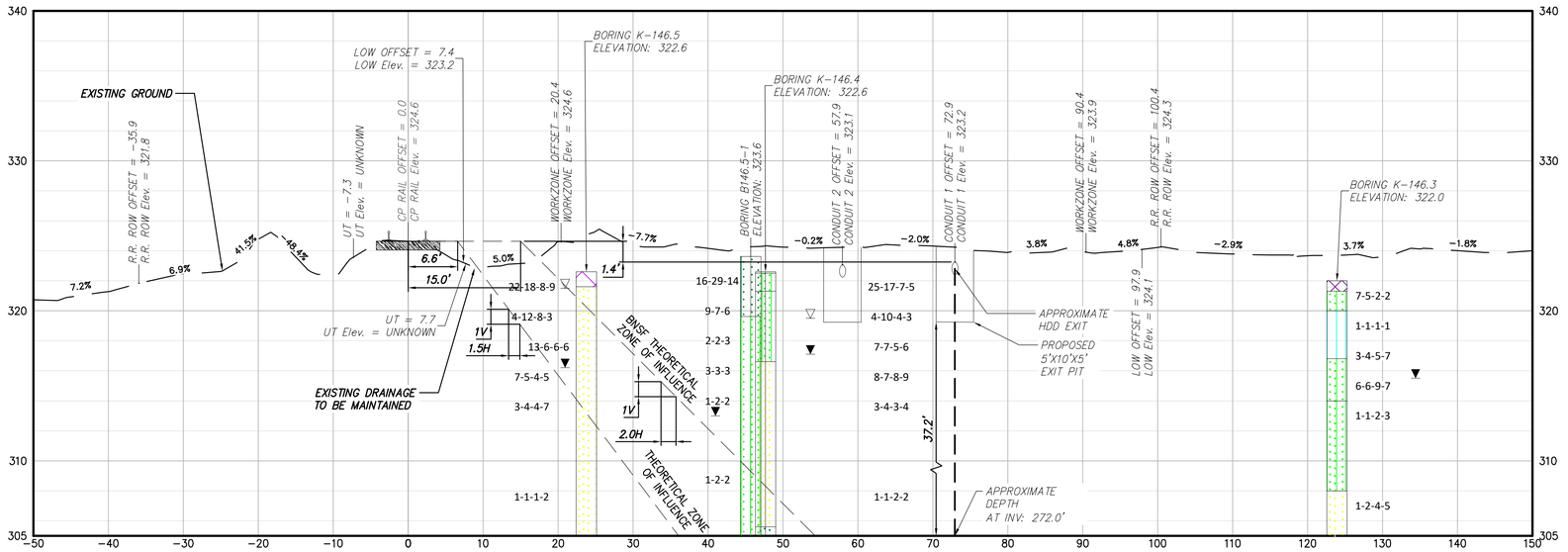
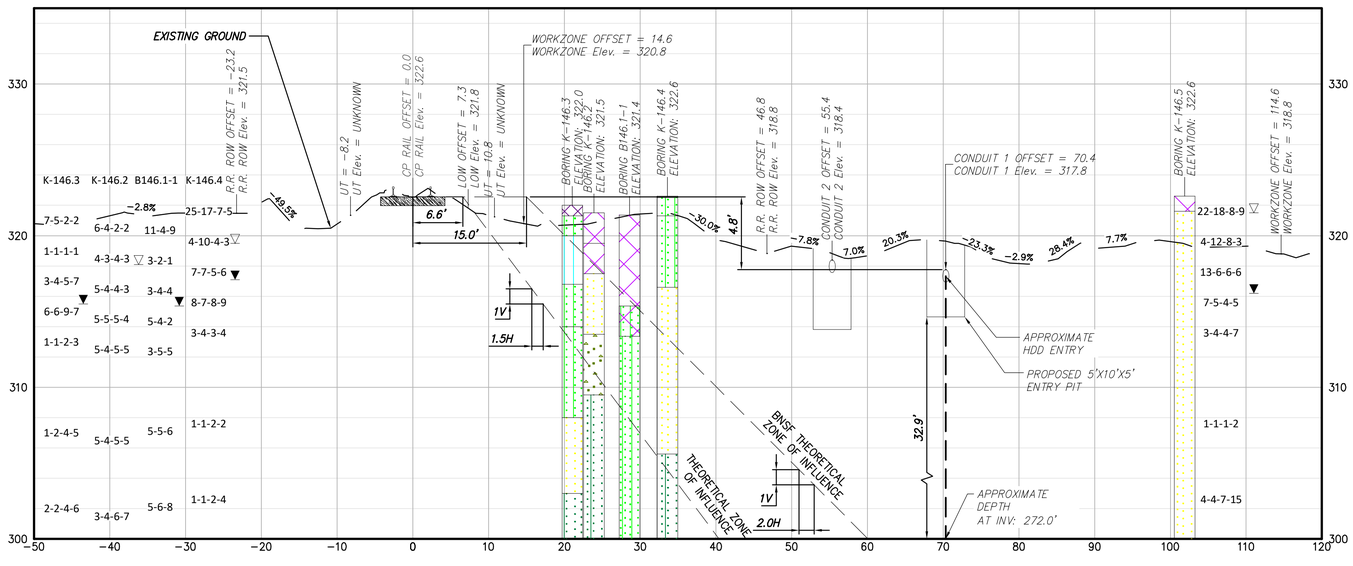


2 HDD #35 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30745+39
CP RAIL CANADIAN MAINLINE MP: 43.25



1 HDD #35 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30720+01
CP RAIL CANADIAN MAINLINE MP: 44.08

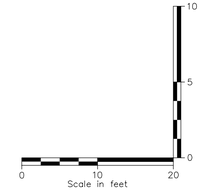
BORING LOG STRIP LEGEND

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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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 35 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-655

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

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GENERAL NOTES:

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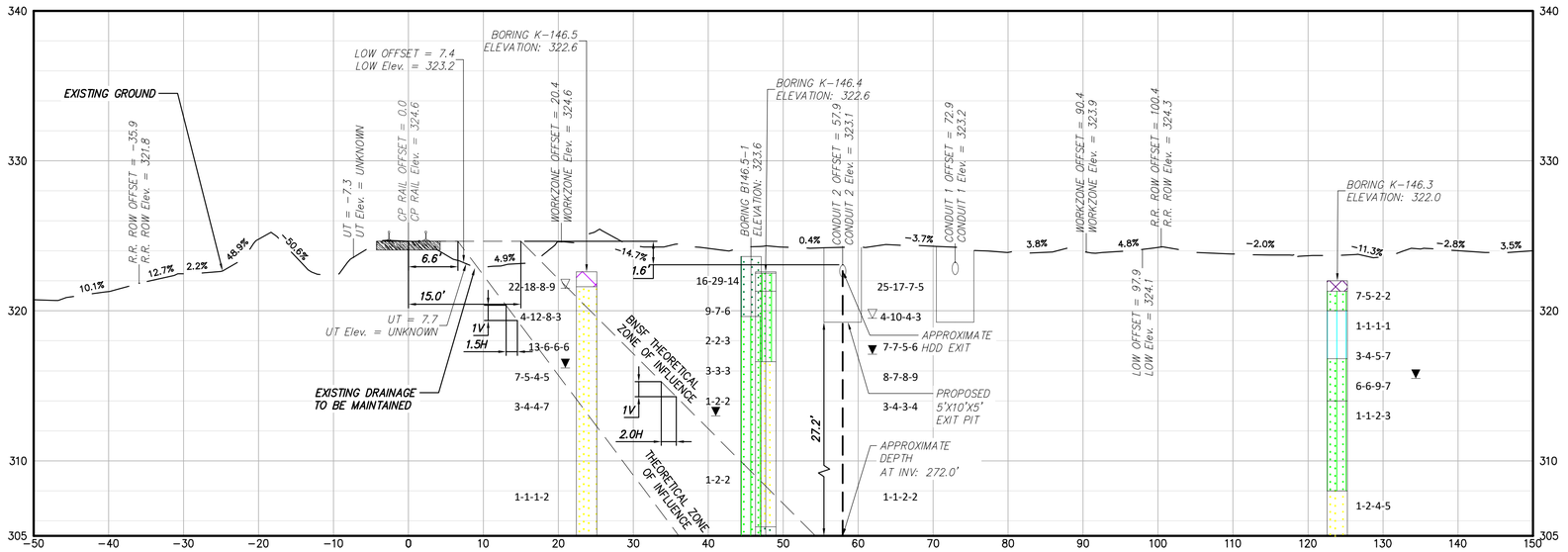
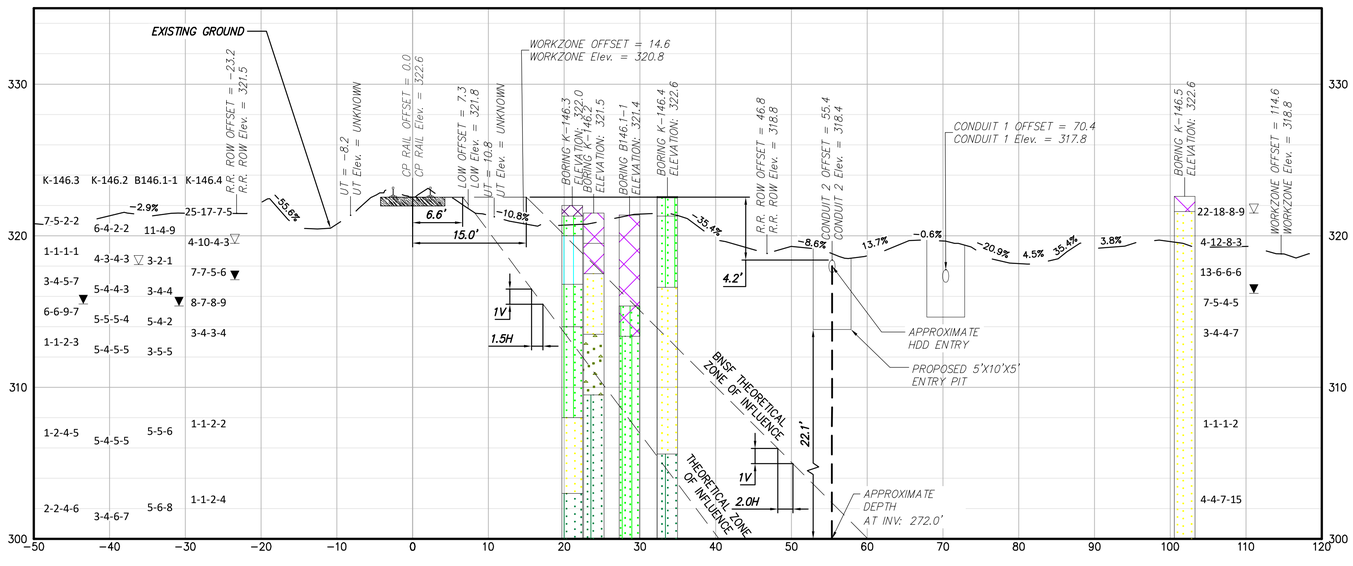


4 HDD #35 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30745+39
CP RAIL CANADIAN MAINLINE MP: 43.25



3 HDD #35 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30720+01
CP RAIL CANADIAN MAINLINE MP: 44.08

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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SC-SM	SILT, CLAYEY SAND
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USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
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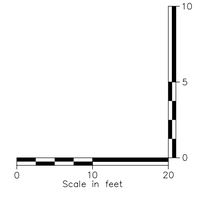
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 35 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-655.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-316 - C316A.DWG Saved: 4/3/2023 4:18:10 PM Plotted: 4/4/2023 9:52:04 AM Current User: Snyder, Morgan LastSavedBy: 8275

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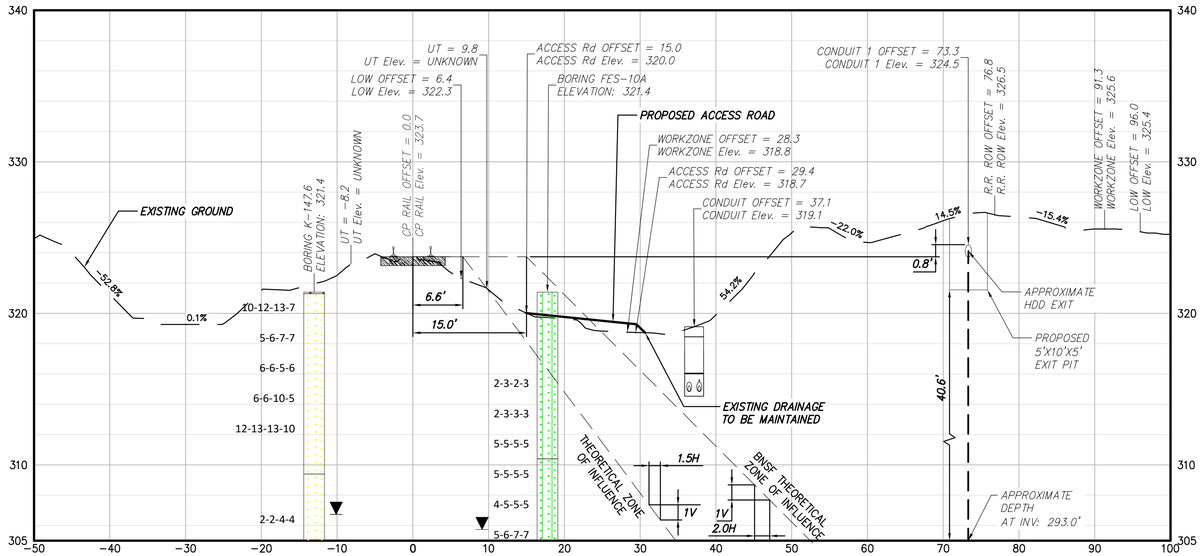
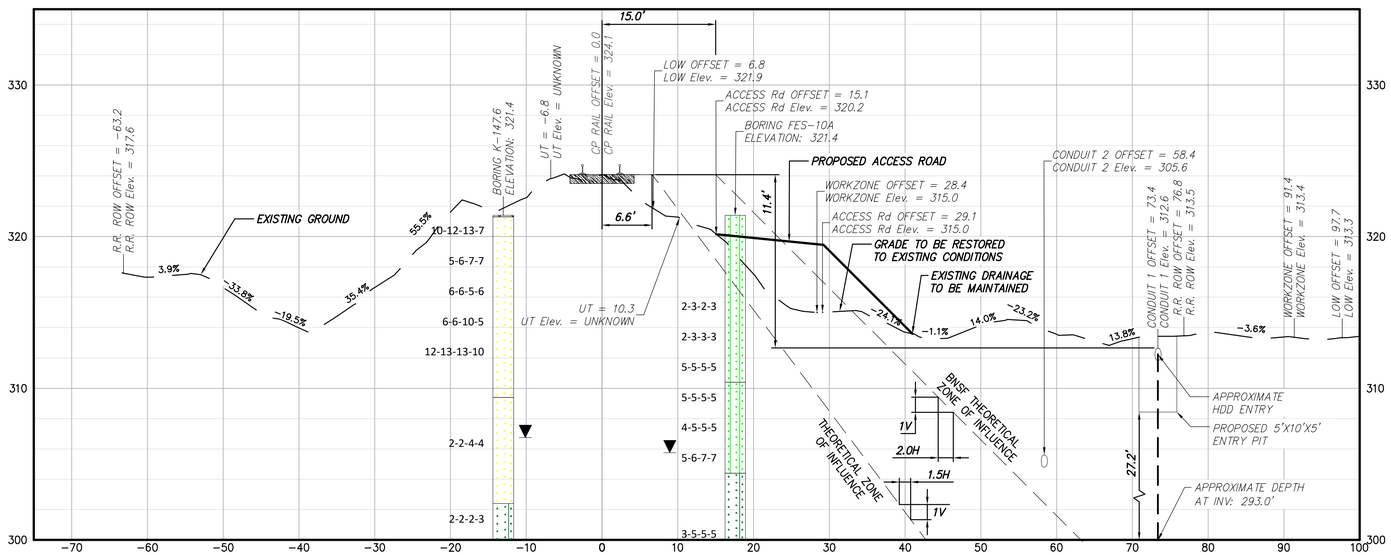


2 HDD #36 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30802+58
CP RAIL CANADIAN MAINLINE MP: 42.17



1 HDD #36 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30796+42
CP RAIL CANADIAN MAINLINE MP: 42.28

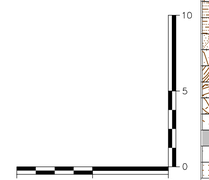
BORING LOG STRIP LEGEND

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
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 36 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-656

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-317 - C317A.DWG Saved: 4/3/2023 4:03:06 PM Plotted: 4/4/2023 9:55:51 AM Current User: Snyder, Morgan LastSavedBy: 8275

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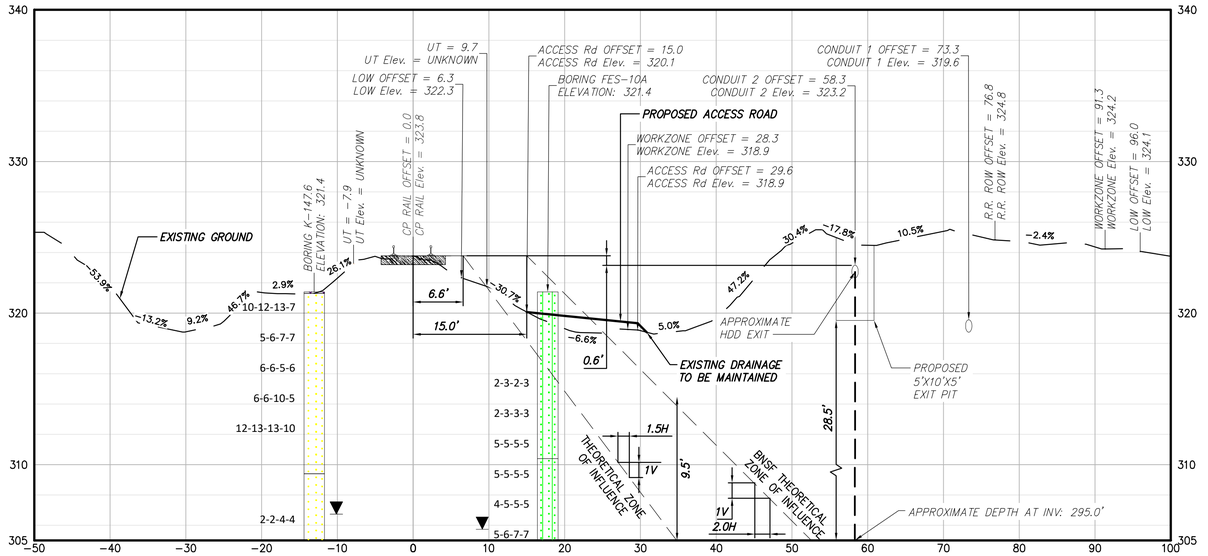
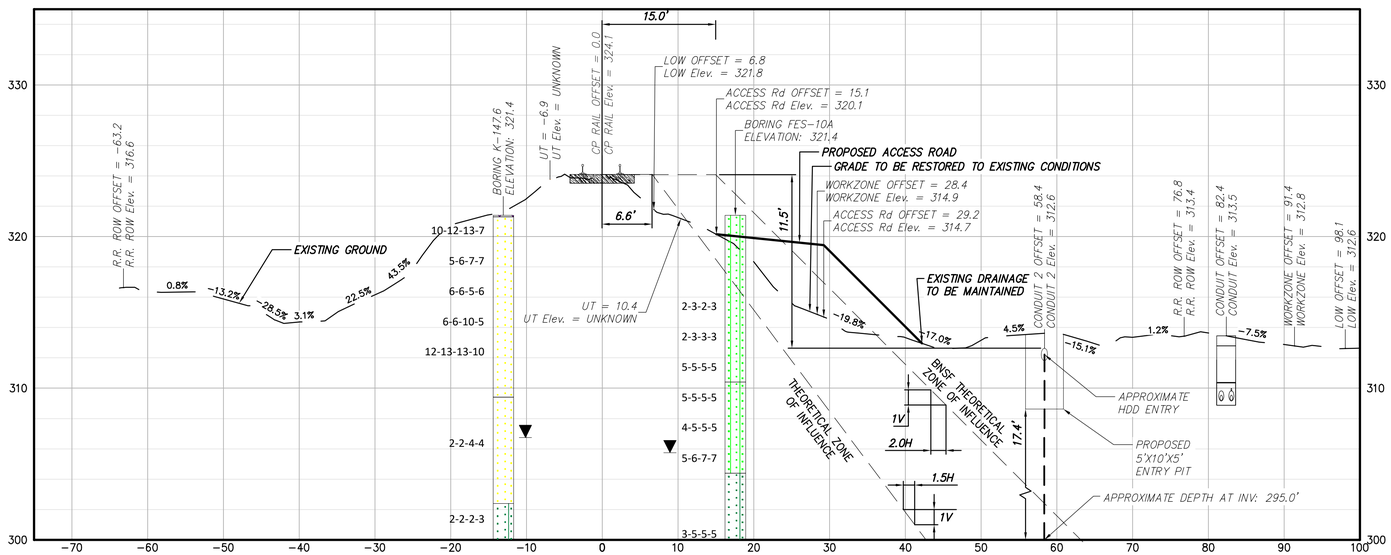
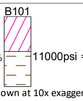


4 HDD #36 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30802+29
CP RAIL CANADIAN MAINLINE MP: 42.17



3 HDD #36 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30795+92
CP RAIL CANADIAN MAINLINE MP: 42.29

BORING LOG STRIP LEGEND



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
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USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
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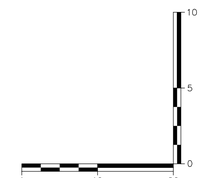
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 36 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-656.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-317 - C317A.DWG Saved: 4/3/2023 4:03:06 PM Plotted: 4/4/2023 9:57:17 AM Current User: Snyder, Morgan LastSavedBy: 8275

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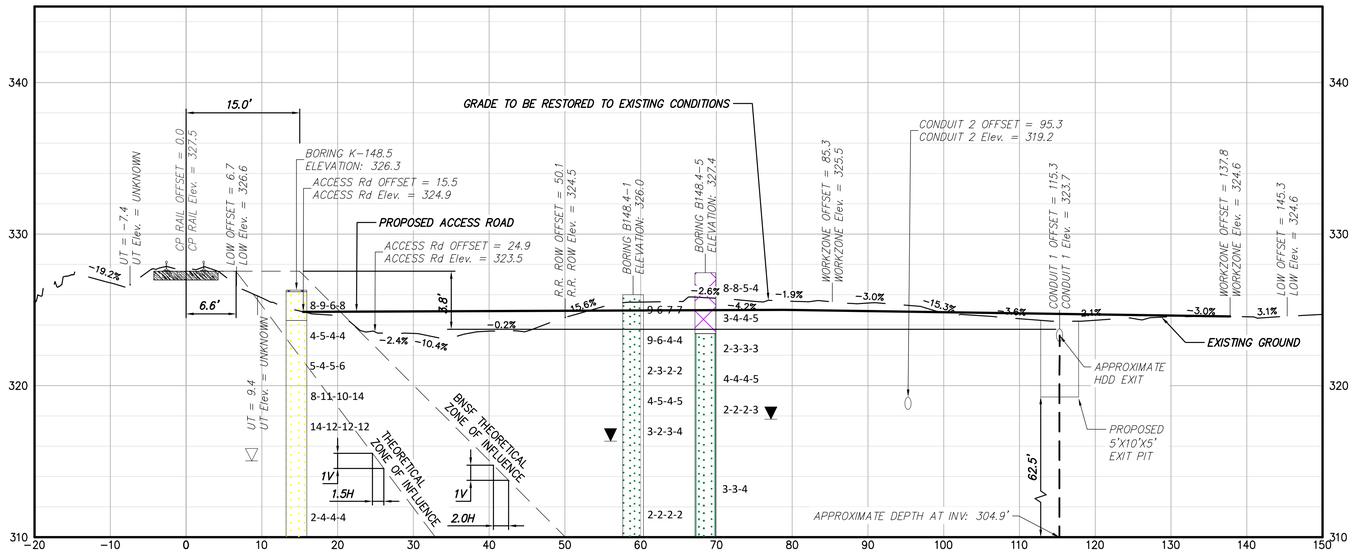
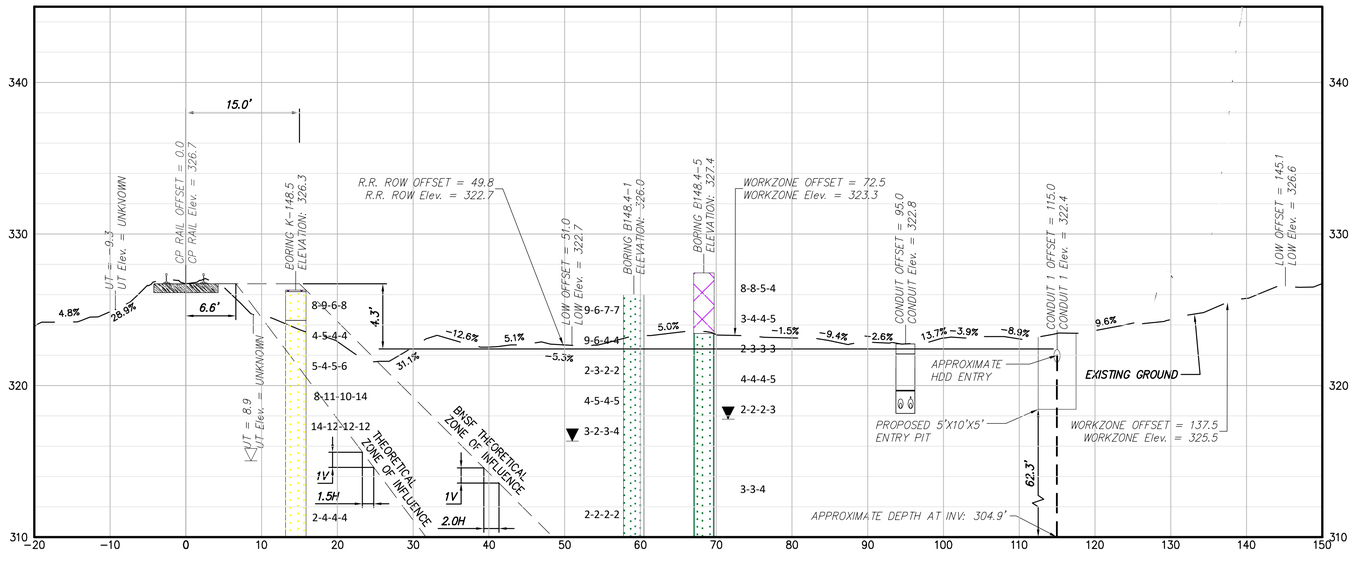


2 HDD #37 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30846+74

CP RAIL CANADIAN MAINLINE MP: 40.82



1 HDD #37 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30839+19

CP RAIL CANADIAN MAINLINE MP: 41.48

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

Recovery %/RQD % = 95%/90%

1000psi =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	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
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	USGS 708	Gneiss
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	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
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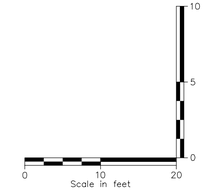

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 37 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-657

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-318 - C318A.DWG Saved: 4/4/2023 1:01:27 PM Plotted: 4/4/2023 1:05:41 PM Current User: Snyder, Morgan LastSavedBy: 6043

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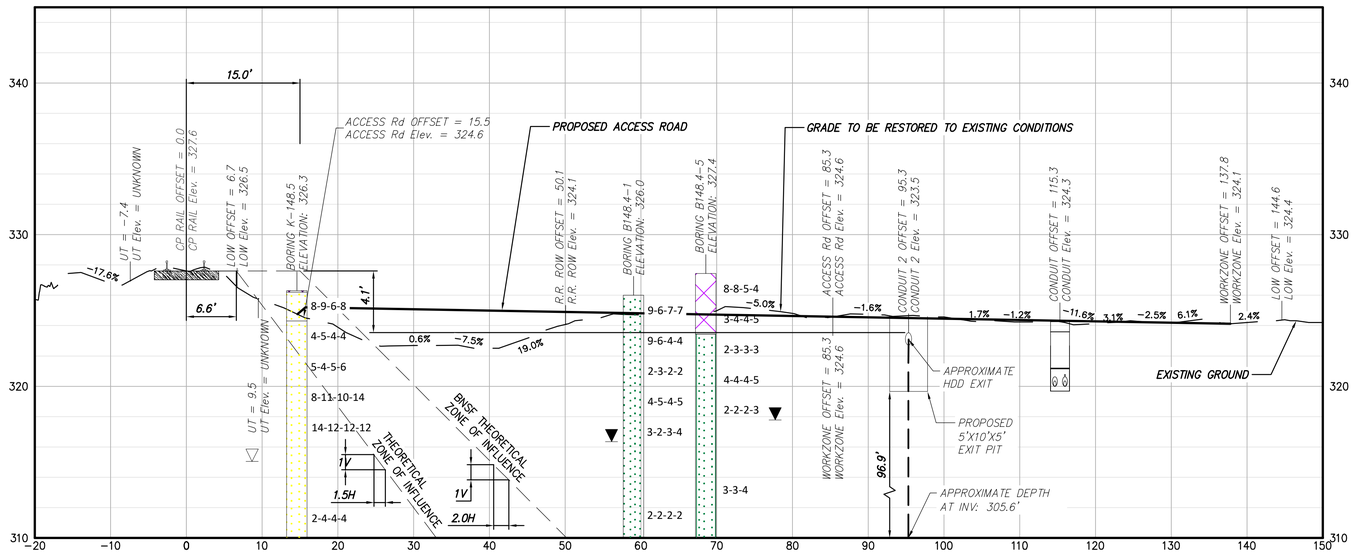
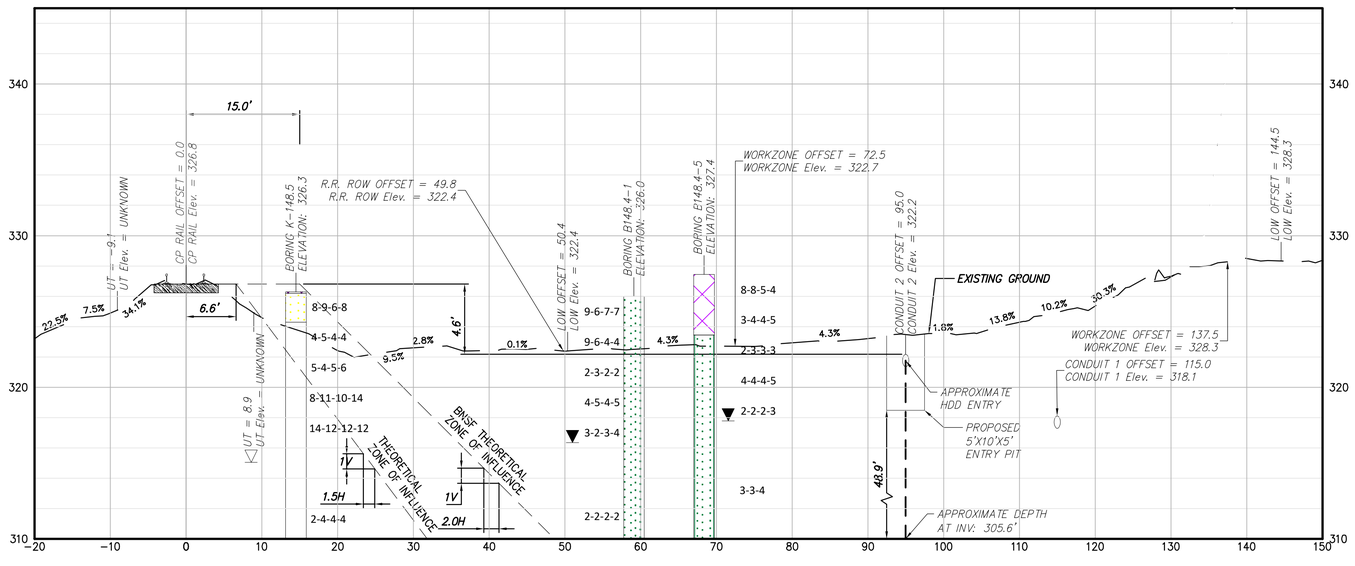


4 HDD #37 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30847+05

CP RAIL CANADIAN MAINLINE MP: 40.82



3 HDD #37 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30839+49

CP RAIL CANADIAN MAINLINE MP: 41.47

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
BR	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
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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
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	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

10
5
0
0
10
20
Scale in feet

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CHAMPLAIN HUDSON POWER EXPRESS

SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON

HDD 37 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-657.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

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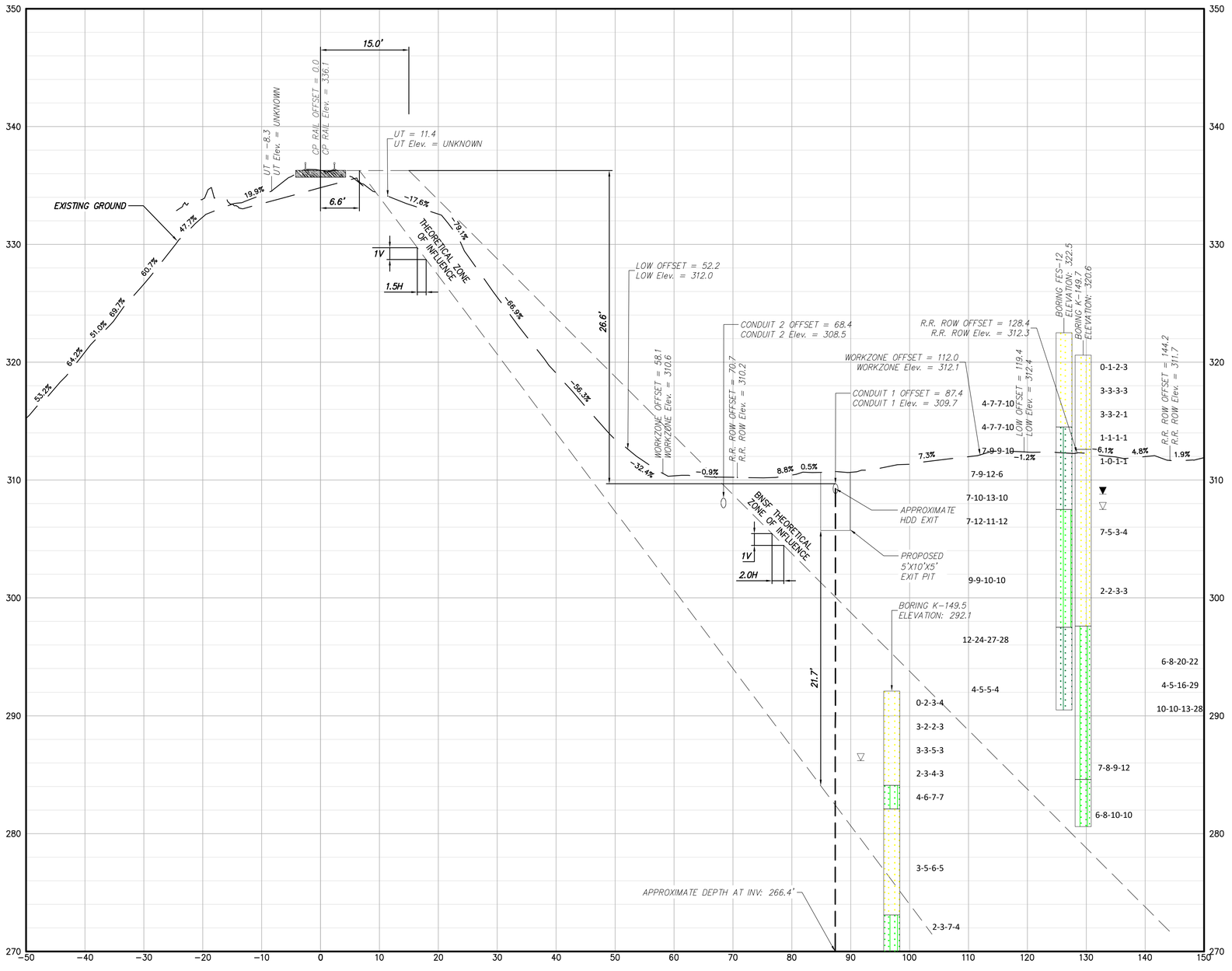

1 HDD #38 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30895+65

CP RAIL CANADIAN MAINLINE MP: 40.41

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
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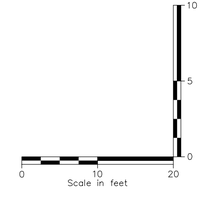

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 38 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-658

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\K6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-319 - C319A.DWG Saved: 3/28/2023 12:38:25 PM Plotted: 4/4/2023 10:04:35 AM Current User: Snyder, Morgan LastSavedBy: 6043

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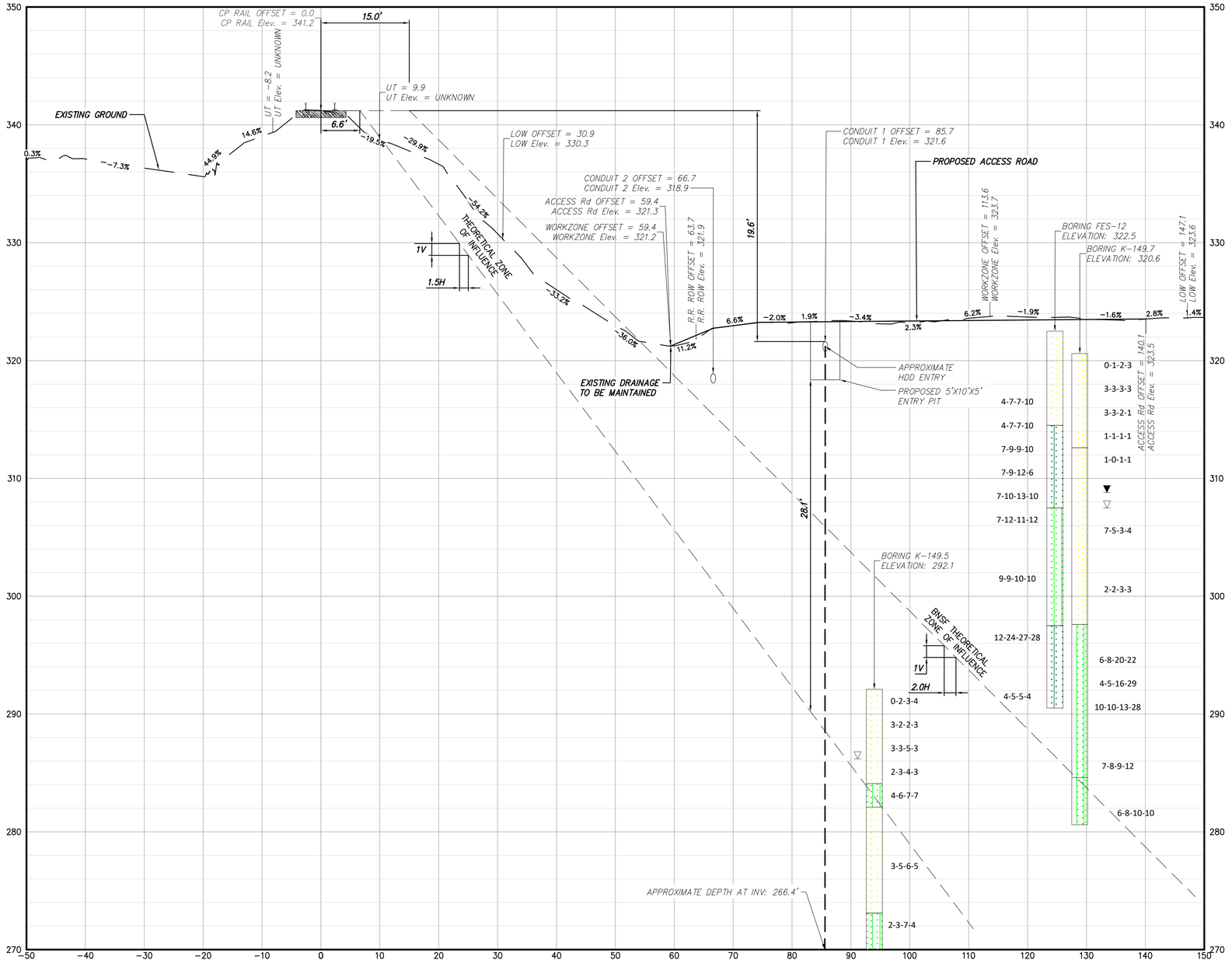


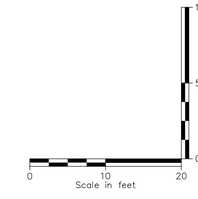
2 HDD #38 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30910+26
CP RAIL CANADIAN MAINLINE MP: 40.13

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	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 38 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-658.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\VAN\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-319 - C319A.DWG Saved: 3/28/2023 12:38:25 PM Plotted: 4/4/2023 10:05:20 AM Current User: Snyder, Morgan LastSavedBy: 6043

GENERAL NOTES:

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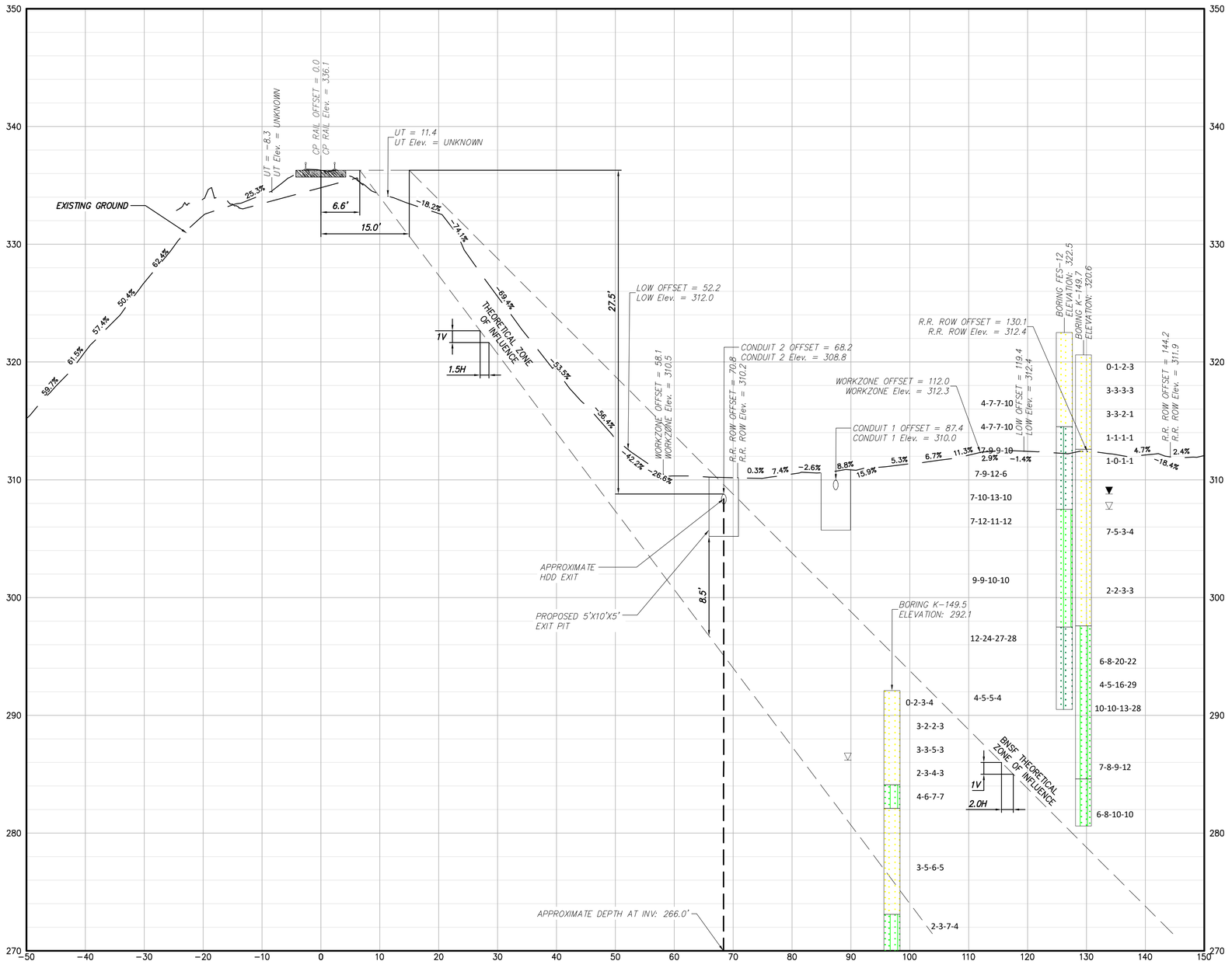

3 HDD #38 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30895+63
CP RAIL CANADIAN MAINLINE MP: 40.41

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

Scale in feet: 0, 10, 20

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 38 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-658.2

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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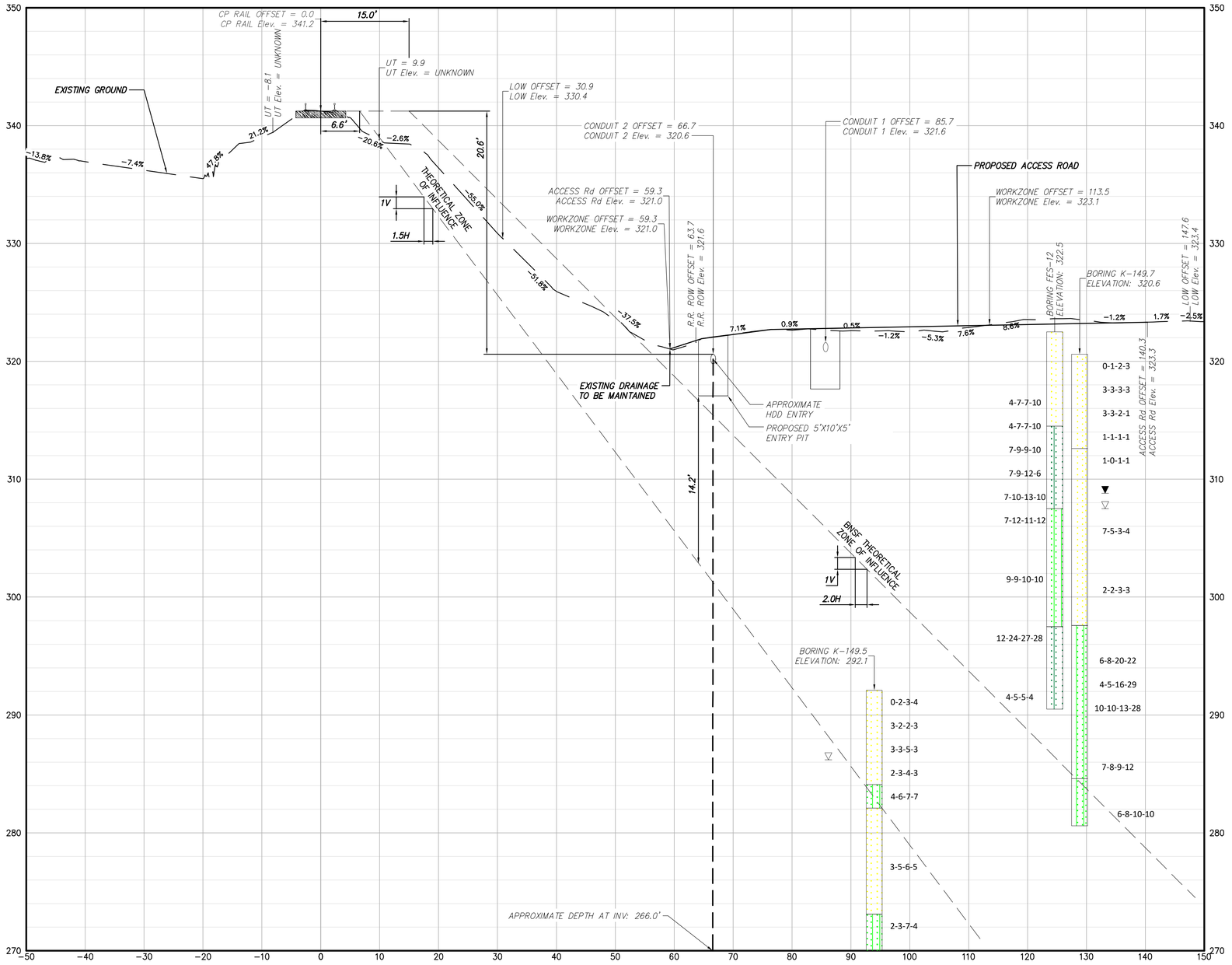

4 HDD #38 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30910+34
CP RAIL CANADIAN MAINLINE MP: 40.13

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	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
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	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND with SILT
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	SW-SC	Well Graded SAND with CLAY
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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
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	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
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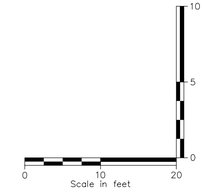

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 38 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-658.3

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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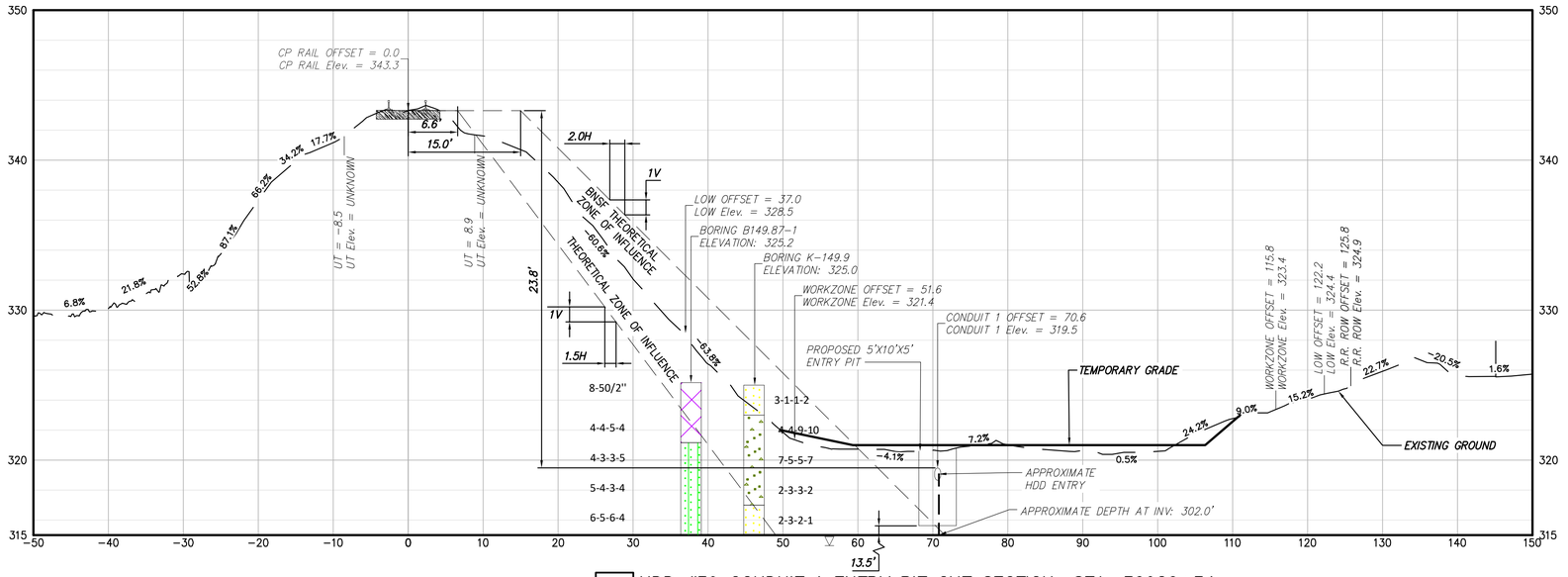
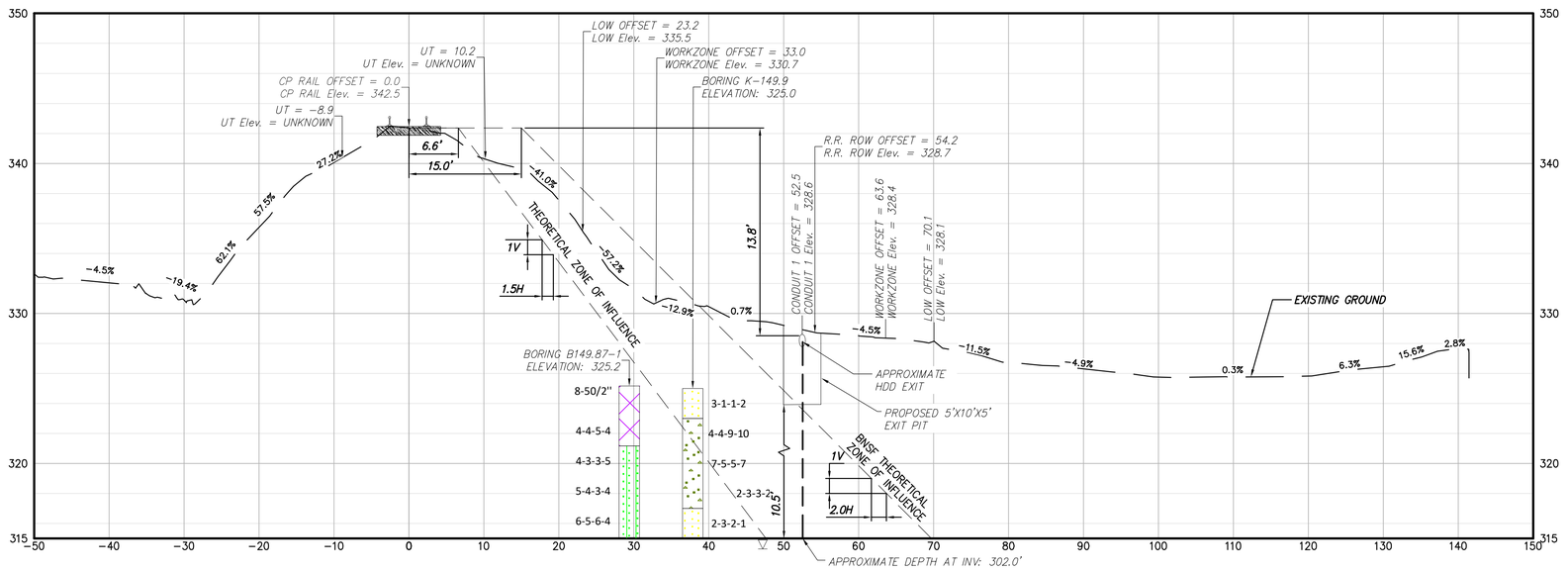


2 HDD #39 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 30920+34

CP RAIL CANADIAN MAINLINE MP: 39.95



1 HDD #39 CONDUIT 1 EXIT PIT CUT SECTION; STA. 30914+42

CP RAIL CANADIAN MAINLINE MP: 40.06

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
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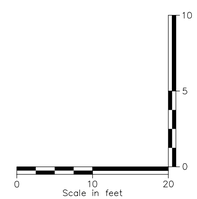
USGS 654	Subgraywacke
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 39 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-659

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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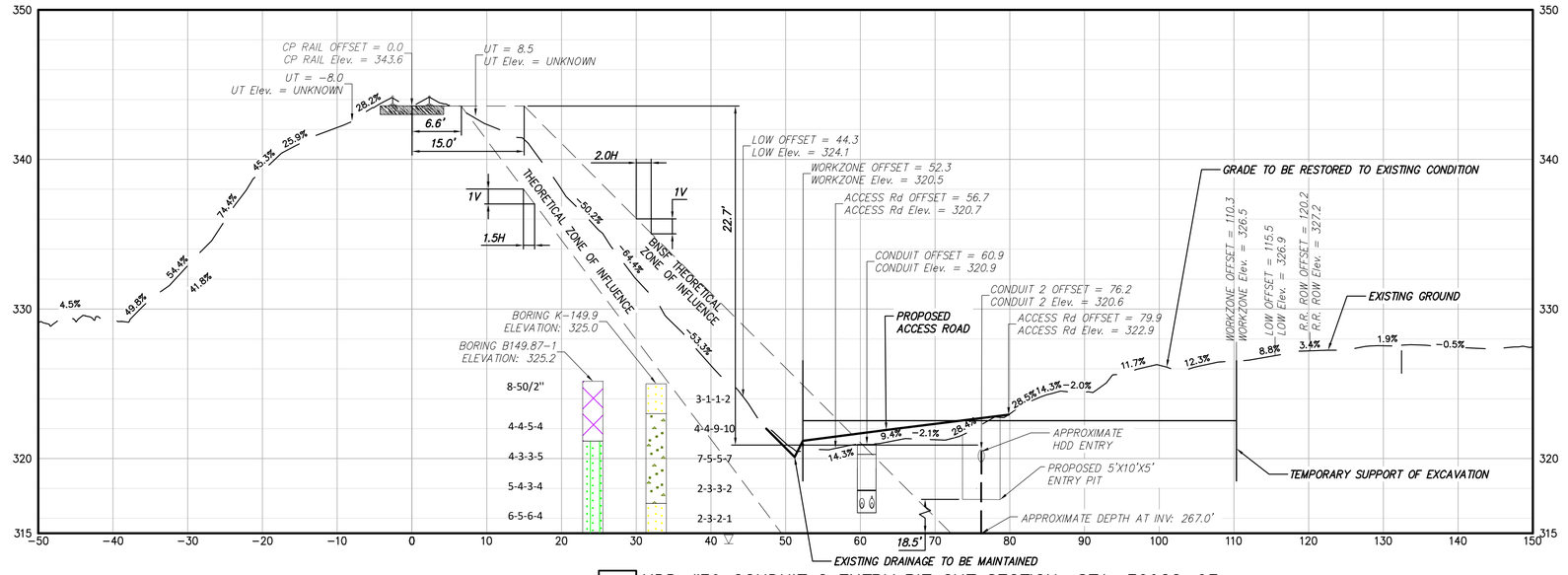
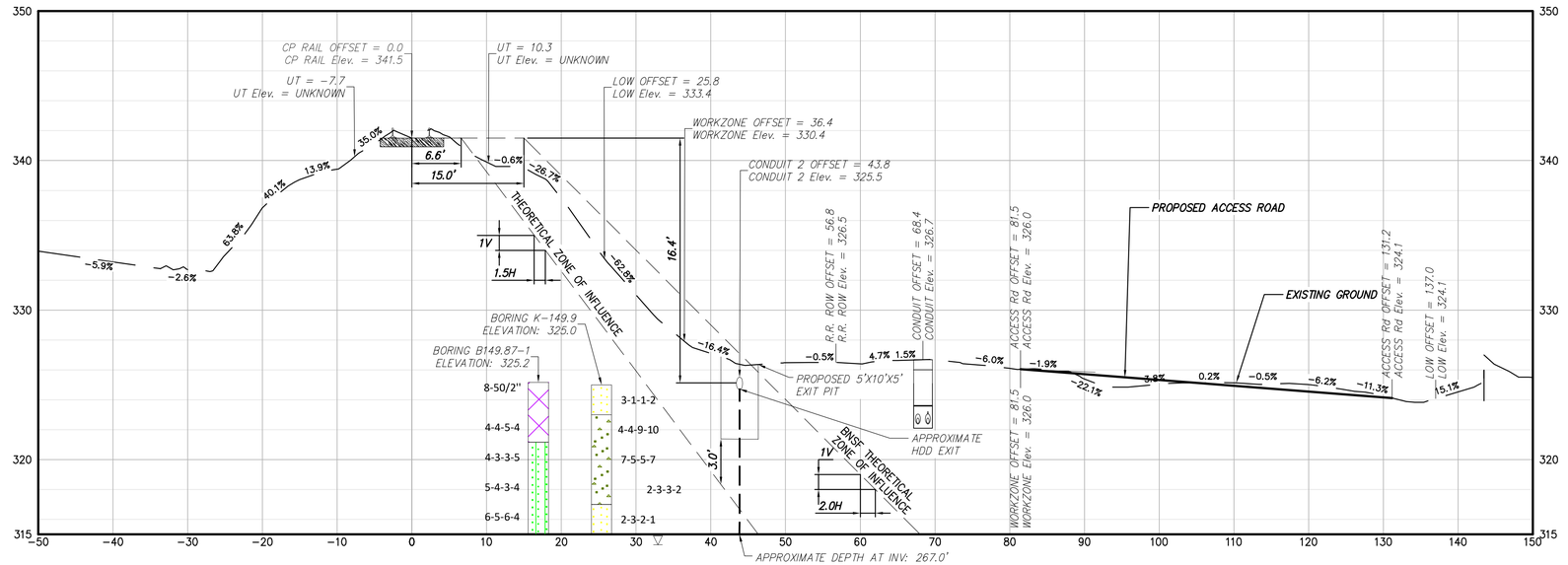


4 HDD #39 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 30922+63

CP RAIL CANADIAN MAINLINE MP: 39.90



3 HDD #39 CONDUIT 2 EXIT PIT CUT SECTION; STA. 30913+04

CP RAIL CANADIAN MAINLINE MP: 40.08

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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	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
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	USGS 705	Schist
	USGS 705	Schist
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	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
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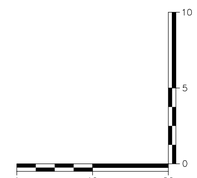

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CHAMPLAIN HUDSON POWER EXPRESS

SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON

HDD 39 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-659.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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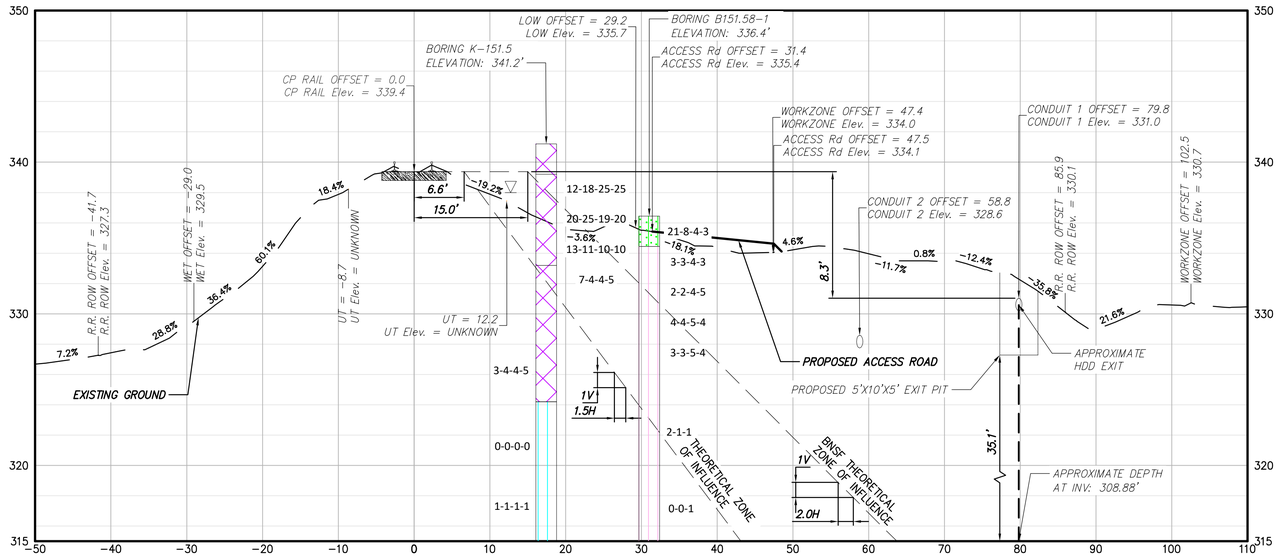
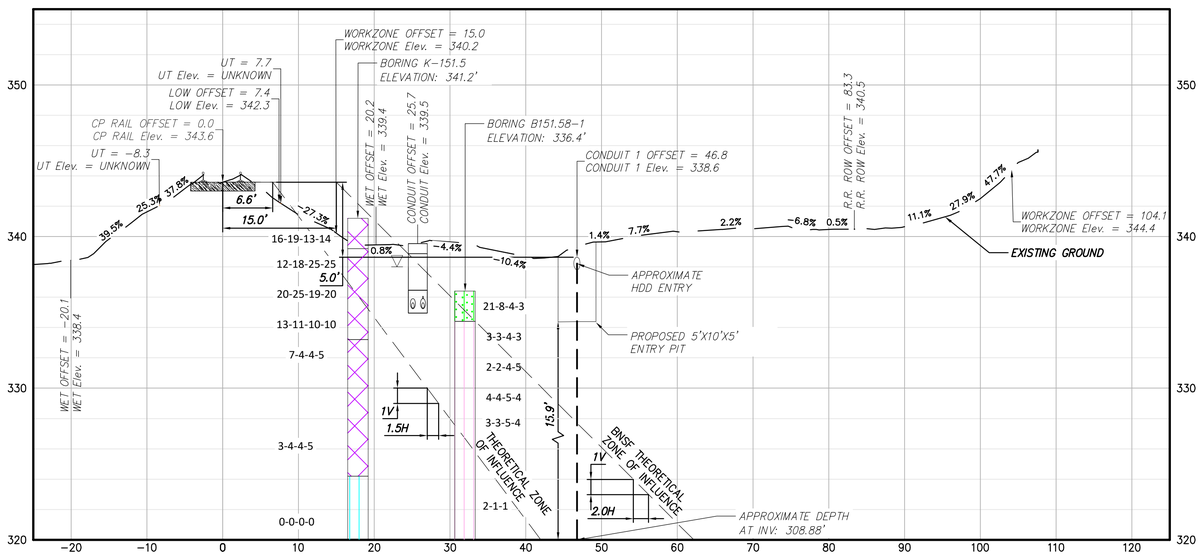


2 HDD #40 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31014+04
CP RAIL CANADIAN MAINLINE MP: 38.18



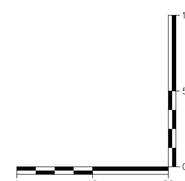
1 HDD #40 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31000+66
CP RAIL CANADIAN MAINLINE MP: 38.43

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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Albany, NY 12205-0269
518.453.4500 . www.chacompanies.com

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 40 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-660

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-321 C321A.DWG Saved: 4/4/2023 9:04:48 AM Plotted: 4/4/2023 10:15:53 AM Current User: Snyder, Morgan LastSavedBy: 8275

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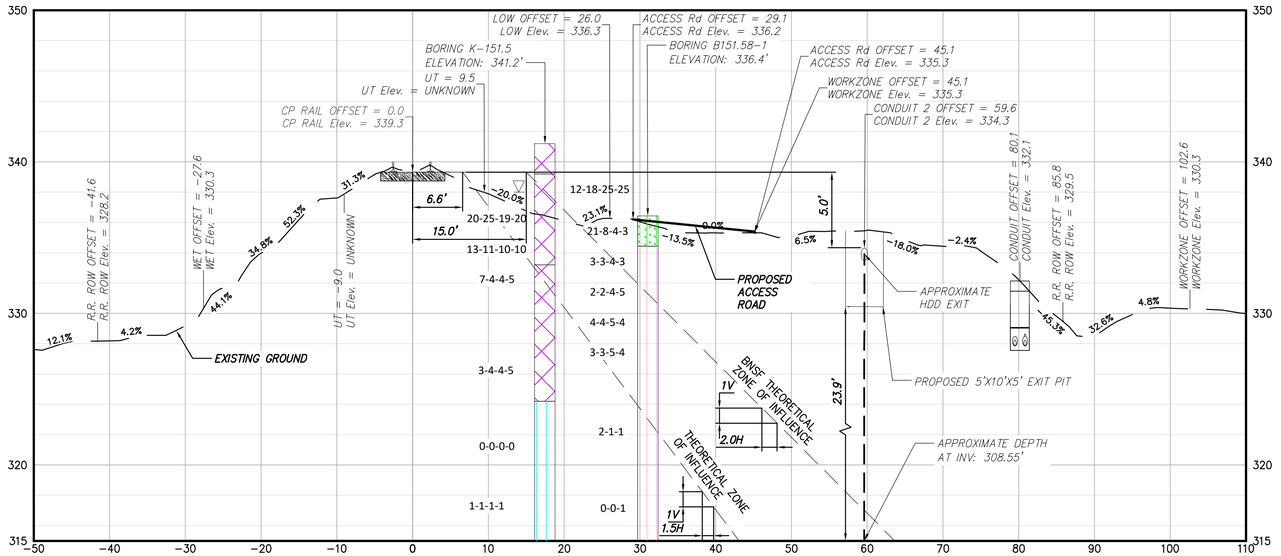
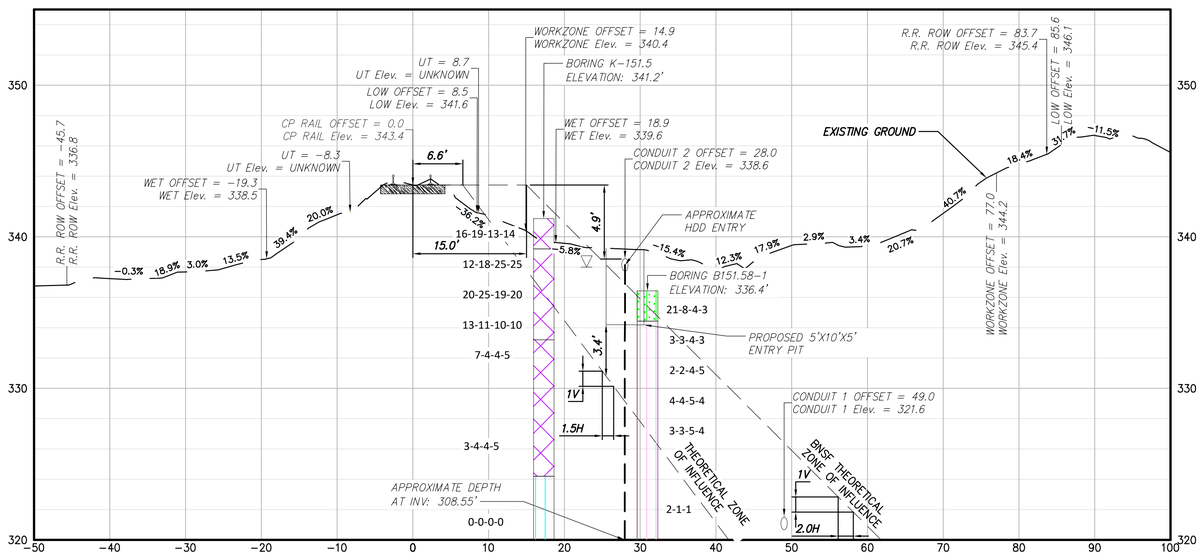


4 HDD #40 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31014+37
CP RAIL CANADIAN MAINLINE MP: 38.17



3 HDD #40 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31001+56
CP RAIL CANADIAN MAINLINE MP: 38.42

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
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded Gravel with CLAY
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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
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USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
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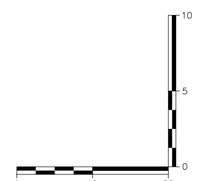

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 40 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-660.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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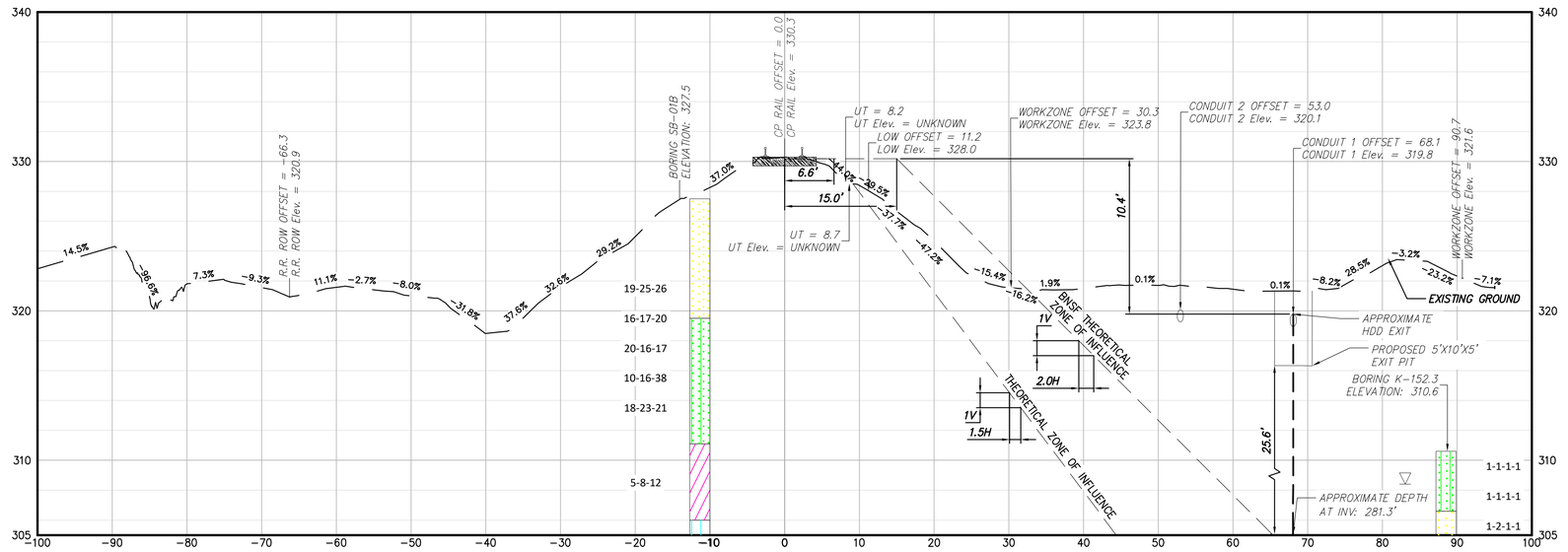
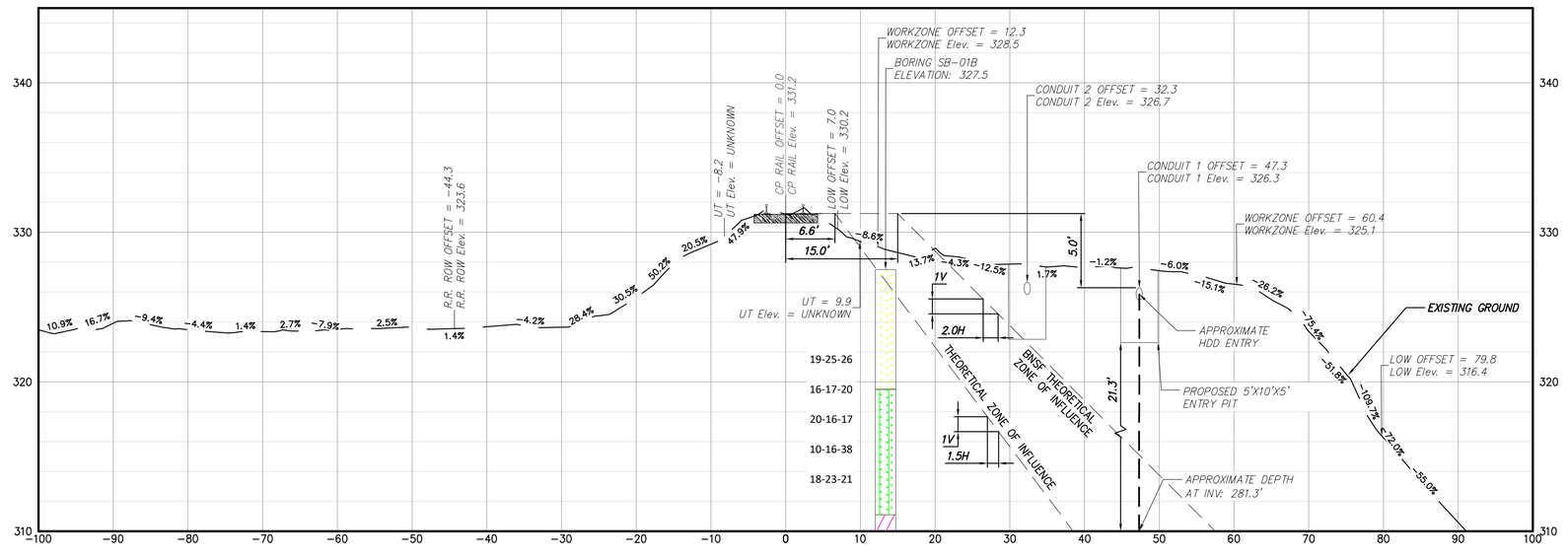


2 HDD #41 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31050+37

CP RAIL CANADIAN MAINLINE MP: 37.50



1 HDD #41 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31043+28

CP RAIL CANADIAN MAINLINE MP: 37.63

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
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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
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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
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	USGS 718	Granite 1
	Void	Void
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	Weathered Rock	Undefined
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Scale in feet

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 41 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-661

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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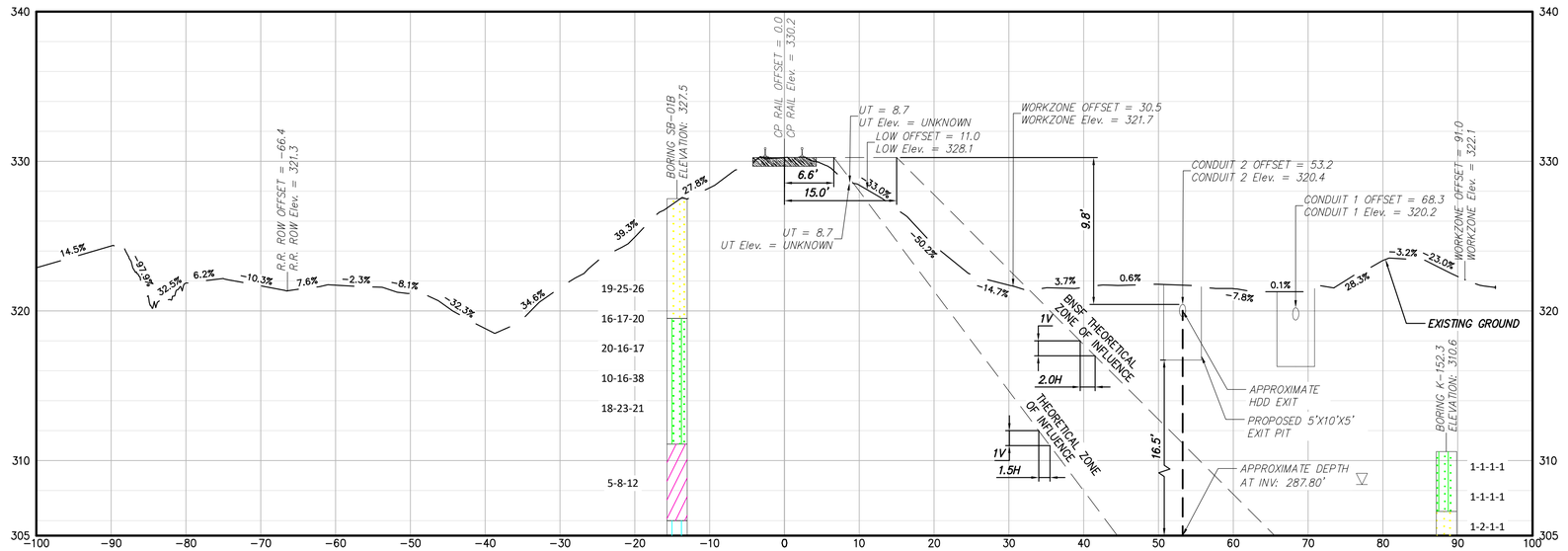
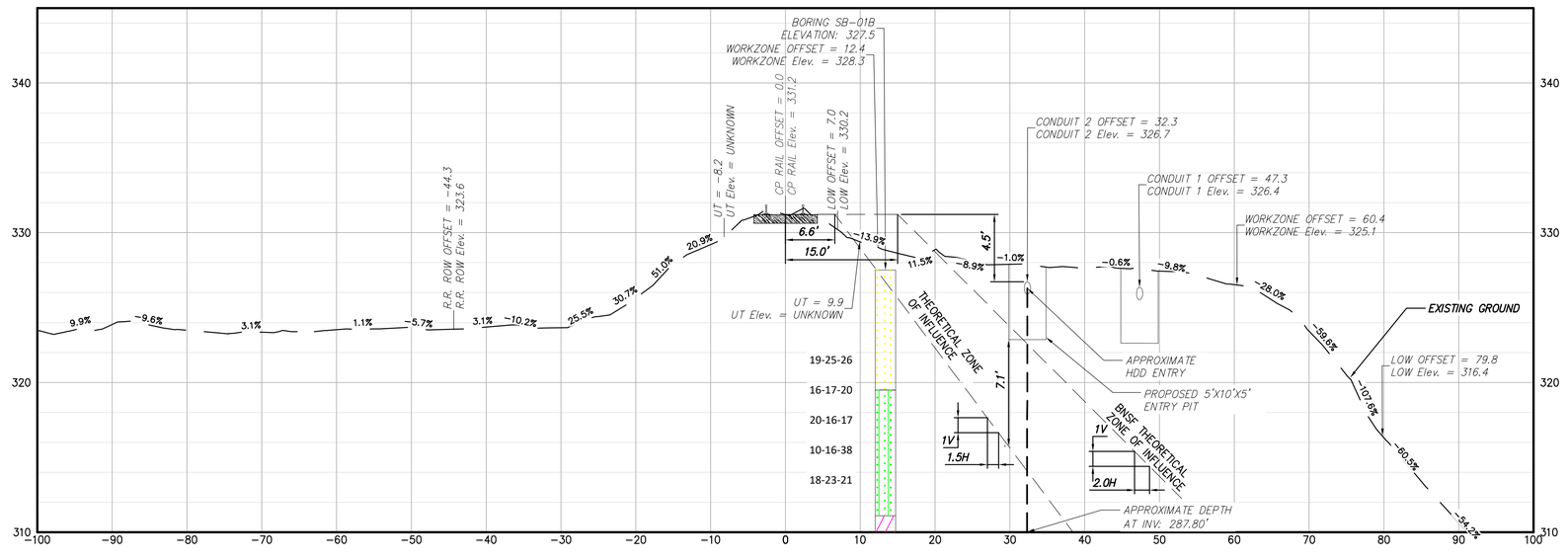


4 HDD #41 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31050+28
CP RAIL CANADIAN MAINLINE MP: 37.50



3 HDD #41 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31043+28
CP RAIL CANADIAN MAINLINE MP: 37.63

BORING LOG STRIP LEGEND

B101

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Legend		
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	Bedrock	Bedrock
	Boulder	Boulder
	CH	Fat CLAY
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	USGS 718	Granite 1
	Void	Void
	Water	Water
	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
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Scale in feet: 0, 10, 20; 0, 5, 10

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 41 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-661.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-322-C-322A.DWG Saved: 4/3/2023 1:29:15 PM Plotted: 4/4/2023 10:27:01 AM Current User: Snyder, Morgan LastSavedBy: 8275

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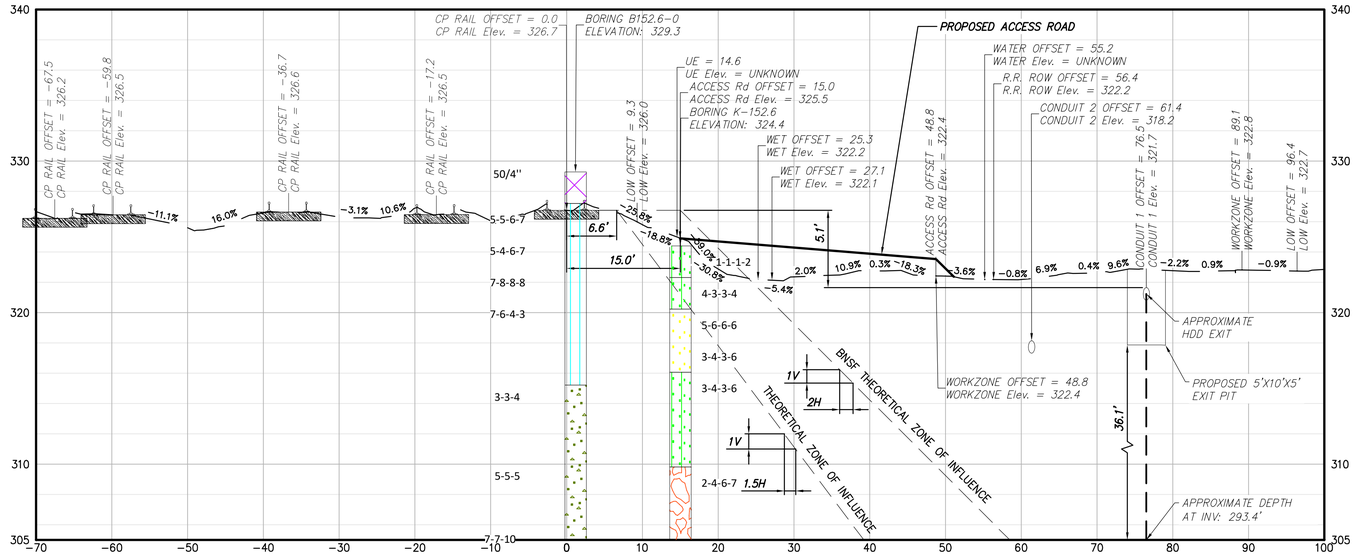
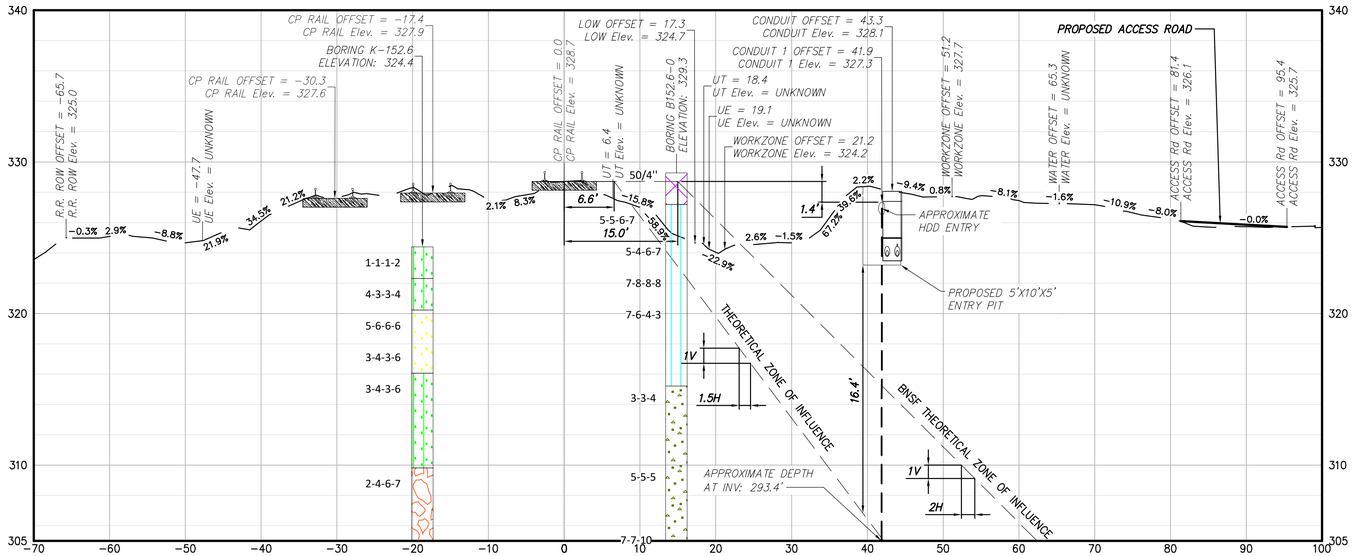


2 HDD #42 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31064+99
CP RAIL CANADIAN MAINLINE MP: 37.24



1 HDD #42 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31058+24
CP RAIL CANADIAN MAINLINE MP: 37.37

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
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OL/OH	ORGANIC SOIL
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Sandstone	Sandstone
SC	CLAYEY SAND
SC-SM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
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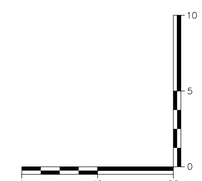

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 42 RAILROAD CROSS SECTION CUT

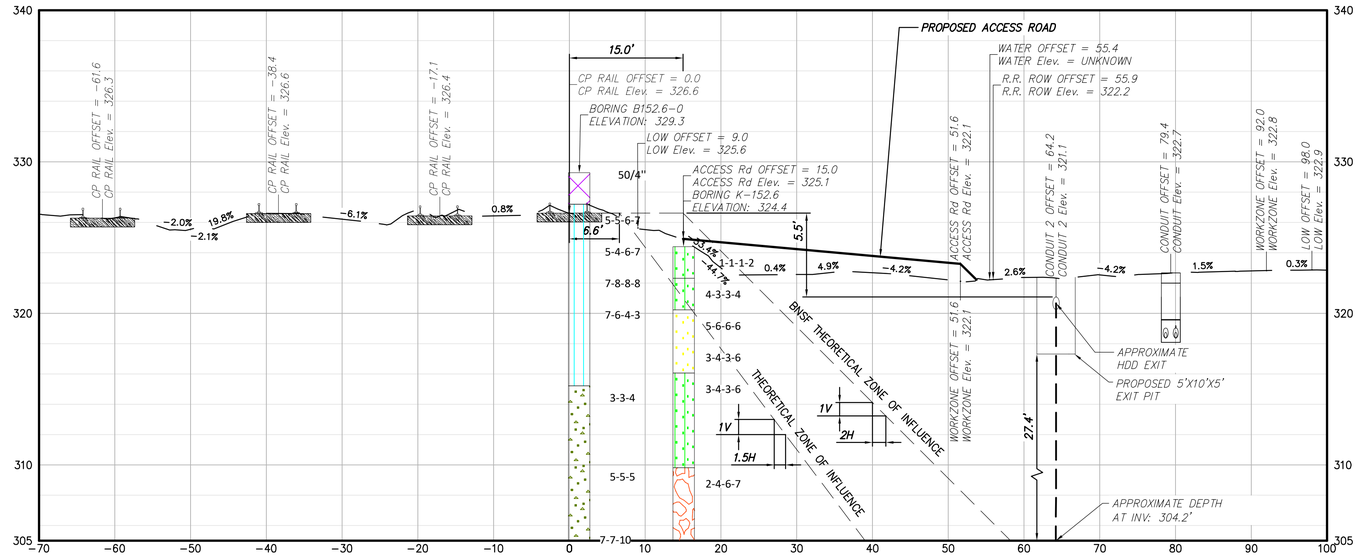
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-662

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

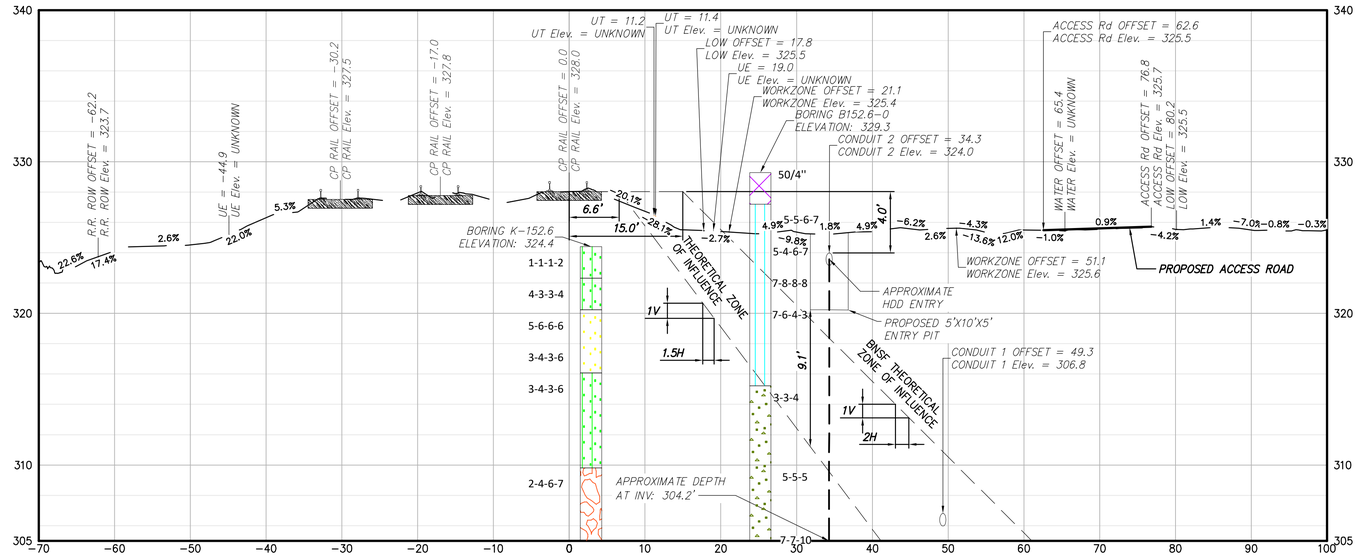
File: V:\PROJECTS\NY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-323 - C-323A.DWG Saved: 4/5/2023 12:53:57 PM Plotted: 4/4/2023 10:30:30 AM Current User: Snyder, Morgan LastSavedBy: 8275

GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.



4 HDD #42 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31065+17
CP RAIL CANADIAN MAINLINE MP: 37.24



3 HDD #42 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31059+69
CP RAIL CANADIAN MAINLINE MP: 37.34

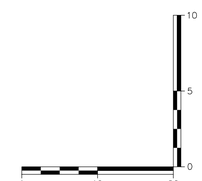
BORING LOG STRIP LEGEND

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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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 42 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-662.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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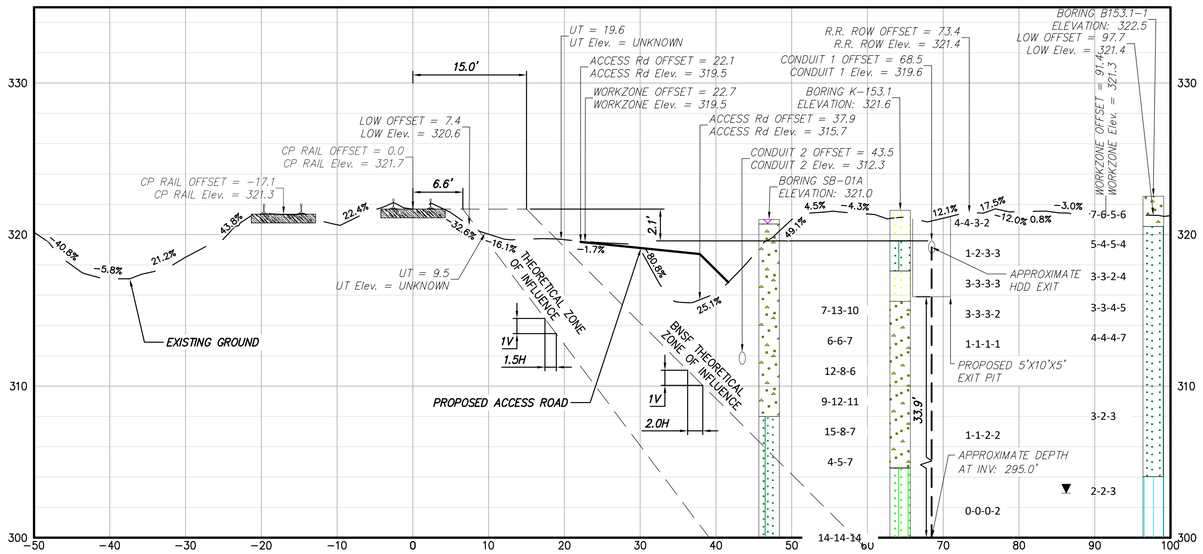
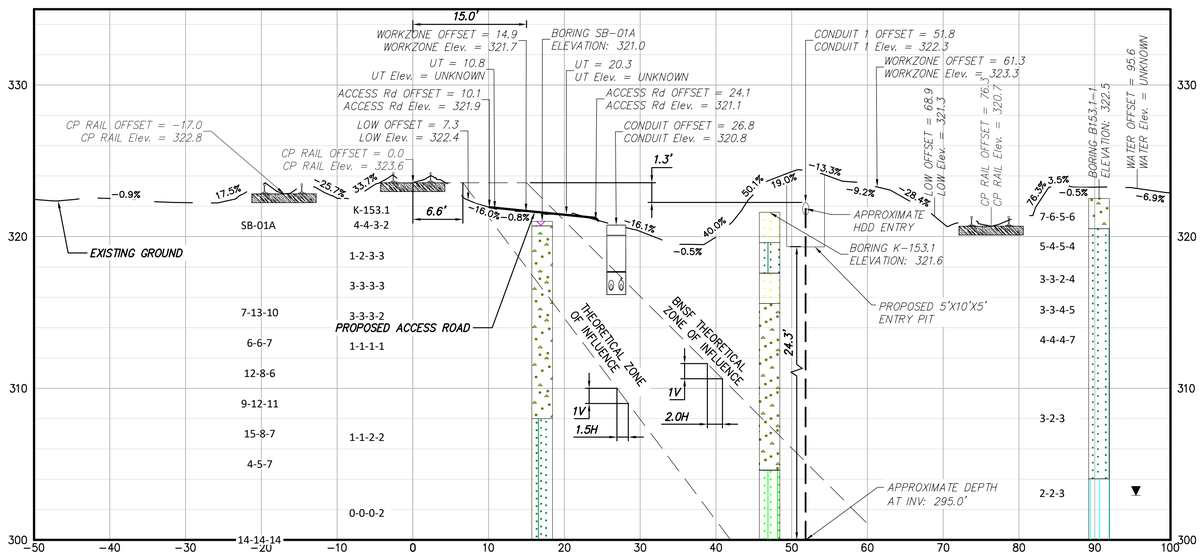


2 HDD #43 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31091+23

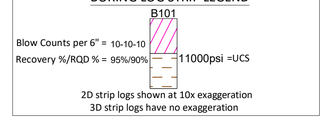
CP RAIL CANADIAN MAINLINE MP: 36.75



1 HDD #43 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31080+91

CP RAIL CANADIAN MAINLINE MP: 36.94

BORING LOG STRIP LEGEND



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
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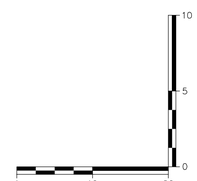
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite 1
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 43 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-663

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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GENERAL NOTES:

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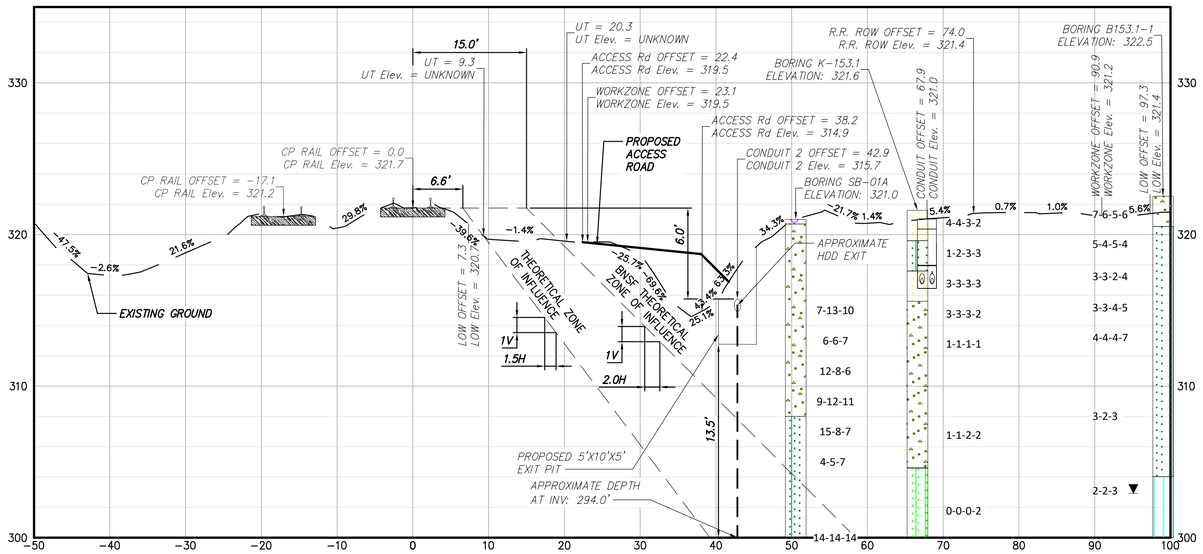
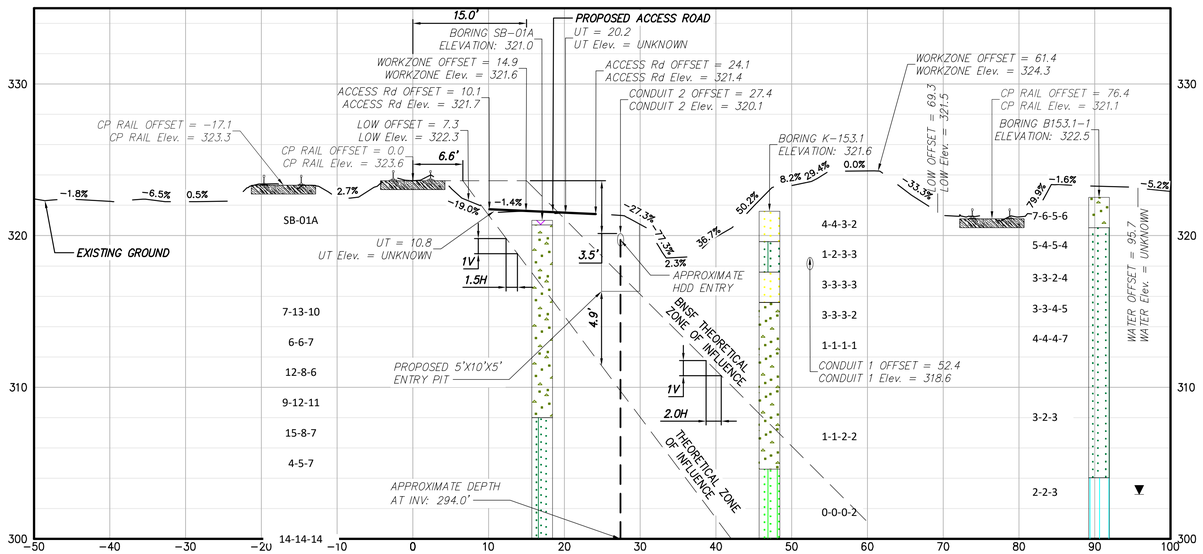


4 HDD #43 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31091+48
CP RAIL CANADIAN MAINLINE MP: 36.74



3 HDD #43 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31081+17
CP RAIL CANADIAN MAINLINE MP: 36.94

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
	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
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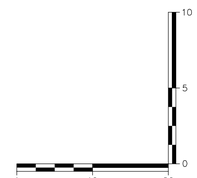
	MH	Elastic SILT
	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
	SC	CLAYEY SAND
	SC-SM	SILT, CLAYEY SAND
	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
	SP	Poorly Graded SAND
	SP-SC	Poorly Graded SAND with CLAY
	SP-SM	Poorly Graded SAND 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



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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 43 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-663.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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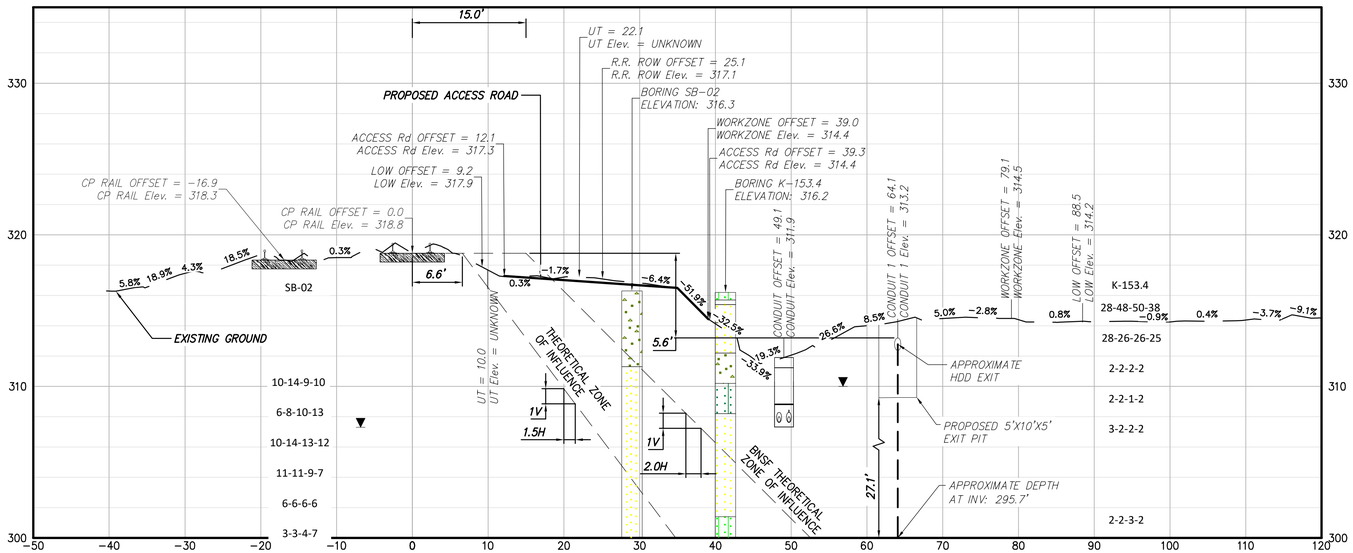
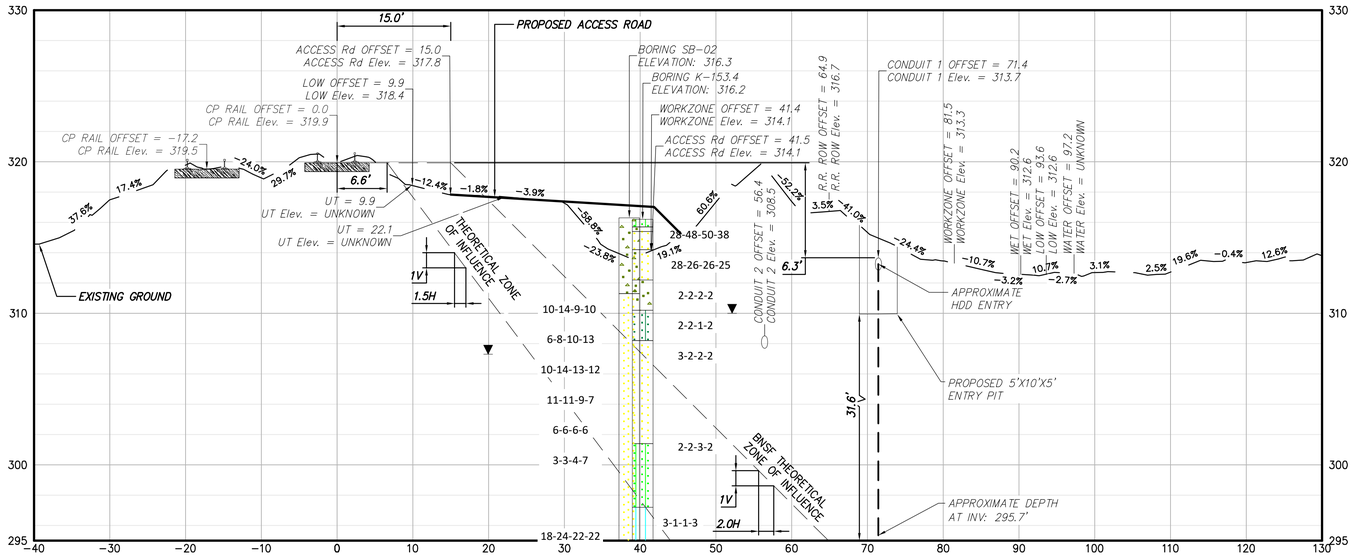


2 HDD #44 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31106+34
CP RAIL CANADIAN MAINLINE MP: 36.43



1 HDD #44 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31101+14
CP RAIL CANADIAN MAINLINE MP: 36.56

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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	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
	Sandstone	Sandstone
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	SHALE	Shale
	SILTSTONE	Siltstone
	SM	SILTY SAND
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	Water	Water
	Weathered Rock	Undefined
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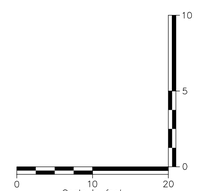

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 44 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-664

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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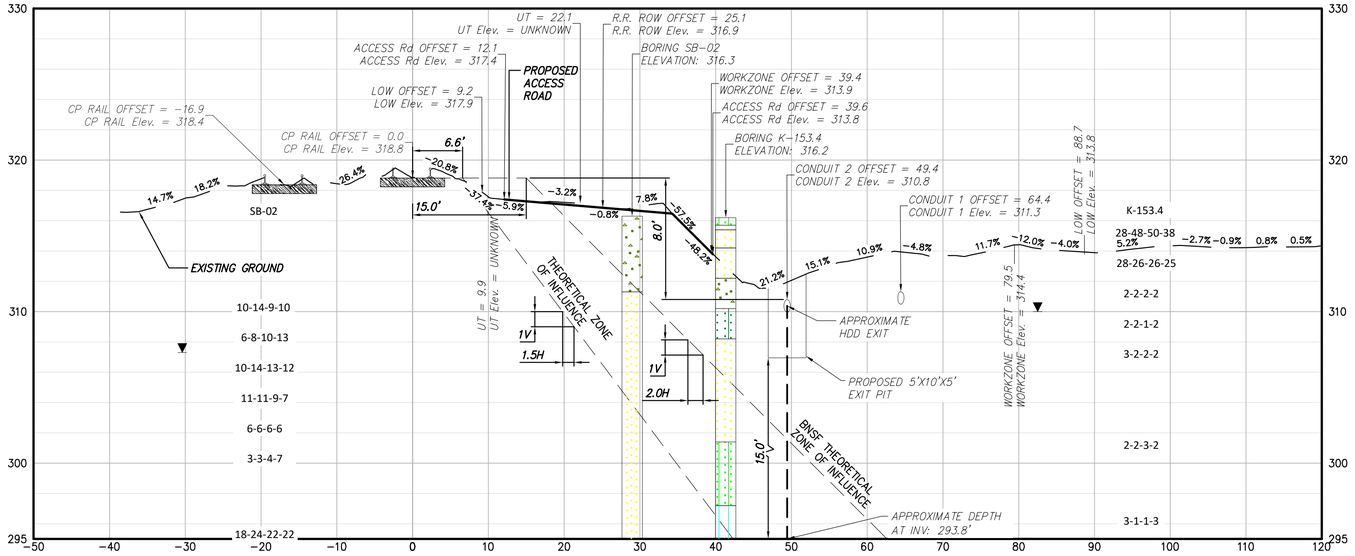
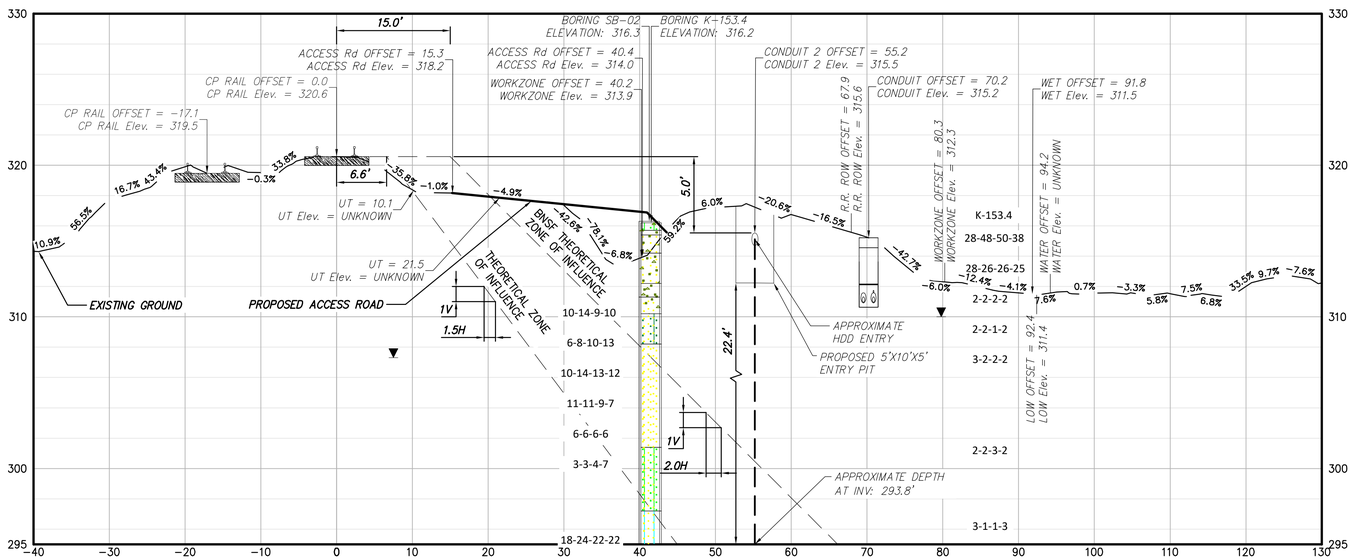


4 HDD #44 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31106+22

CP RAIL CANADIAN MAINLINE MP: 36.43



3 HDD #44 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31100+63

CP RAIL CANADIAN MAINLINE MP: 36.57

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10

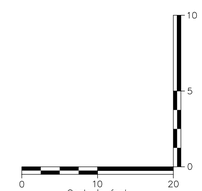
Recovery %/RQD % = 95%/90%

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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Albany, NY 12205-0269
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 44 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-664.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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GENERAL NOTES:

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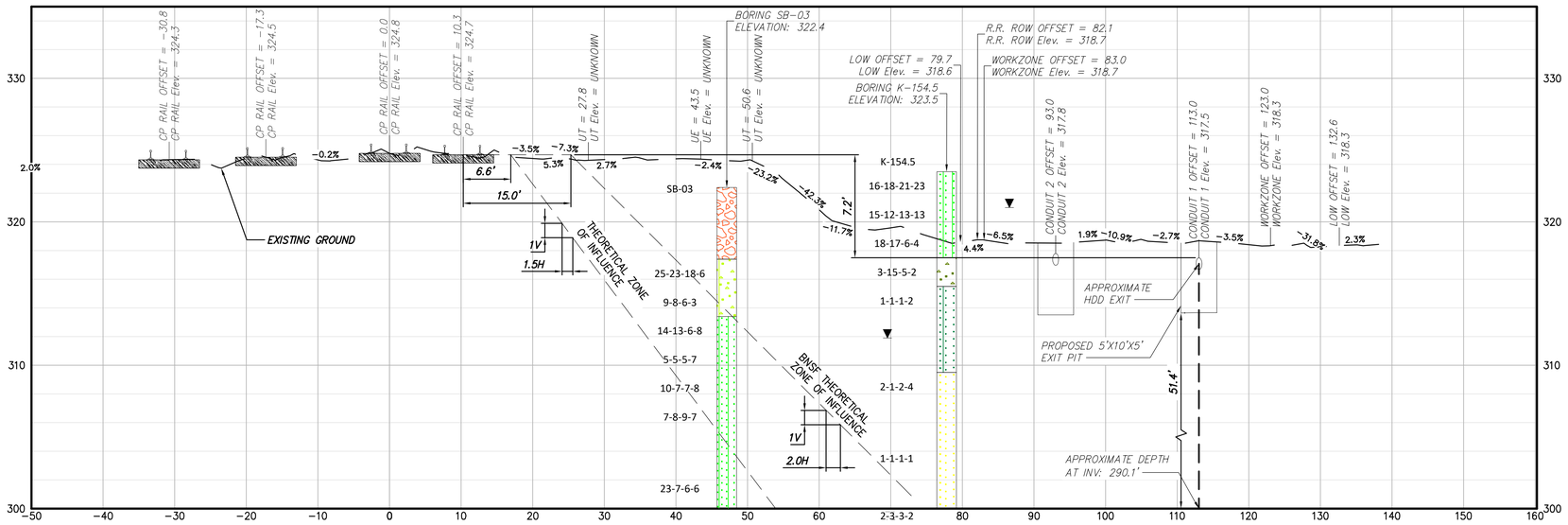
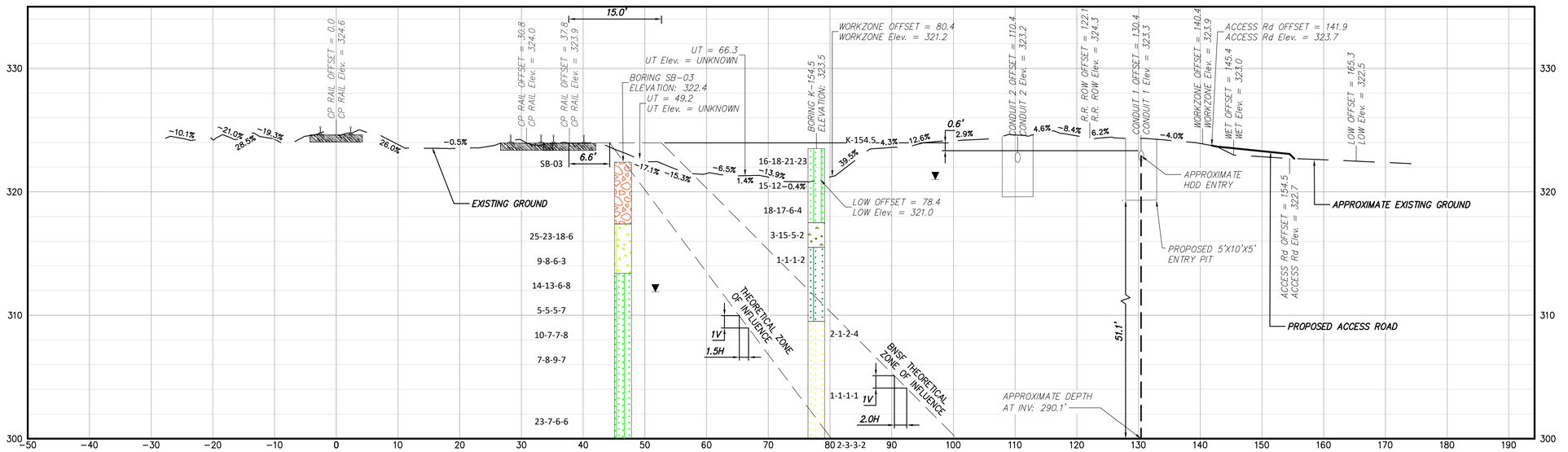


2 HDD #45 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31163+32

CP RAIL CANADIAN MAINLINE MP: 35.39



1 HDD #45 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31157+13

CP RAIL CANADIAN MAINLINE MP: 35.50

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
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	GW-GM	Well Graded GRAVEL with SILT
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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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	SM	SILTY SAND
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	SW-SC	Well Graded SAND with CLAY
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	Topsoil	Topsoil
	USGS 601	Gravel or Conglomerate 1
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	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

Scale in feet: 0, 10, 20; 0, 5, 10

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 45 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-665

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

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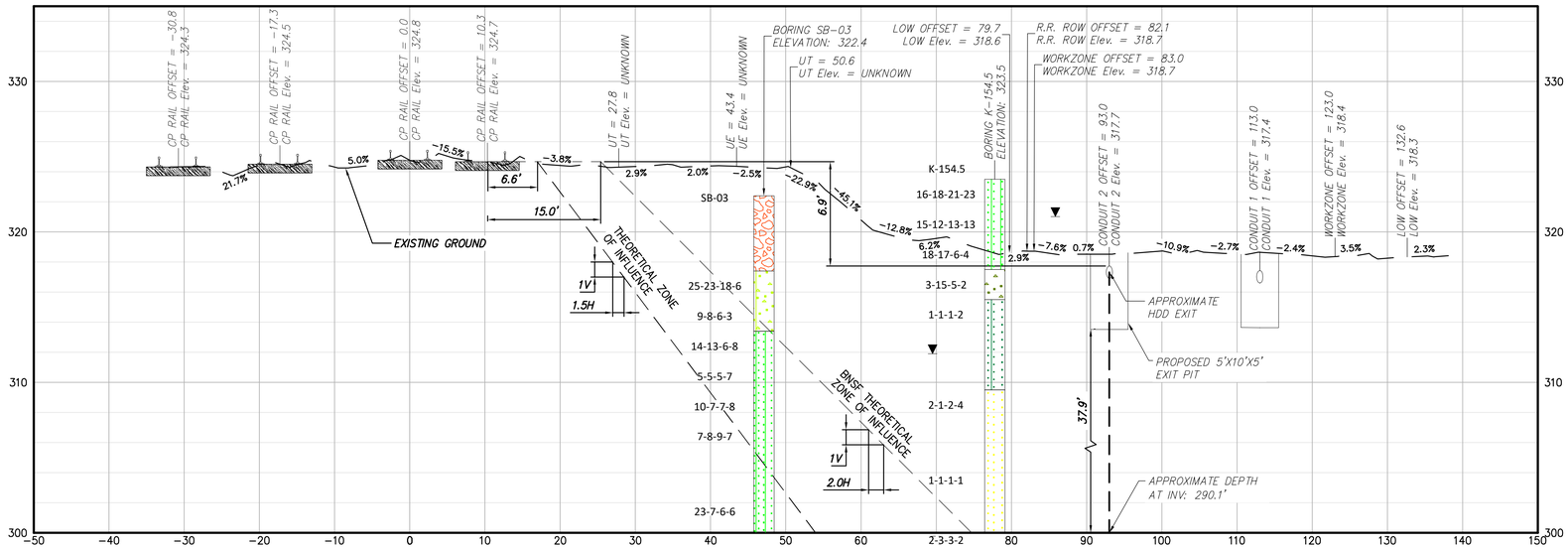
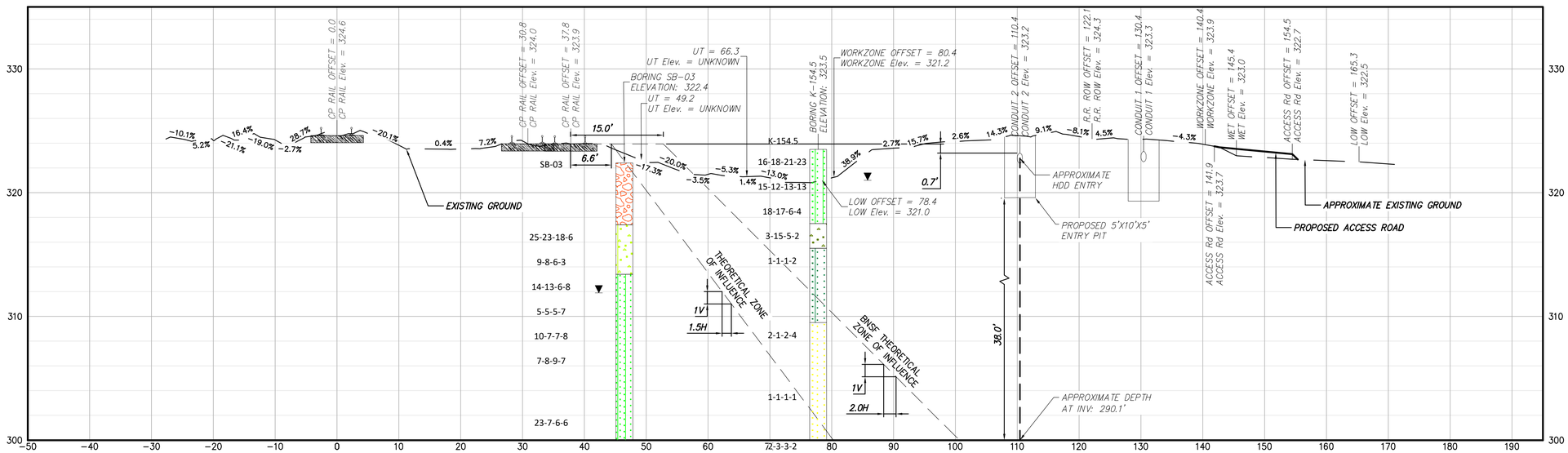


4 HDD #45 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31163+32
CP RAIL CANADIAN MAINLINE MP: 35.39



3 HDD #45 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31157+13
CP RAIL CANADIAN MAINLINE MP: 35.50

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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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

Scale in feet

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 45 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-665.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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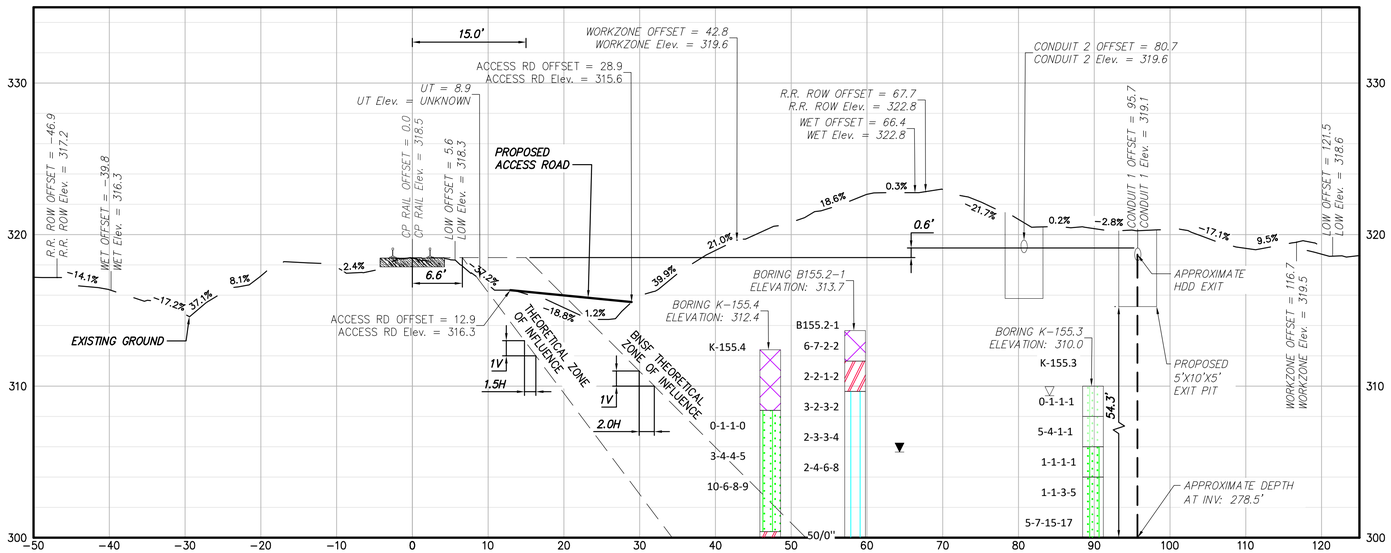
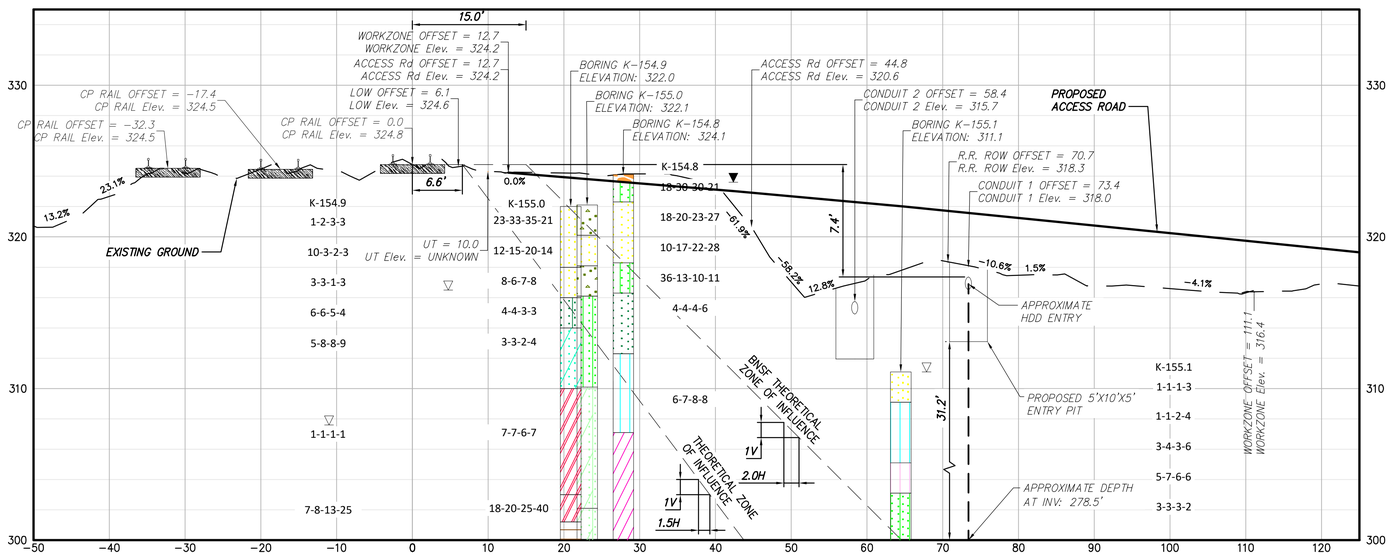


2 HDD #46 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31208+21

CP RAIL CANADIAN MAINLINE MP: 34.50



1 HDD #46 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31176+85

CP RAIL CANADIAN MAINLINE MP: 35.13

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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	ML	SILT
	OH	ORGANIC Fat CLAY
	OL	ORGANIC Lean CLAY
	OL/OH	ORGANIC SOIL
	PT	PEAT
	Rock	Rock
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	SC-SM	SILT, CLAYEY SAND
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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
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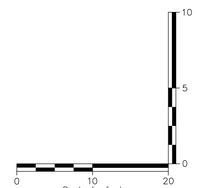

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CHAMPLAIN HUDSON POWER EXPRESS

SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON

HDD 46 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-666

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-327 - C-327A.DWG Saved: 4/4/2023 10:16:07 AM Plotted: 4/4/2023 10:50:32 AM Current User: Snyder, Morgan LastSavedBy: 6043

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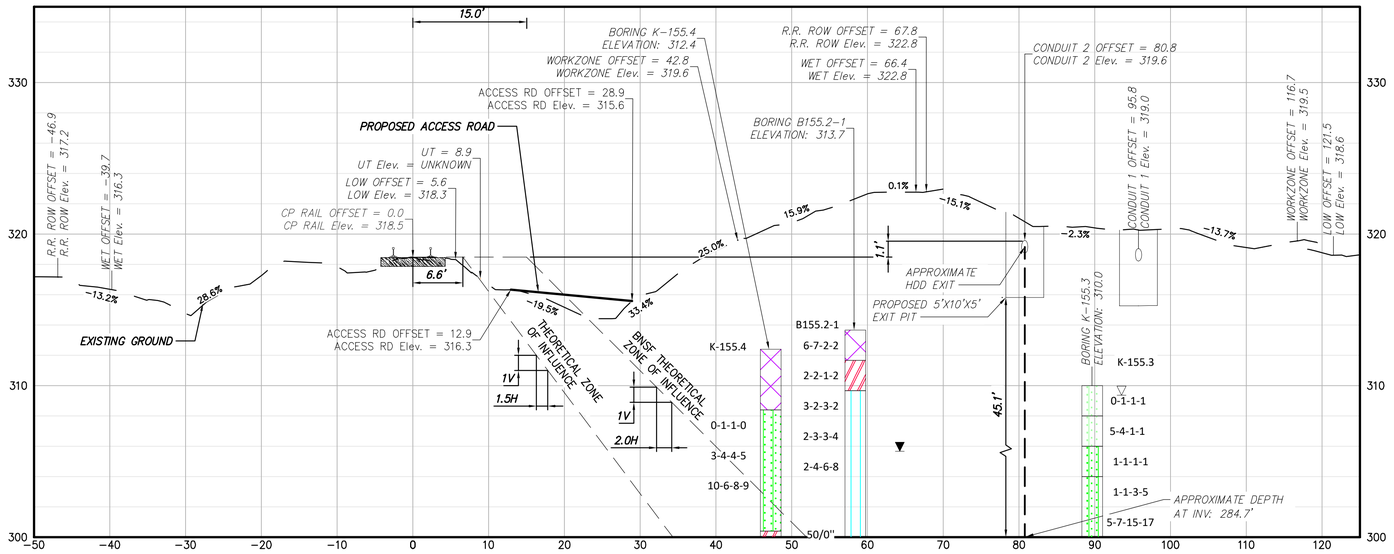
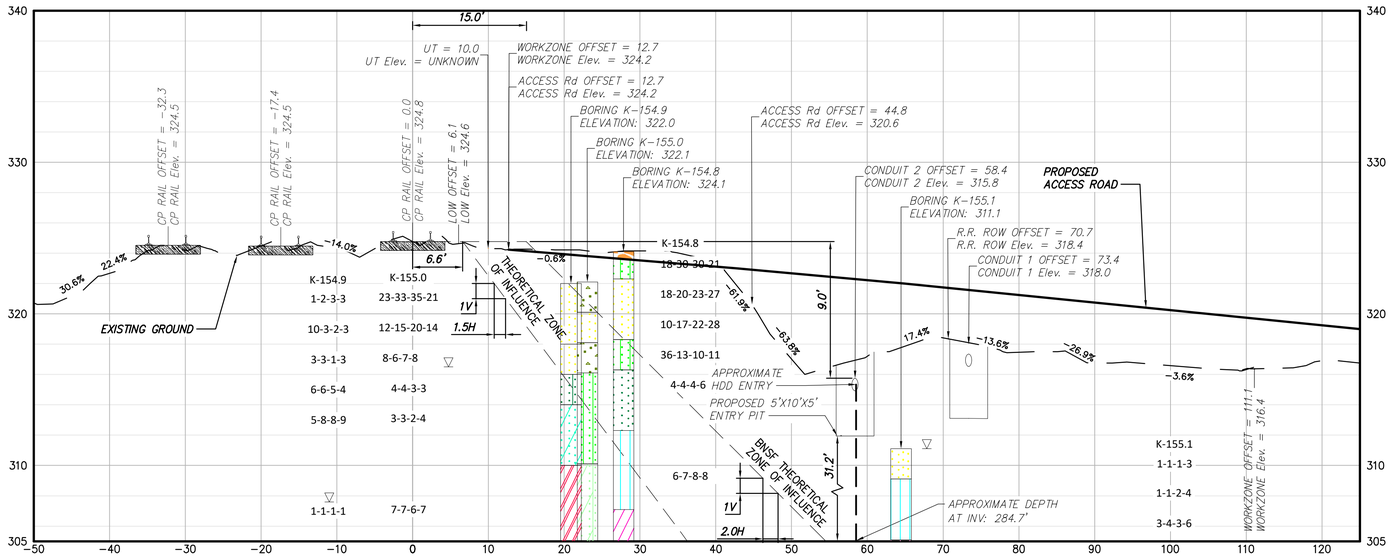


4 HDD #46 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31208+21
CP RAIL CANADIAN MAINLINE MP: 34.50



3 HDD #46 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31176+85
CP RAIL CANADIAN MAINLINE MP: 35.13

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10
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2D strip logs shown at 10x exaggeration
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USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
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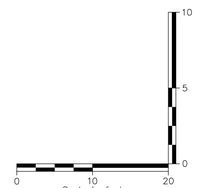

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 46 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-666.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V66\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-327 - C-327A.DWG Saved: 4/4/2023 10:15:07 AM Plotted: 4/4/2023 10:52:06 AM Current User: Snyder, Morgan LastSavedBy: 6043

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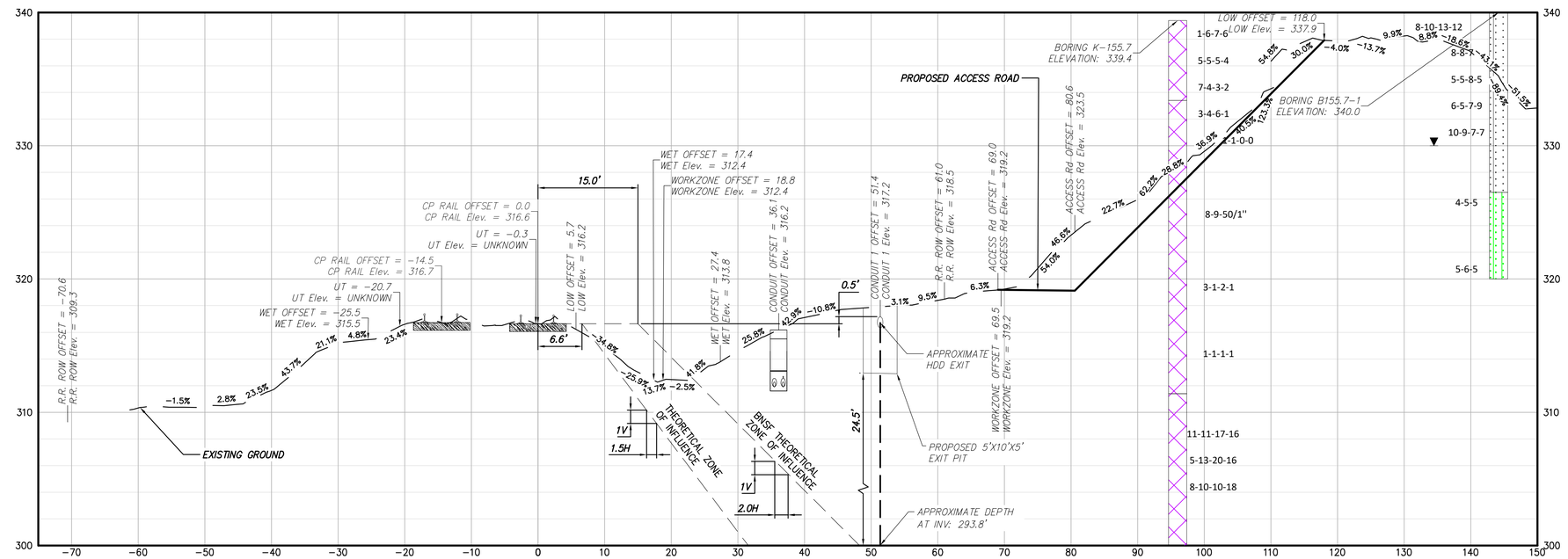
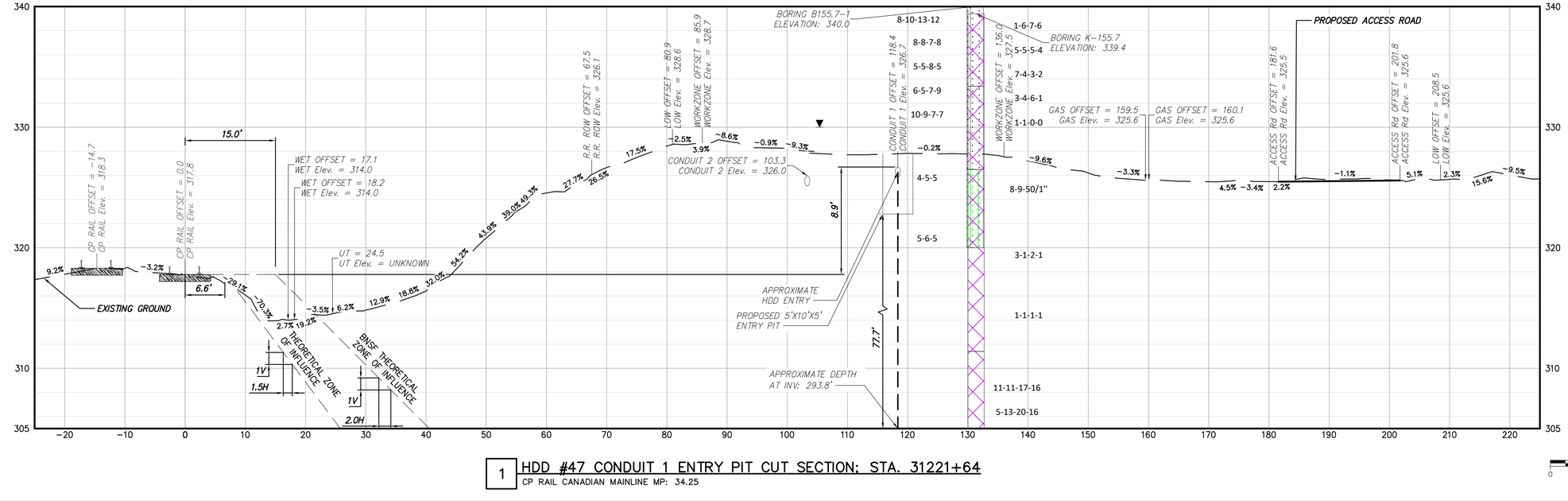


2 HDD #47 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31227+35

CP RAIL CANADIAN MAINLINE MP: 34.14



1 HDD #47 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31221+64

CP RAIL CANADIAN MAINLINE MP: 34.25

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
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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

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 47 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-667

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

File: V:\PROJECTS\ANY\V6\066076.000\09_DESIGN\DRAWINGS\01_SHEETS\DESIGN PACKAGE 3\066076_P3_C-328-C-328A.DWG Saved: 4/3/2023 10:52:34 AM Plotted: 4/4/2023 10:55:56 AM Current User: Snyder, Morgan LastSavedBy: 8275

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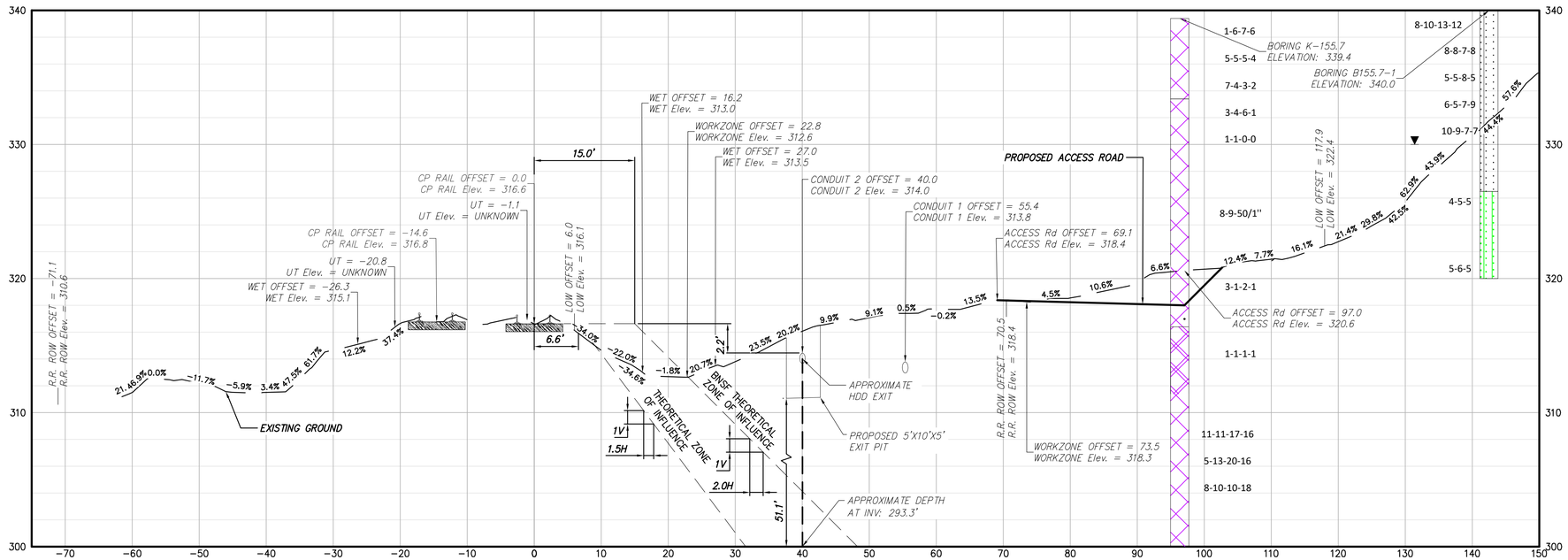
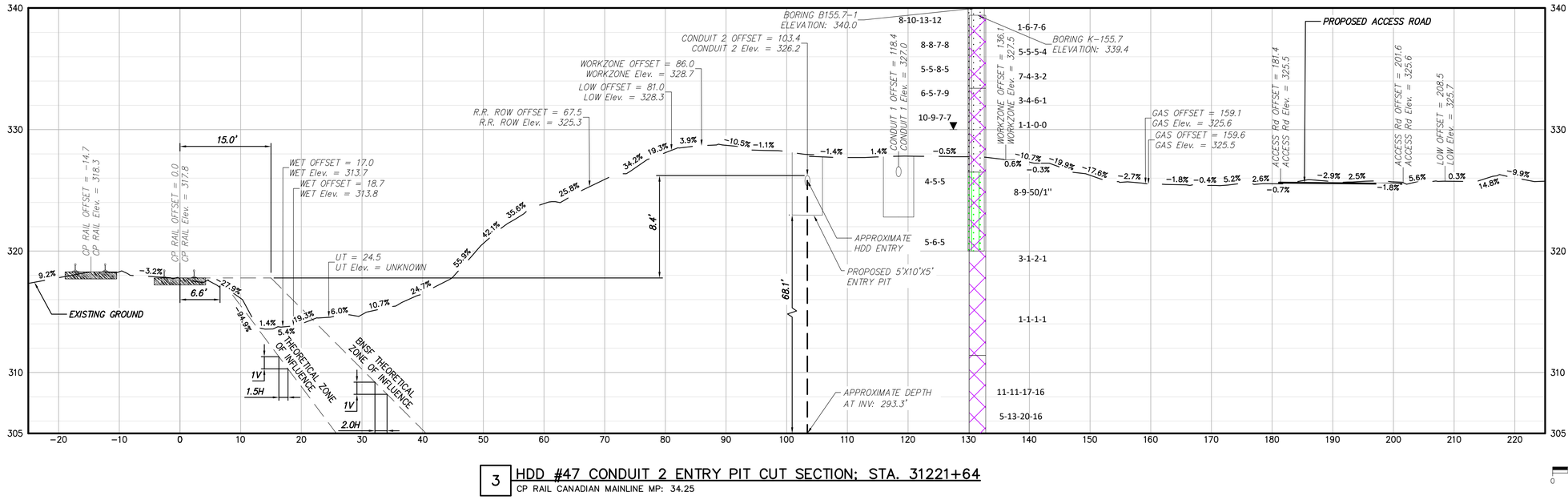


4 HDD #47 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31227+13

CP RAIL CANADIAN MAINLINE MP: 34.14



3 HDD #47 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31221+64

CP RAIL CANADIAN MAINLINE MP: 34.25

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	
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 47 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-667.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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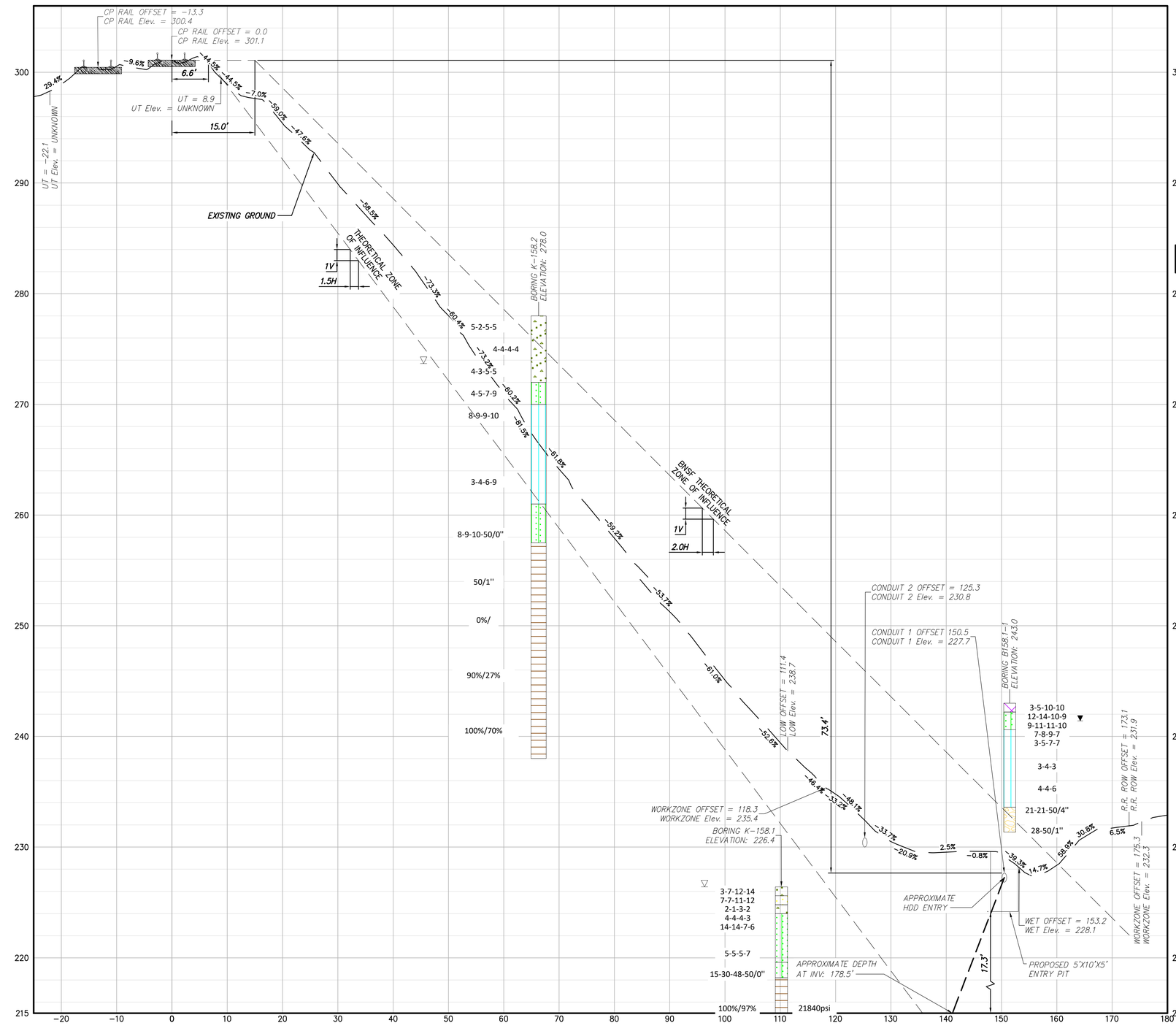

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1 HDD #49 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31340+20

CP RAIL CANADIAN MAINLINE MP: 32.04

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

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	Fill	Fill
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	ML	SILT
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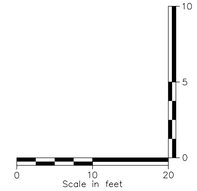

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 49 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-668

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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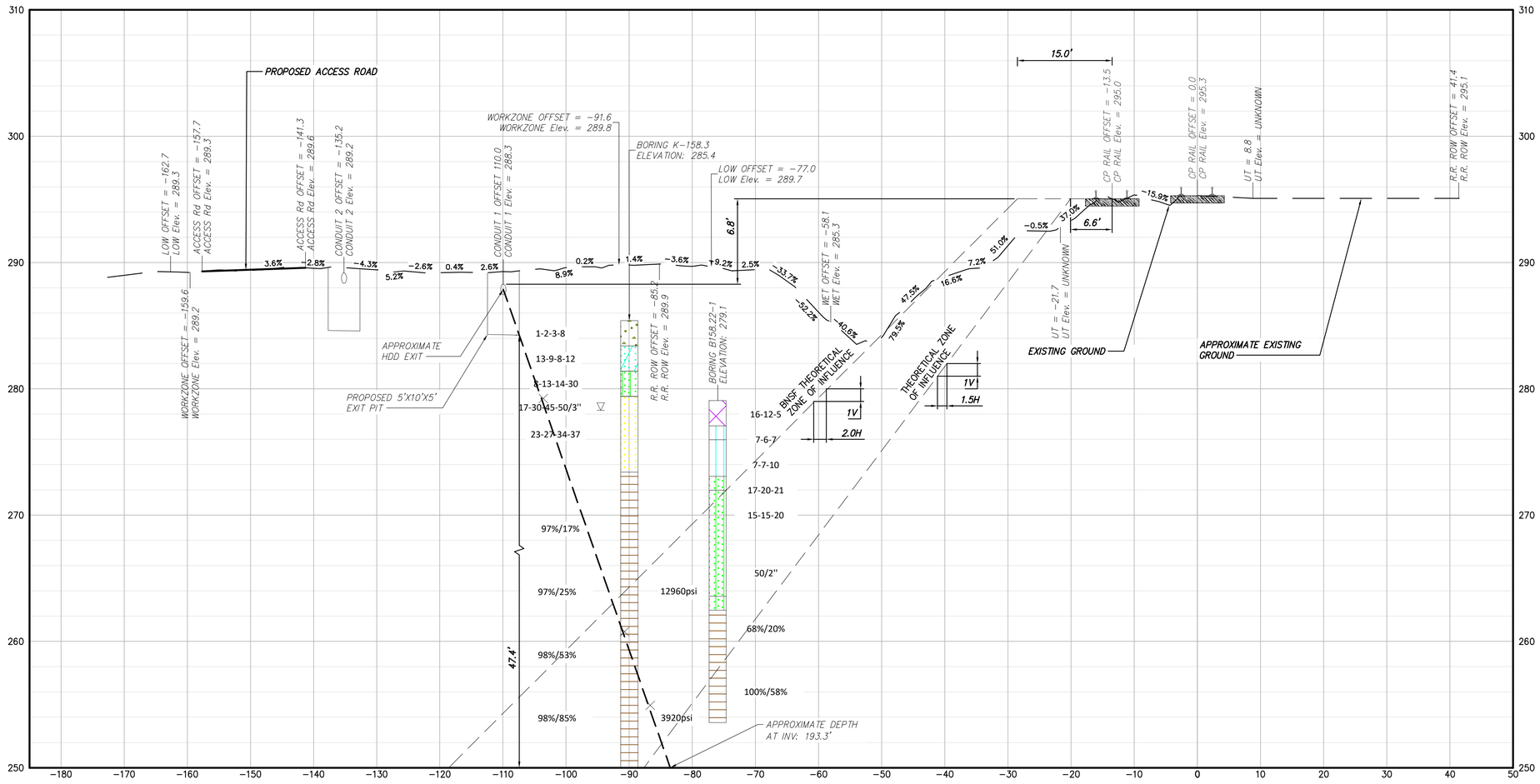

2 HDD #49 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31359+40
CP RAIL CANADIAN MAINLINE MP: 31.68

BORING LOG STRIP LEGEND

B101

Blow Counts per 6" = 10-10-10
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11000psi =UCS

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

Legend	
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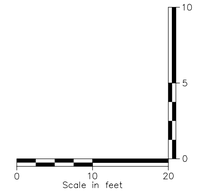

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 49 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-668.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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3 HDD #49 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31340+20

CP RAIL CANADIAN MAINLINE MP: 32.04

BORING LOG STRIP LEGEND

B101

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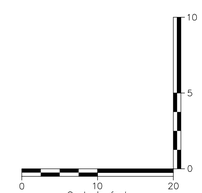

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CHAMPLAIN HUDSON POWER EXPRESS

SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON

HDD 49 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-668.2

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | DATE 04/05/2023 | REV. NO. C | SH.NO.

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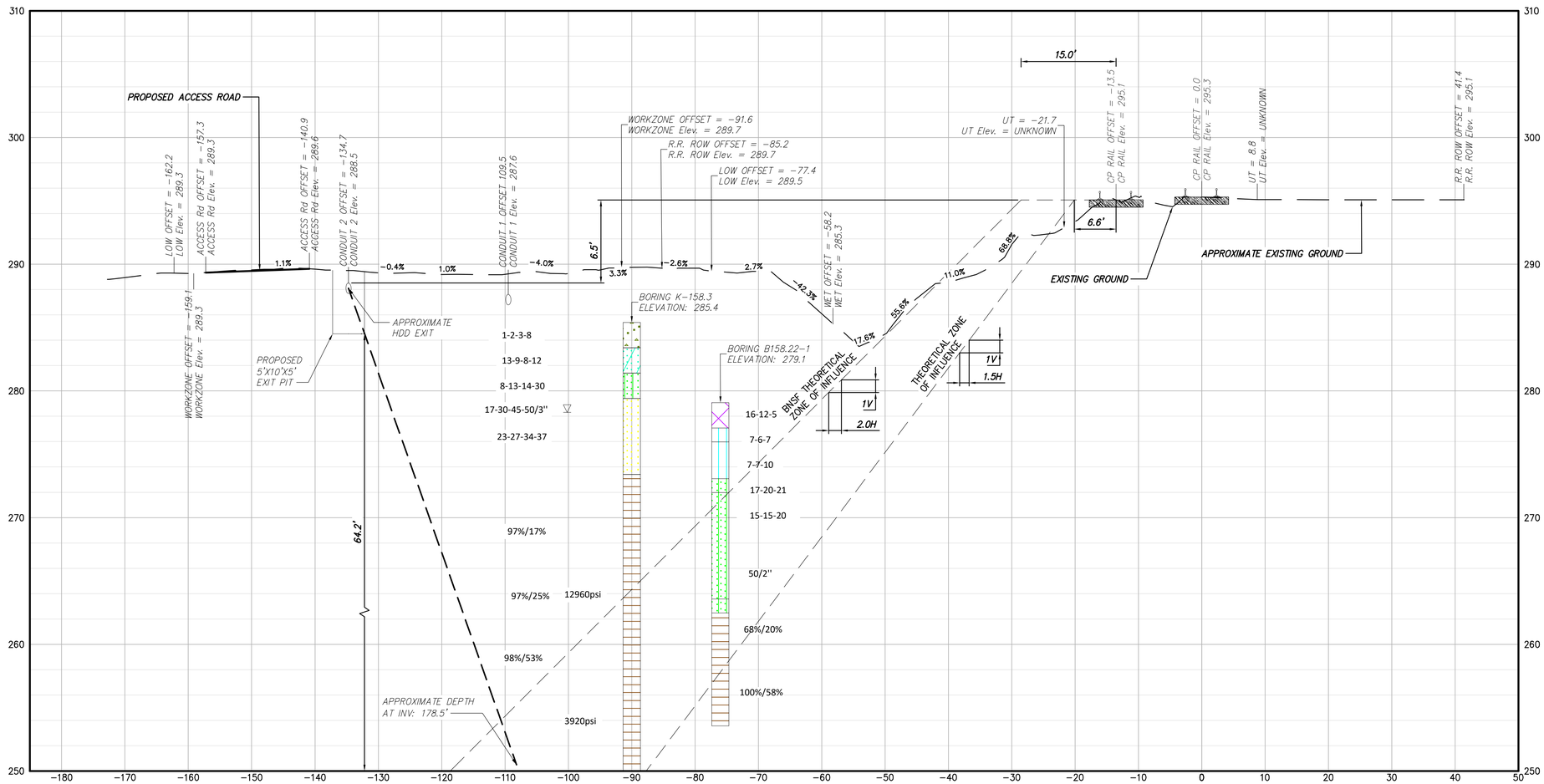

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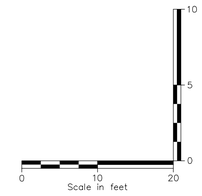
GC-GM	SILTY CLAYEY GRAVEL
GM	SILTY GRAVEL
GP	Poorly Graded GRAVEL
GP-GC	Poorly Graded Gravel with CLAY
GP-GM	Poorly Graded GRAVEL with SILT
GW	Well Graded GRAVEL
GW-GC	Well Graded GRAVEL with CLAY
GW-GM	Well Graded GRAVEL with SILT
Limestone	Limestone
MH	Elastic SILT
ML	SILT
OH	ORGANIC Fat CLAY
OL	ORGANIC 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

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Albany, NY 12205-0269
518.453.4500 . www.chacompanies.com

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	04/05/2023	FINAL EM&CP SUBMISSION	MCS	JEO

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 49 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-668.3

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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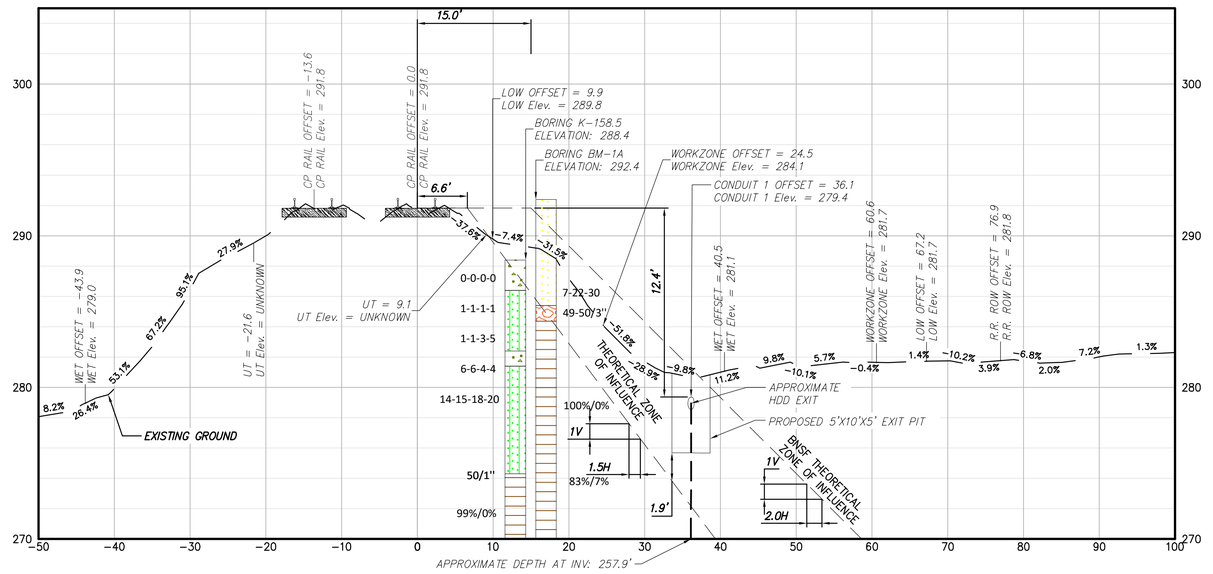
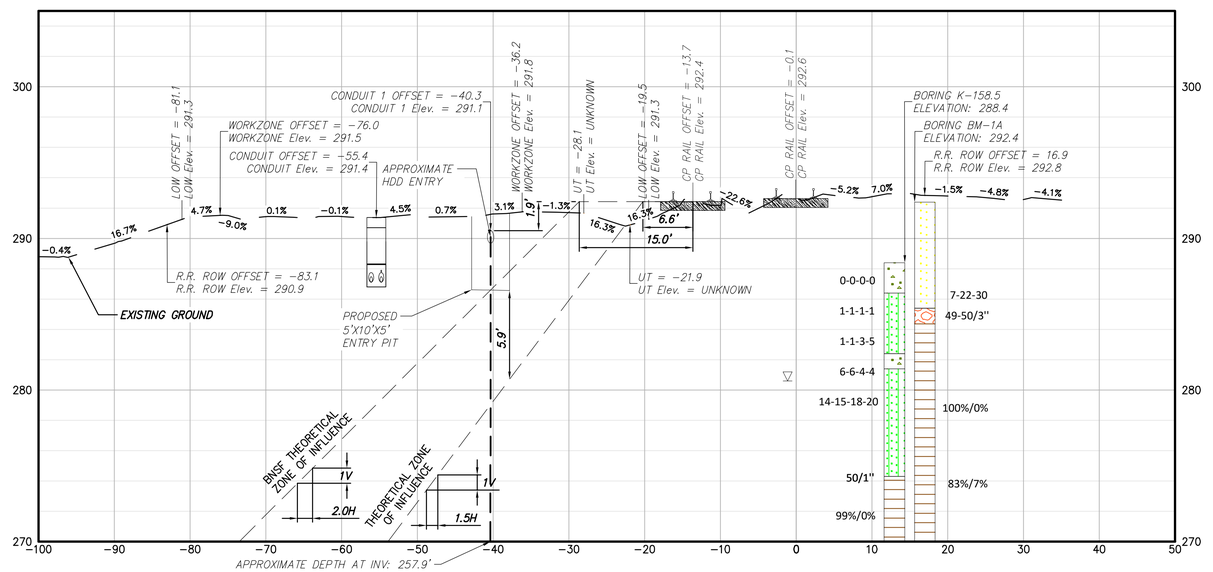
GENERAL NOTES:

1. THE CONTRACTOR SHALL RESTORE LAWNS, DRIVEWAYS, CULVERTS, SIGNS AND OTHER PUBLIC OR PRIVATE PROPERTY DAMAGED OR REMOVED TO AT LEAST AS GOOD A CONDITION AS BEFORE BEING DISTURBED AS DETERMINED BY THE ENGINEER.



2 HDD #50 CONDUIT 1 EXIT PIT CUT SECTION; STA. 31375+37
CP RAIL CANADIAN MAINLINE MP: 31.38



1 HDD #50 CONDUIT 1 ENTRY PIT CUT SECTION; STA. 31368+46
CP RAIL CANADIAN MAINLINE MP: 31.51

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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	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
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	SW-SC	Well Graded SAND with CLAY
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	USGS 601	Gravel or Conglomerate 1
	USGS 654	Subgraywacke
	USGS 670	Interbedded Sandstone and Shale
	USGS 702	Quartzite
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	Weathered Rock	Undefined
▼	Water Table	Water Table during drilling
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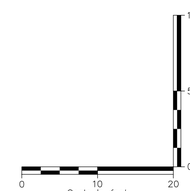

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 50 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-669

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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GENERAL NOTES:

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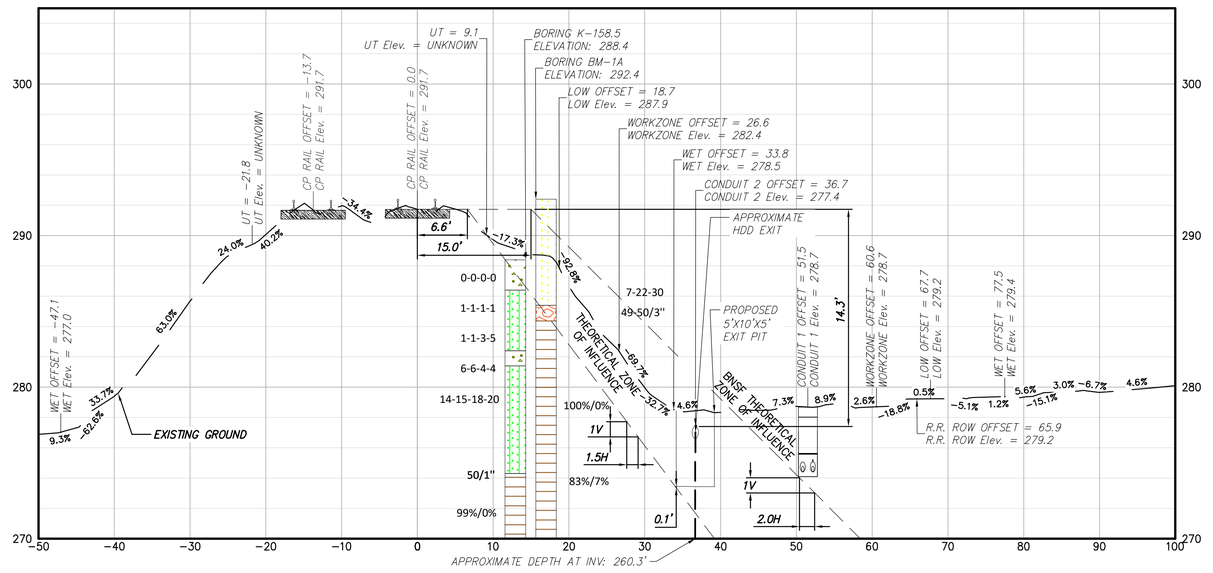
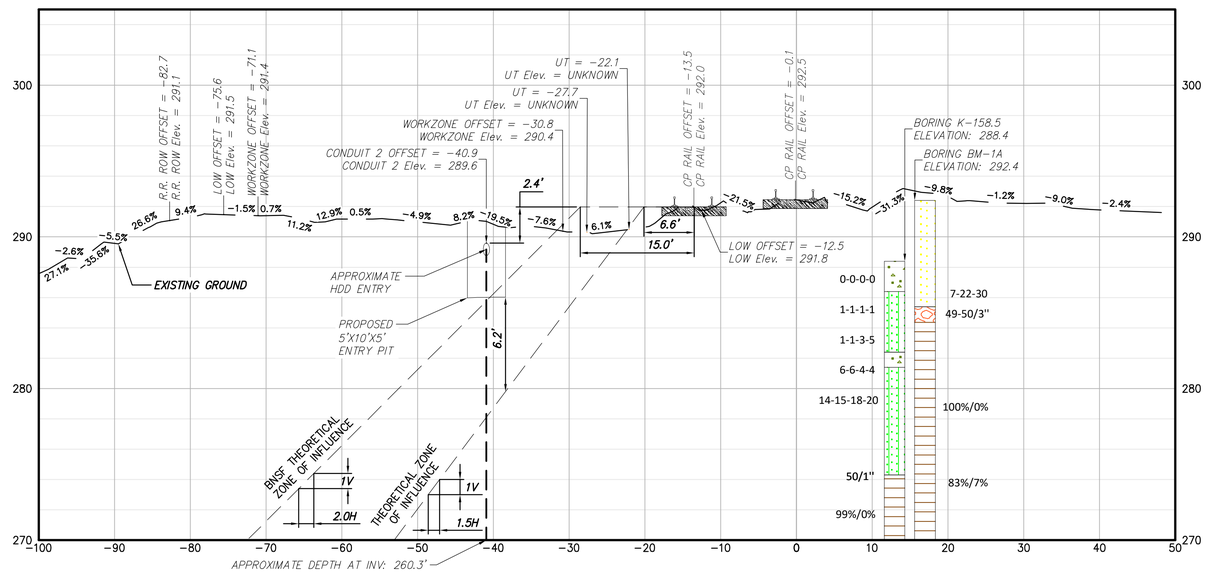


4 HDD #50 CONDUIT 2 EXIT PIT CUT SECTION; STA. 31376+76
CP RAIL CANADIAN MAINLINE MP: 31.36



3 HDD #50 CONDUIT 2 ENTRY PIT CUT SECTION; STA. 31369+76
CP RAIL CANADIAN MAINLINE MP: 31.49

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	
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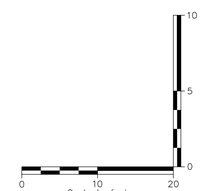

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENTS 4 & 5 (PACKAGE 3) - CP: FORT EDWARD TO MILTON
HDD 50 RAILROAD CROSS SECTION CUT

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	C-669.1

DRAWN BY: PRP | DESIGNED BY: PRP | APPROVED BY: JEO | SCALE AS NOTED | REV. NO. C | DATE 04/05/2023 | SH.NO.

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DESIGN SPECIFICATIONS

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

DESIGN LOADS

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 PLF
   - 2.2. 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
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.
10. SEISMIC LOADING
    - 10.1. BURIED STRUCTURES ARE NOT SUBJECT TO SEISMIC PROVISIONS.

MATERIALS:

1. REINFORCED CONCRETE
   - 1.1. f'c = 5,000 PSI AT 28 DAYS, UNO
   - 1.2. F3 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 2013
8. REINFORCED THERMOSETTING RESIN CONDUIT
   - 8.1. NEC 355
9. PVC
   - 9.1. SCH 40

ABBREVIATIONS:

APPR	APPROACH
BRG	BEARING
CIP	CAST IN PLACE
CL	CENTERLINE
CLR	CLEAR COVER
DIA	DIAMETER
EL	ELEVATION
G	GIRDER
HS	HIGH STRENGTH
ICS	INTERMEDIATE CONDUIT SUPPORT
ID	INSIDE DIAMETER
IPS	IRON PIPE SIZE
KSI	KIPS PER SQUARE INCH
LLV	LONG LEG VERTICAL
NOM	NOMINAL
OD	OUTSIDE DIAMETER
PC	PRECAST
PL	PLATE
PROT	PROTECTIVE
PVC	POLYVINYL CHLORIDE
RT	ROUTE
STA	STATION
SW	STANDARD WALL
T	THICKNESS
UNO	UNLESS NOTED OTHERWISE

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0	12/05/2022	FINAL SUBMISSION	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

STRUCTURAL GENERAL NOTES AND ABBREVIATIONS

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

KIEWIT PROJECT NO. 21162

DRAWING NO. S-705

DATE | SH.NO. XX

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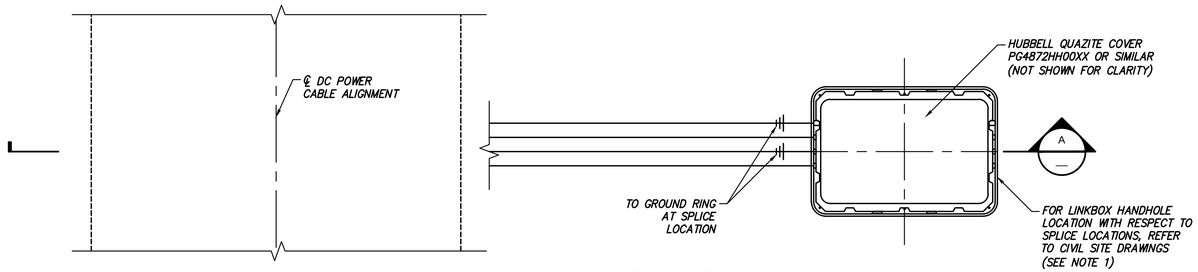
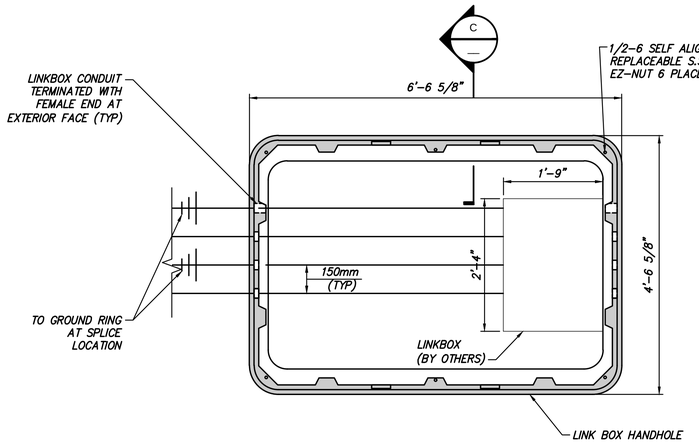
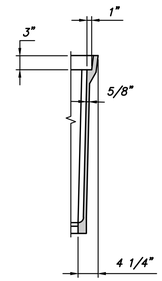


PLAN VIEW
SCALE: 3/8" = 1'-0"



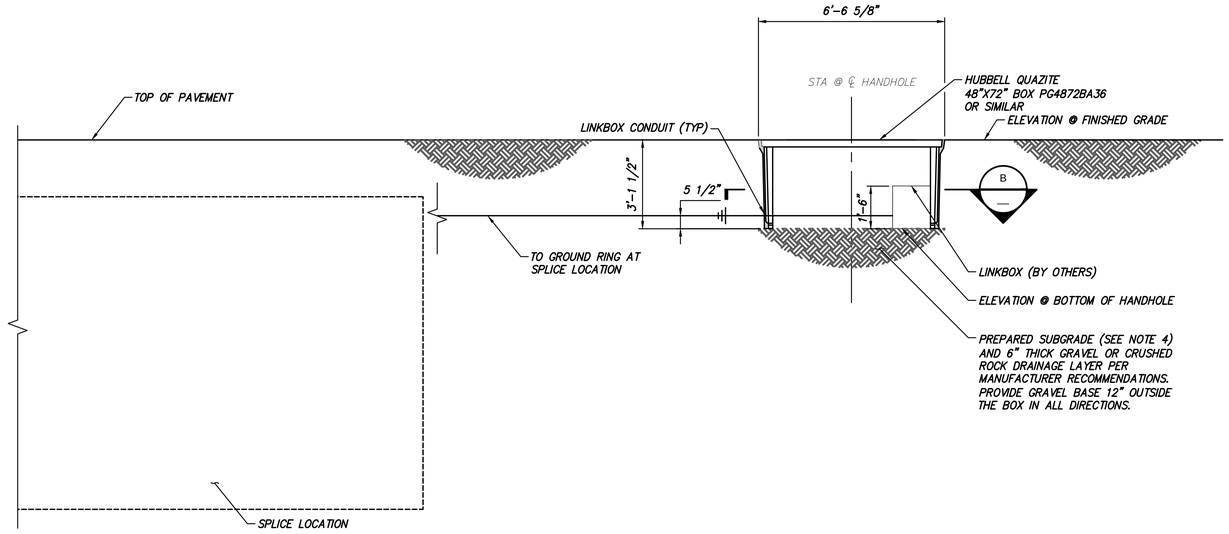
SECTION B
SCALE: 3/4" = 1'-0"



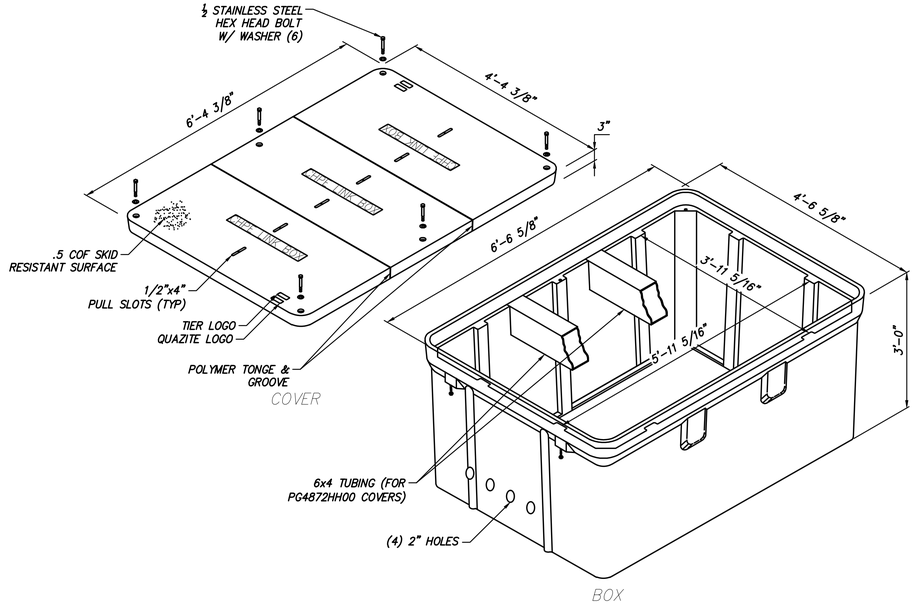
SECTION C
SCALE: 3/4" = 1'-0"

NOTES:

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



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



ISOMETRIC VIEW
SCALE: NTS

HUBBELL QUAZITE 48"x72" CORRUGATED WALL ASSEMBLY
PART NO. PG4872HH00XX AND PG4872BA36

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1	03/22/2023	FINAL SUBMITTAL	JNK	OO
0	01/20/2023	DRAFT FINAL SUBMITTAL	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

FRP LINK BOX HANDHOLES

KIEWIT PROJECT NO.	21162
DRAWING NO.	S-711

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO | SCALE AS SHOWN | DATE 12/16/2022 | REV. NO. B | SH.NO.

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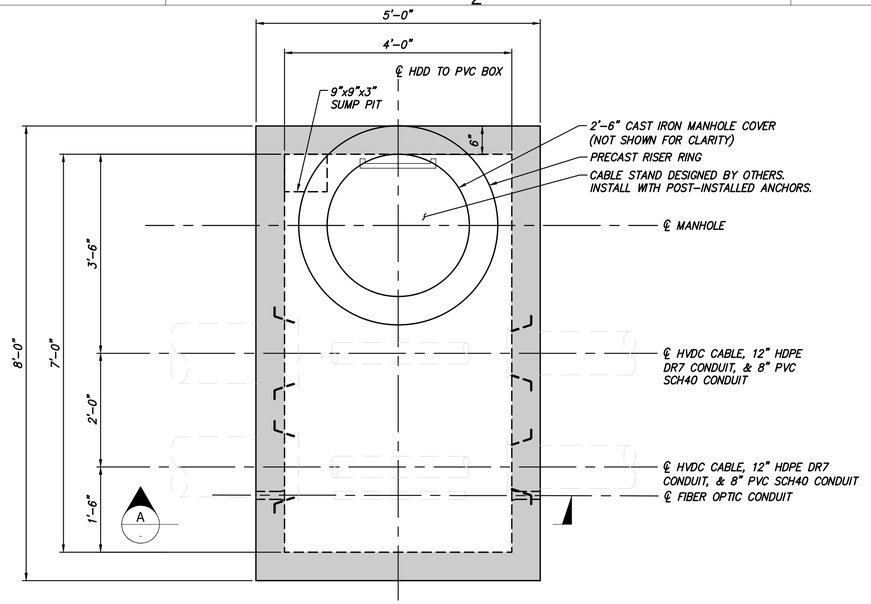
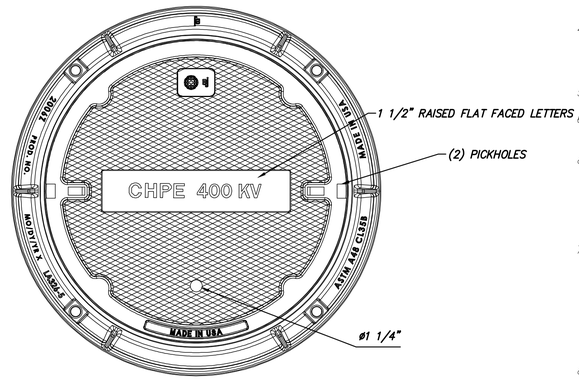


DOUBLE CONDUIT TRANSITION MANHOLE TOP VIEW

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



MANHOLE DETAIL

SCALE: 1" = 8'-0"

NOTES:

1. *DESIGN OF CONCRETE BOX PER AASHTO-LRFD & NYSDOT-LRFD. REFER TO PROJECT DESIGN CRITERIA REPORT FOR DETAILS.*
2. *MINIMUM CONCRETE STRENGTH F'C=5KSI AND GRADE 60 UNCOATED REBAR. WEIGHT OF STANDARD CONCRETE SECTION IS 150PCF.*
3. *BACKFILL: UNDRAINED IMPORTED GRANULAR SOIL AT REST PROPERTIES ARE USED FOR DESIGN, WITH 90PCF FLUID PRESSURE. FOR IMPORTED GRANULAR FILL, KA=0.31, KO=0.47, KP=3.25 ARE USED. UNIT WEIGHT OF GRANULAR BACKFILL IS 125PCF.*
4. *FLOWABLE FILL: SCENARIO EXISTS WHERE FLOWABLE FILL IS APPLIED TO SIDE WALLS OF BOX IN LIEU OF EARTHEN BACKFILL. THE UNIT WEIGHT OF FLOWABLE FILL IS 140PCF. THE HYDROSTATIC PRESSURE OF FLOWABLE FILL IS CRITICAL AS COMPARED TO ITS HARDENED STATE. WHEN HARDENED, IT IS ASSUMED THAT FLOWABLE FILL HAS KO=0.*
5. *ALLOWABLE VERTICAL SOIL PRESSURE = 2,000PSF, ULTIMATE FRICTION COEFFICIENT = 0.25.*
6. *HORIZONTAL EARTH PRESSURE PER AASHTO LRFD §3.11.5.1 (WITH KO). LATERAL EARTH PRESSURE PER AASHTO LRFD §12.11.2.2.1.*
8. *LIVE LOADING PER AASHTO LFRD §3.6.1.2.1, AS ENVELOPE OF:*
   - *DESIGN TRUCK LOAD*
   - *DESIGN TANDEM LOAD*
   - *300PSF MINIMUM VERTICAL LIVE LOAD PER GEOTECHNICAL REPORT.*

   LIVE LOAD DISTRIBUTION THROUGH EARTH FILL PER AASHTO LRFD §3.6.1.2.6a.
7. *LIVE LOAD SURCHARGE:*

   CASE 1: WITHIN NYSDOT RIGHT OF WAY, HS-20 LIVE LOADING (AASHTO LFRD §3.6.1.2.1) + 260PSF LATERAL LIVE LOAD SURCHARGE (AASHTO LRFD §3.11.6.4).

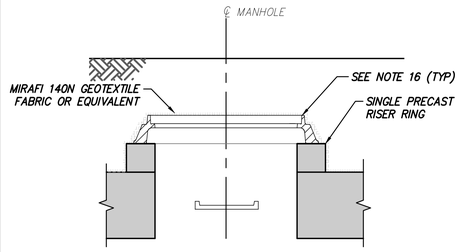
   CASE 2: WITHIN RAILWAY RIGHT OF WAY, NO HS-20 LIVE LOADING + 270PSF LATERAL LIVE LOAD SURCHARGE ONLY (PEAK COOPER E80 LOADING AT 25FT AWAY FROM TRACK CENTERLINE).
8. *WATER LOAD PER AASHTO LRFD §3.7.1. SPECIFIC WEIGHT OF WATER = 62.4PCF. ALL BOXES ARE ASSUMED TO BE SUBMERGED. FOR WATER LOAD ON WALLS USE UNDRAINED AT-REST CONDITION (90PCF x H) FOR LATERAL EARTH PRESSURE.*

   BUOYANCY PER AASHTO LRFD §3.7.1. SATISFY MINIMUM FS = 1.1 AGAINST BUOYANCY.
9. *LOADING CONSIDERATION:*
   DURING CONSTRUCTION: (FLOWABLE FILL)
   - *LATERAL LOADS FROM (140PCF x HEIGHT OF FLOWABLE FILL)*
   - *DC*
   - *NO APPLICATION OF DW, EV, LS, (LL+IM)*

   IN-SERVICE:
   - *LATERAL LOADS FROM (90PCF x HEIGHT OF FILL)*
   - *DC, DW, EV, LS, (LL+IM), WA*
10. *LOAD COMBINATIONS PER AASHTO LRFD §3.4.1 & §12.5, §C12.11.2.1, §C1.3.4.*
    SERVICE LIMIT STATES:
    - *1.00DC + 1.00DW + 1.00EV + 1.00(LL+IM) + 1.00EH + 1.00LS + 1.00WA*
    - *1.00DC + 1.00DW + 1.00EV + 1.00(LL+IM) + 1.00EH + 1.00WA*
    - *1.00DC + 1.00EV + 1.00EH + 1.00LS + 1.00WA*

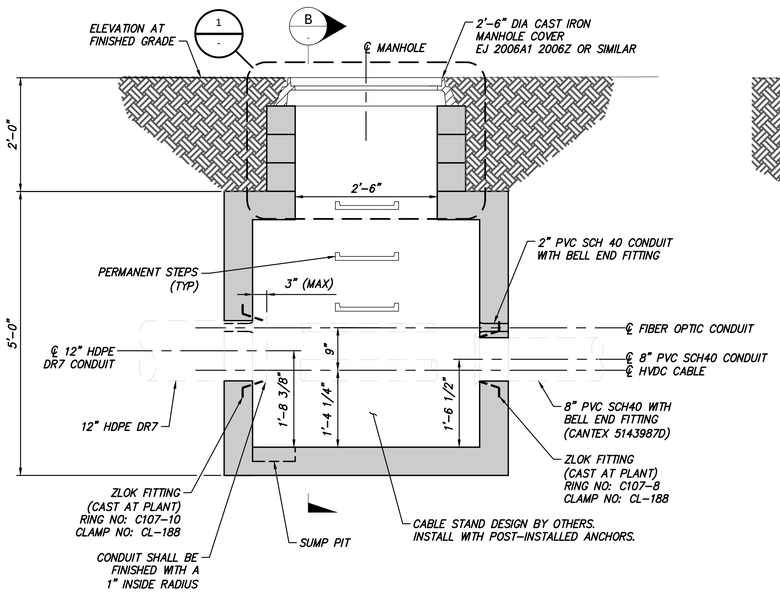
    STRENGTH LIMIT STATES:
    - *1.25DC + 1.50DW + (1.30)(1.05)EV + 1.75(LL+IM) + (1.35)(1.05)EH+ 1.75LS + 1.00WA*
    - *1.25DC + 1.50DW + (1.30)(1.05)EV + 1.75(LL+IM) + (0.90/1.05)EH + 1.00WA*
    - *0.90DC + 0.65DW + (0.90/1.05)EV + (1.35)(1.05)EH + 1.75LS + 1.00WA*
11. *RESISTANCE FACTORS PER AASHTO LRFD Table 12.5.5-1 & §5.5.4.2.*
    FOR REINFORCED CONCRETE CAST-IN-PLACE BOX STRUCTURES:
    - *FLEXURE=0.90*
    - *SHEAR=0.85*

    FOR REINFORCED CONCRETE PRECAST BOX STRUCTURES:
    - *FLEXURE=1.00*
    - *SHEAR=0.90*
12. *FLEXURE DESIGN PER AASHTO LRFD §5.6, §5.12.7 and Section 12. CRACK CONTROL PER AASHTO LRFD 5.6.7, § 5.10, §5.7.2.6, §12.11.4, AND § 5.4.2.6. (CLASS II EXPOSURE CONDITION).*
    REINFORCEMENT PER AASHTO LRFD §5.6.2, §5.6.4.2, §5.10 and §12.11
    REFER TO PROVISIONS OF AASHTO LRFD §5.7, §5.10, §5.12.7 and Section 12 FOR SHEAR.
13. *CONCRETE COVER PER AASHTO LRFD §12.11.5.4 and §5.10.1, TAKEN AS 1.0IN MINIMUM FOR PRECAST CONCRETE EXPOSED TO EARTH, CATEGORY A UNCOATED BARS.*
14. *ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.*
15. *A MINIMUM BEDDING SECTION CONSISTING OF A 4-INCH THICK MUDMAT OR 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.*
16. *AFTER CABLE COMMISSIONING, ADDITIONAL RISERS TO BE REMOVED, MANHOLE FRAME AND COVER TO BE LOWERED TO FINAL POSITION. MANHOLE FRAME AND COVER TO BE COVERED WITH 5' X 5' MIRAFI 140N GEOTEXTILE FABRIC OR EQUIVALENT. FULL DEPTH PAVEMENT WILL BE RESTORED PRIOR TO MILL AND OVERLAY AFTER CABLE COMMISSIONING.*



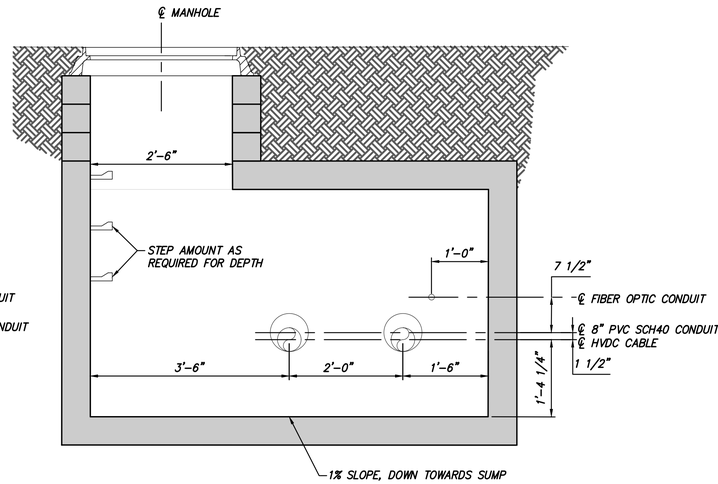
FINAL POSITION OF MANHOLE DETAIL 1

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



DOUBLE CONDUIT TRANSITION SECTION A

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



DOUBLE CONDUIT TRANSITION SECTION B

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

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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0	01/20/2023	DRAFT FINAL SUBMITTAL	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

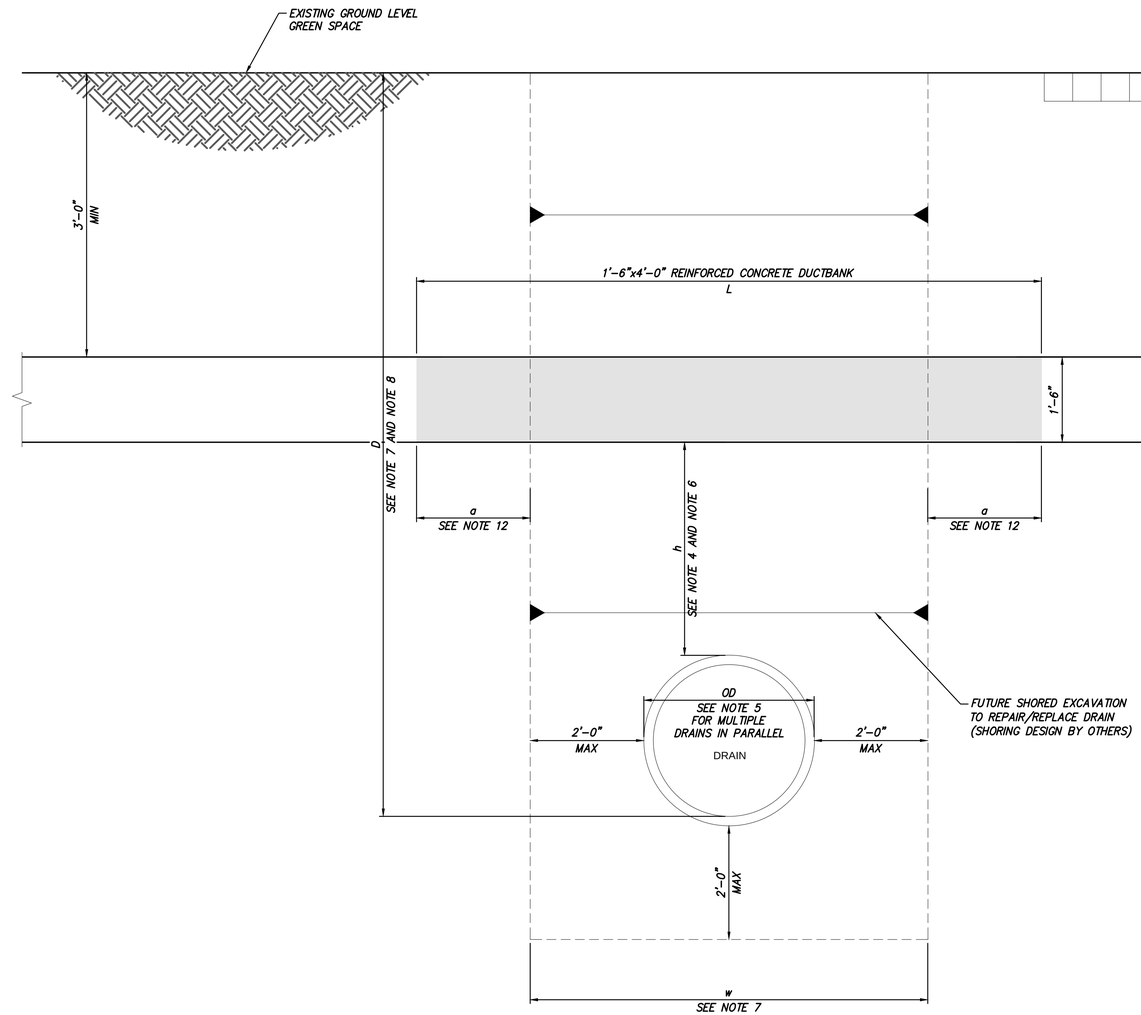
HDD TRANSITION BOX MANHOLE DETAILS

KIEWIT PROJECT NO. 21162

DRAWING NO. S-715

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO | SCALE AS SHOWN | REV. NO. 0 | DATE | SH.NO.

File: P:\VIE-CHPE\3-DES\07 STR\SHTS\21162_PROJECT-WIDE_S_715.DWG Saved: 3/15/2023 11:49:11 AM Plotted: 3/20/2023 10:47:42 AM Current User: Jack.Kempen LastSavedBy: Jack.Kempen



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

NOTES:

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

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0	01/20/2023	DRAFT FINAL SUBMITTAL	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

REINFORCING TRAY OVER UTILITIES

KIEWIT PROJECT NO. 21162

DRAWING NO. S-720

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

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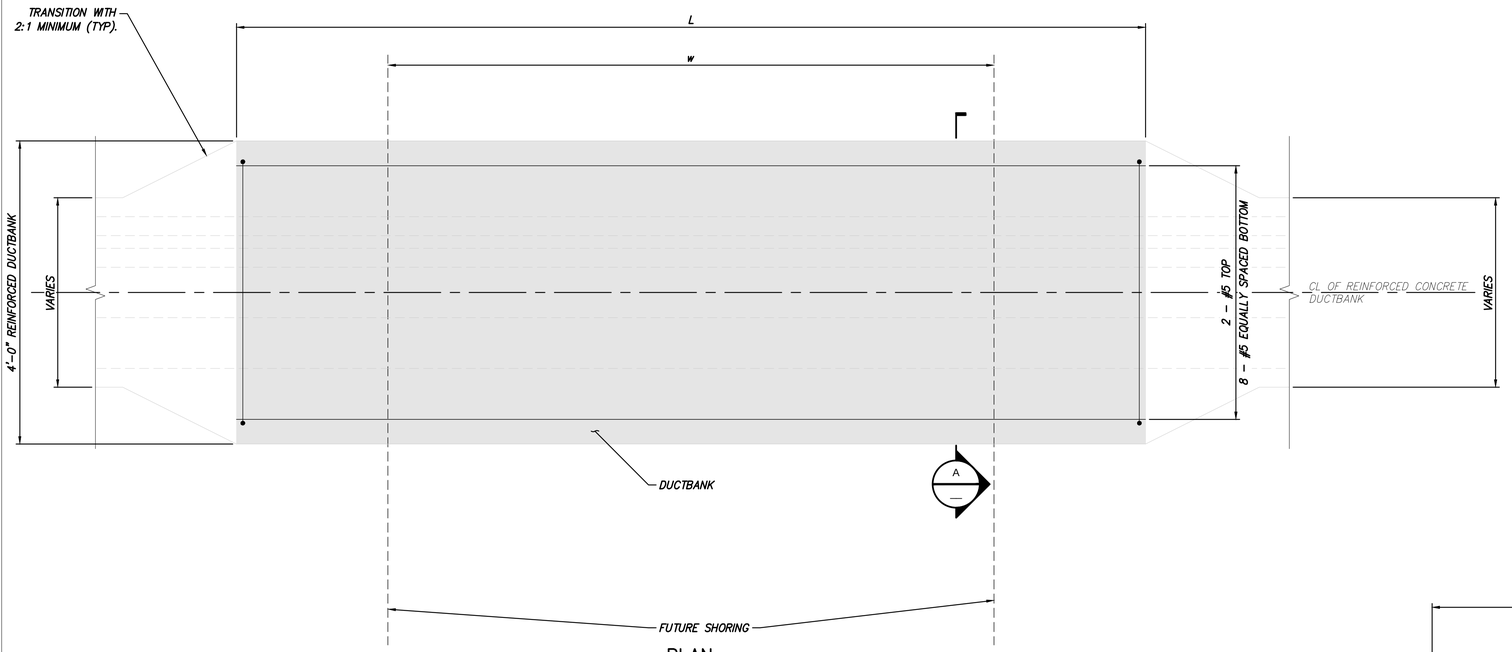
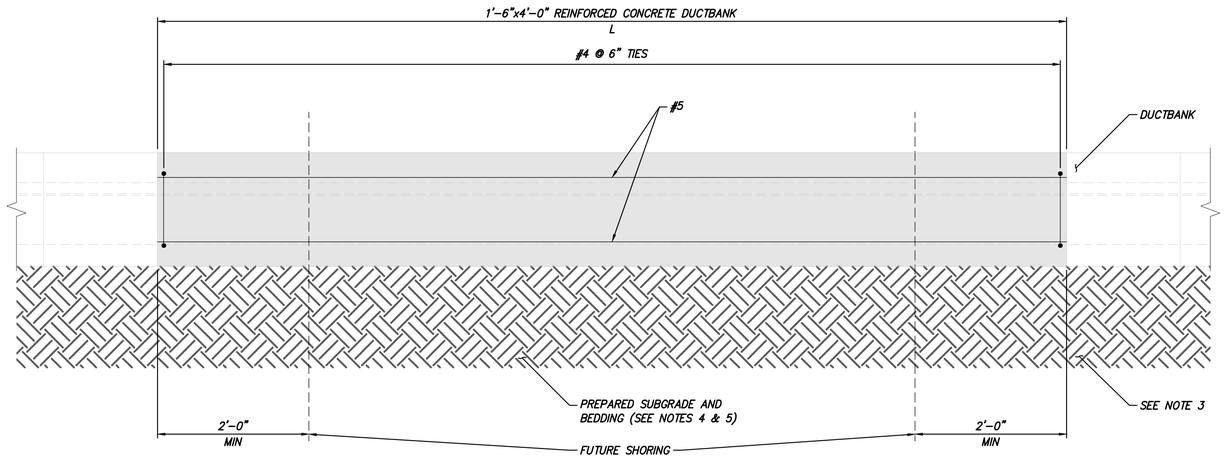


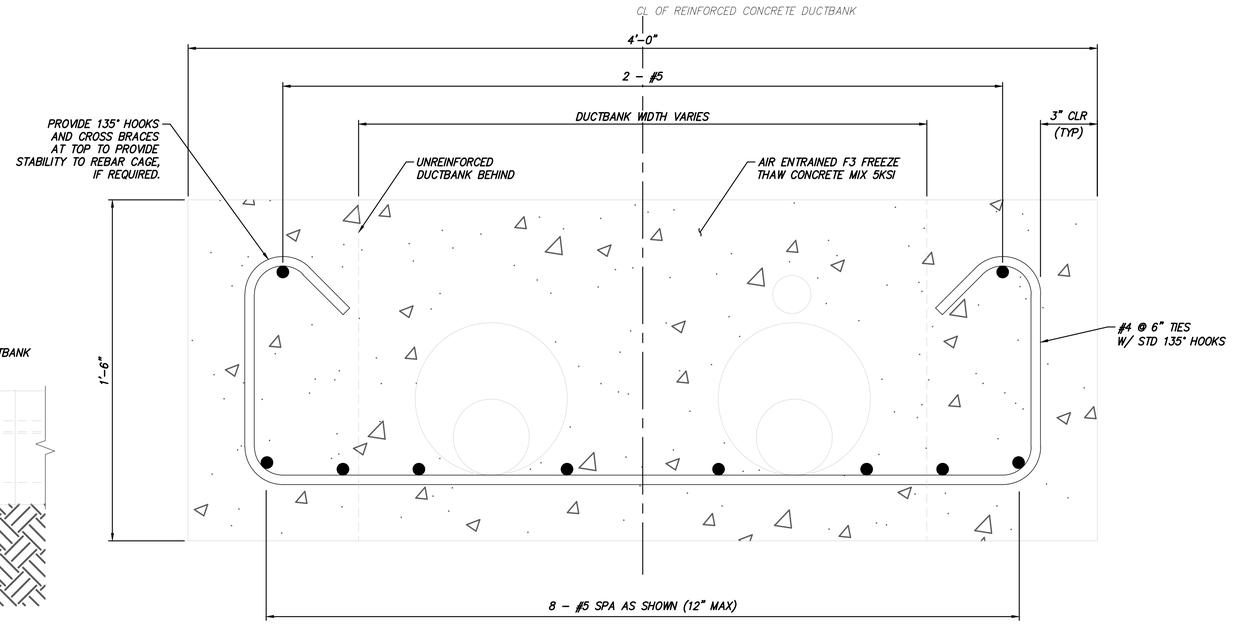
PLAN
SCALE: 1" = 1'-0"

NOTES:

1. DESIGNED PER AASHTO LRFD 9TH ED. THIS IS A BURIED STRUCTURE NOT EXPOSED TO DAILY TEMPERATURE CHANGES.
2. REINFORCED CONCRETE DUCTBANK IS TO SUPPORT THE SELF WEIGHT OF THE DUCTBANK WITH 1'-6" HEIGHT. USE FOLLOWING FOR DESIGN:
   SELF WEIGHT=1'-6"x150PCF=225PSF
   CONSTRUCTION LIVE LOAD=30PSF
3. COMPLETELY REMOVE SOIL ABOVE THE DUCTBANK, BEFORE EXCAVATING UNDER DUCTBANK. DO NOT EXCAVATE UNDERNEATH DUCTBANK IF SOIL IS PRESENT ABOVE THE DUCTBANK.
4. PREPARE SUBGRADE & FILL SIDES OF DUCTBANK SECTION BEFORE CASTING TRENCH CONCRETE.
5. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.
6. A MINIMUM BEDDING SECTION CONSISTING OF A 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.
7. SEE SHEET S-720 FOR DEFINITION OF VARIABLES.
8. MINIMUM CONCRETE STRENGTH F'C=5.0 KSI FOR F3 CATEGORY FREEZE-THAW EXPOSURE. GRADE 60 UNCOATED REBAR.
9. THE DESIGN SIMPLE SPAN FOR REINFORCEMENT IS CONSIDERED AS "w + a" WITH A TOTAL LENGTH OF "w + 2a". SUPPORTS ARE ASSUMED AT a/2 AT EACH END OF THE REINFORCED DUCTBANK.
10. THE REINFORCEMENT IN SECTION-A CONSIDERS A MAXIMUM VALUE OF w=23'-0", IN ORDER TO SAFELY CARRY ITS OWN WEIGHT (+30 PSF LIVE LOAD).



ELEVATION
SCALE: 1" = 1'-0"



SECTION A
SCALE: 3" = 1'-0"

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0	01/20/2023	DRAFT FINAL SUBMITTAL	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

REINFORCING TRAY DETAILS

KIEWIT PROJECT NO. 21162

DRAWING NO. S-721

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

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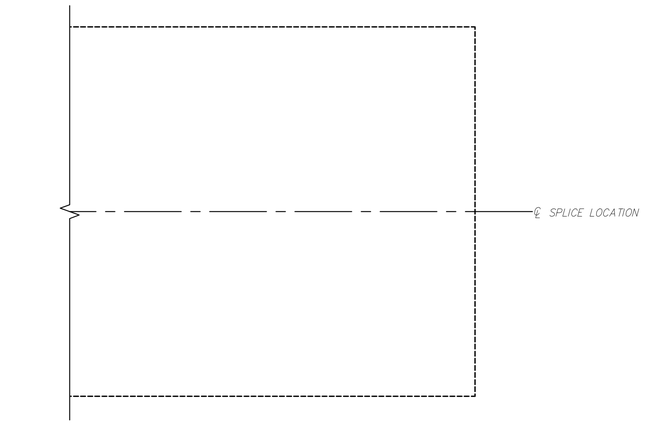
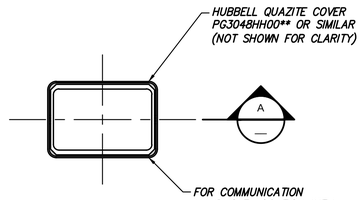
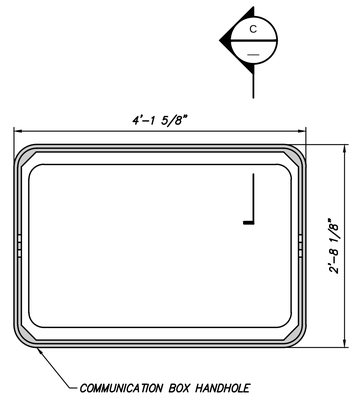
NOTES:

1. DESIGN LIVE LOAD: ANSI TIER 22 (OCCASIONAL NON-DELIBERATE HEAVY VEHICULAR TRAFFIC).
   VERTICAL DESIGN LOAD= 22,500 LBS;
   LATERAL DESIGN LOAD= 800 PSF.
   QUAZITE OR SIMILAR.
2. ESTABLISH STABLE SUBGRADE CONDITIONS AS DIRECTED BY THE GEOTECHNICAL ENGINEER OR THEIR REPRESENTATIVE.
3. MINIMUM 4 FT OF COVER OVER TOP OF BOX WHEN LOCATED WITHIN AGRICULTURAL LANDS. MAXIMUM COVER IS 4.5 FT OVER TOP OF BOX.





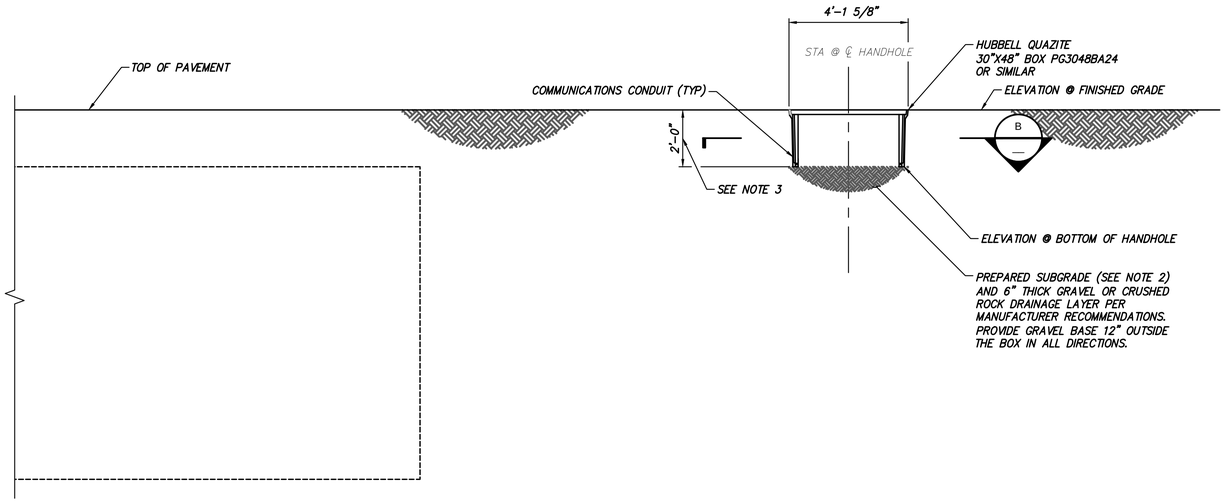
PLAN VIEW
SCALE: 3/8" = 1'-0"



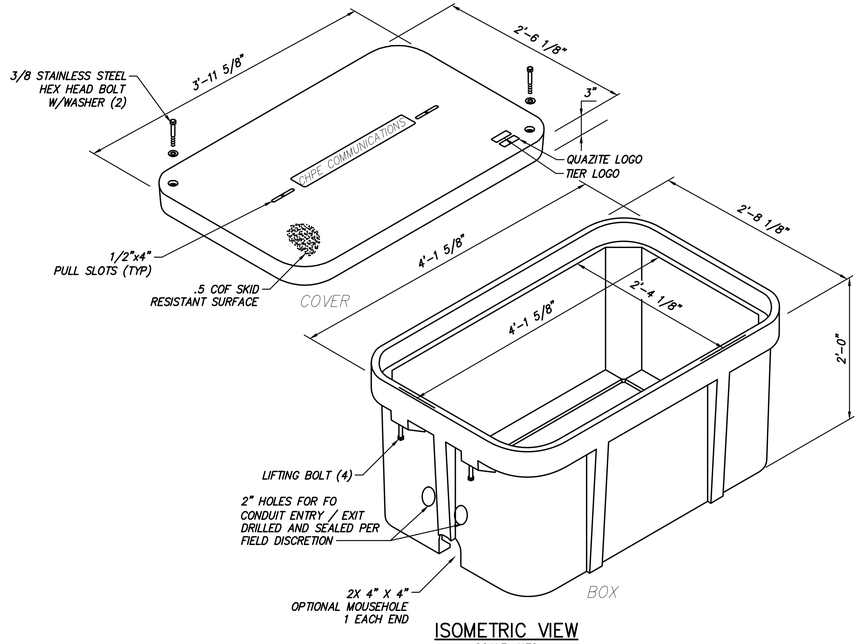
SECTION B
SCALE: 1" = 1'-0"



SECTION C
SCALE: 1" = 1'-0"



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



ISOMETRIC VIEW
SCALE: NTS

HUBBELL QUAZITE 30"x48" CORRUGATED WALL ASSEMBLY
PART NO. PG3048HH00** AND PG3048BA24

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0	01/20/2023	DRAFT FINAL SUBMITTAL	JNK	OO

CHAMPLAIN HUDSON POWER EXPRESS

FRP COMMUNICATION HANDHOLES

KIEWIT PROJECT NO.: 21162

DRAWING NO.: S-771

DRAWN BY: DRH | DESIGNED BY: JNK | APPROVED BY: OO | SCALE: AS SHOWN | REV. NO. | DATE: 12/16/2022 | SH.NO.

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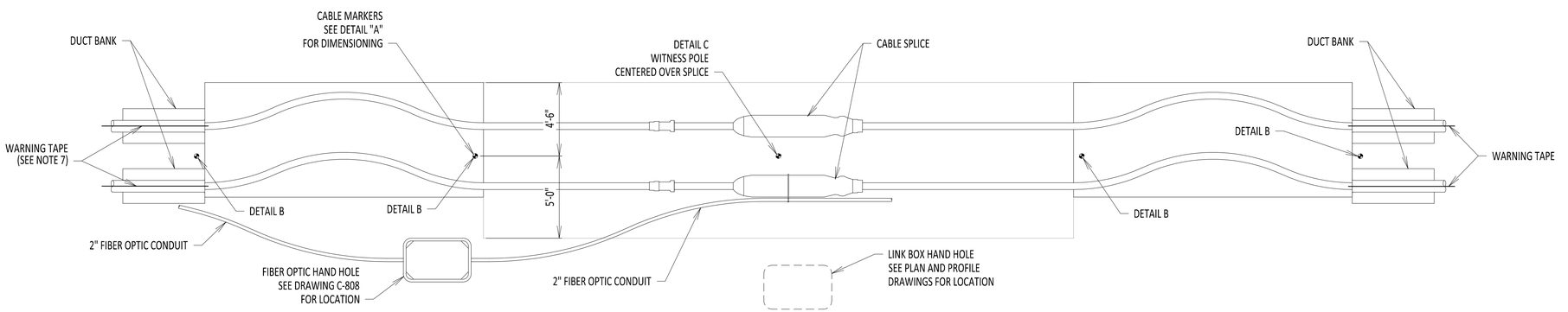
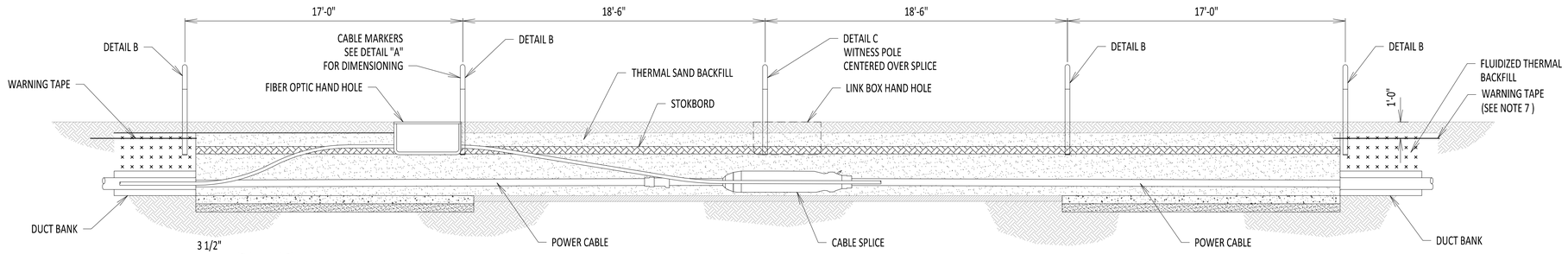


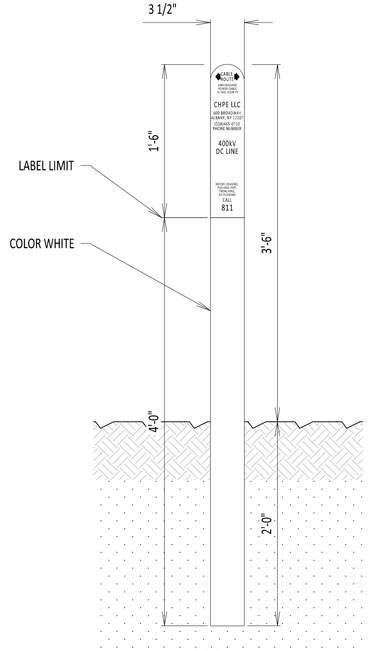
TYPICAL SPLICE LOCATION PLAN VIEW

NOT TO SCALE



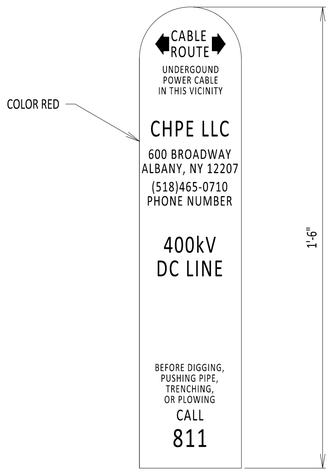
TYPICAL SPLICE LOCATION ELEVATION

NOT TO SCALE



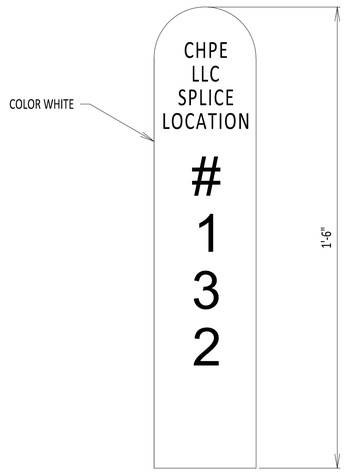
DETAIL A

NOT TO SCALE



DETAIL B

NOT TO SCALE



DETAIL C

NOT TO SCALE

NOTES:

1. POLES TO BE INSTALLED AT A DEPTH OF 2'-0" MINIMUM TO OPTIMIZE STABILITY.
2. IN PAVED AREAS, USE A-TAG PAVEMENT MARKERS OR APPROVED EQUAL
3. EXCLUDING ROAD SURFACES, CONDUIT LOCATED WITHIN RAILROAD RIGHT-OF-WAY SHALL BE MARKED USING POLE MARKERS LOCATED ABOVE THE CENTERLINE OF THE CONDUIT. CROSSINGS SHALL BE MARKED ON BOTH SIDES OF THE TRACK.
4. POLE SHALL DISPLAY THE FOLLOWING: NAME AND ADDRESS OF OWNER, CONTENTS OF CONDUIT, CONDUIT DEPTH BELOW GRADE, AND EMERGENCY TELEPHONE NUMBER.
5. POLES AND NEW CONSTRUCTION ELECTRIC A-TAG PAVEMENT MARKERS OR APPROVED EQUAL SHALL BE PLACED OVER THE PIPE AT ALL CHANGES IN DIRECTION OF THE CONDUIT. IN NO EVENT SHALL THEY BE PLACED MORE THAN 500 FEET APART.
6. OWNER MUST MAINTAIN SIGNS ON RAILWAY RIGHT-OF-WAY.
7. CABLE MARKERS PER AREMA CHAPTER 1 SECTION 5.5.2.i. A 6 INCH WIDE WARNING TAPE SHALL BE INSTALLED 1 FOOT BELOW NATURAL GRADE AND DIRECTLY OVER THE UNDERGROUND WIRELINE WITHIN THE RAILROAD RIGHT-OF-WAY. WARNING TAPE IS NOT REQUIRED FOR HORIZONTAL DIRECTION DRILLING ROUTES LOCATED ON RAILROAD PROPERTY. WITNESS POLES MUST BE PLACED AT RAILROAD RIGHT-OF-WAY FOR CROSSINGS AND PLACED EVERY 500 FEET FOR PARALLEL WIRELINES.
8. POLE MARKER LABEL SHALL BE VISIBLE 360 DEGREES AROUND POST. USE AT LEAST TWO LABELS PER POLE, AND ADD MORE AS NECESSARY TO MEET THIS REQUIREMENT.

CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK
DONGKAI CHEN
106996
LICENSED PROFESSIONAL ENGINEER

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/15/2023	ISSUED FOR CONSTRUCTION	DLM	ASM

CHAMPLAIN HUDSON POWER EXPRESS

ABOVE GROUND MARKING DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	**C-801**
DRAWN BY: DLM	DESIGNED BY: SD
APPROVED BY: ASM	SCALE
REV. NO. 0	DATE 03/15/2023
SH.NO.	OF

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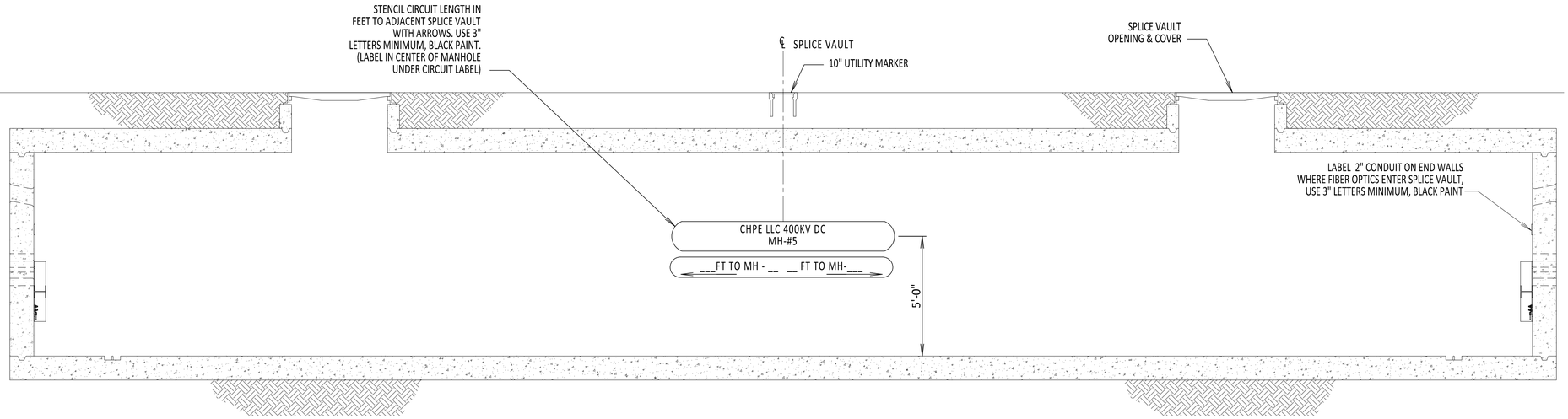
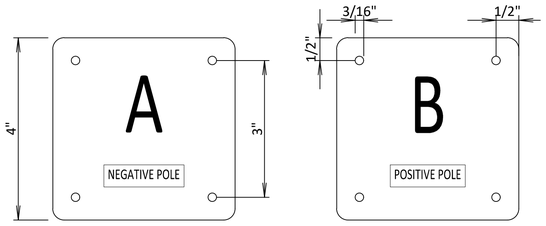
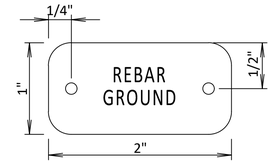


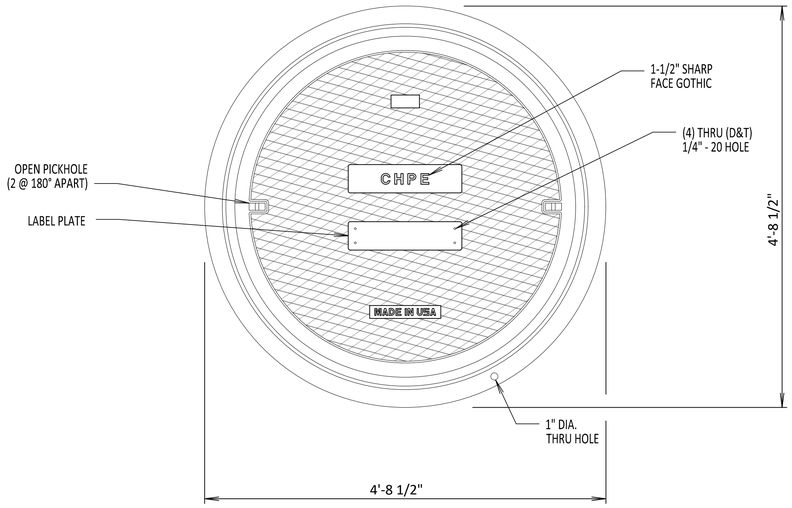
INSIDE SPLICE VAULT
NOT TO SCALE



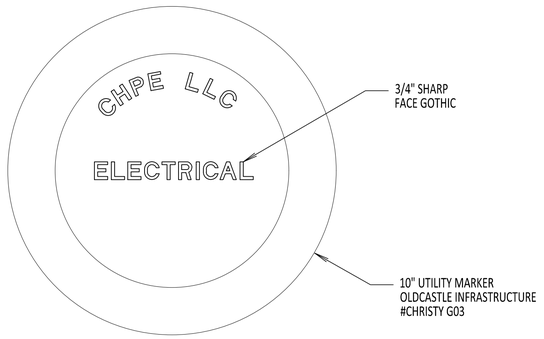
DC CABLE IDENTIFICATION TAGS
NOT TO SCALE



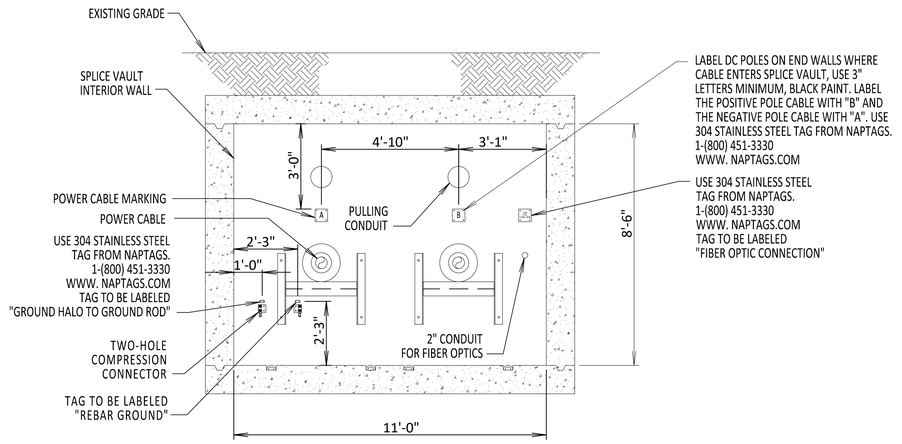
IDENTIFICATION TAGS
NOT TO SCALE



SPLICE VAULT LID MARKINGS PLAN VIEW
NOT TO SCALE



UTILITY MARKER DETAIL
NOT TO SCALE



INSIDE ENDWALL VIEW
NOT TO SCALE

CHPE Champlain Hudson Power Express

Kiewit

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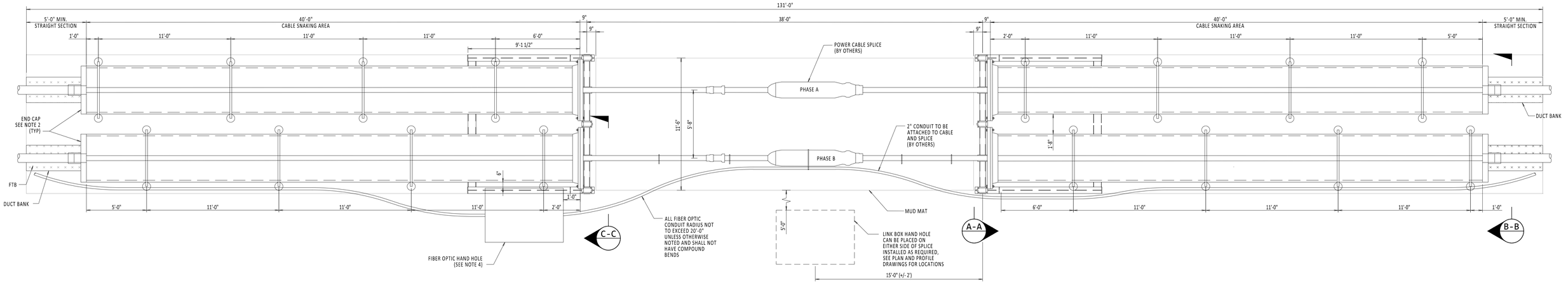
0	03/15/2023	ISSUED FOR CONSTRUCTION	DLM	ASM

CHAMPLAIN HUDSON POWER EXPRESS

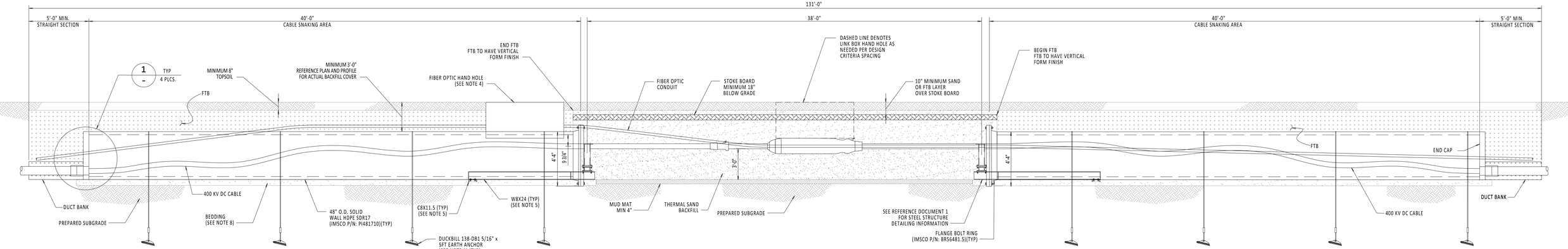
SPLICE VAULT AND CABLE MARKING DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	**C-807**

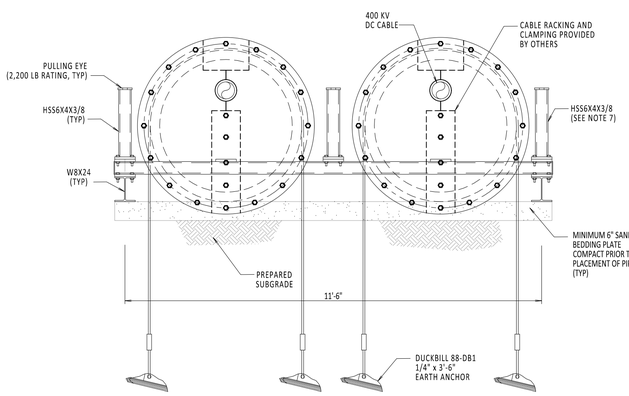
DRAWN BY: DLM | DESIGNED BY: SD | APPROVED BY: ASM | SCALE | DATE 03/15/2023 | REV. NO. 0 | SH.NO. OF



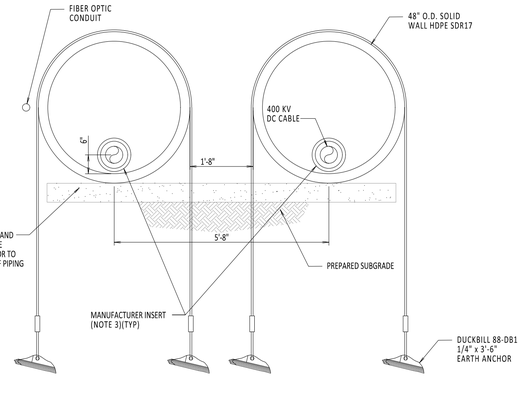
PLAN VIEW
OPEN SPLICE LOCATION
SCALE: 1/4" = 1'-0"



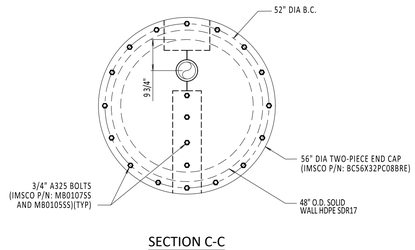
PROFILE VIEW
OPEN SPLICE LOCATION
SCALE: 1/2" = 1'-0"



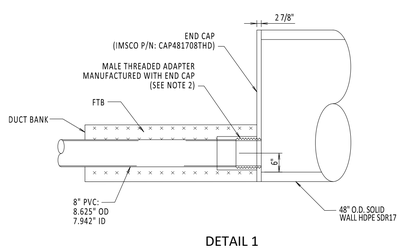
SECTION A-A
SCALE: 1/2" = 1'-0"



SECTION B-B
SCALE: 1/2" = 1'-0"



SECTION C-C
SCALE: 1/2" = 1'-0"



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

NOTE:

1. DUCKBILL ANCHORS TO BE INSTALLED PER MANUFACTURER'S RECOMMENDATIONS. ONE ANCHOR SHALL BE PULL TESTED AT EACH SPLICE LOCATION TO ACHIEVE A 3,000LB TENSION RATING. THE ENGINEER OF RECORD SHALL BE CONTACTED IF THE RATING IS NOT ACHIEVED. IF BEDROCK IS ENCOUNTERED, A MACLEAN POWER ROCK ANCHOR, CATALOG #J3436, SHALL BE USED, OR APPROVED EQUAL.
2. INSERT END CAP FITTING AS RECOMMENDED BY IMSCO (P/N: MTXSXPVC08ADPT FOR 8 INCH PVC CONDUIT; P/N: TF10095SMPT FOR 10 INCH HDPE DR9 CONDUIT; P/N: TF12075SMPT FOR 12 INCH HDPE DR7 CONDUIT) NO EXCEPTIONS.
3. SEE REFERENCE DOCUMENTS 2.
4. SEE REFERENCE DOCUMENT 3.
5. STEEL MEMBERS TO BE CAST INTO THE FLOWABLE THERMAL BACKFILL.
6. EXPANSION VESSEL CASING DESIGN IS BASED ON INFORMATION PROVIDED BY NKT APRIL 20, 2022 IN THE TECHNICAL REPORT TITLED "CHPE LAND CABLE JOINT LOCATION DESIGN CONSIDERATIONS" AND IS SUBJECT TO FURTHER CHANGE.
7. HSS ASSEMBLY TO BE INSTALLED FOR CABLE SNAKING OPERATION ONLY. ASSEMBLY SHALL NOT BE INSTALLED DURING BACKFILL.
8. MINIMUM 6" BEDDING. SEE REFERENCE DOCUMENT 4.

REFERENCE DOCUMENTS

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

CHPE Champlain Hudson Power Express

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Albany, NY 12205-0269
518.453.4500 . www.chacompanies.com

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0	09/16/2022	EM&CP REGULATORY RE-SUBMISSION	SS	ASM

CHAMPLAIN HUDSON POWER EXPRESS

TYPICAL OPEN PIT SPLICE CASING DETAILS

DRAWN BY: DLM | DESIGNED BY: SS | APPROVED BY: ASM | SCALE | REV. NO.

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

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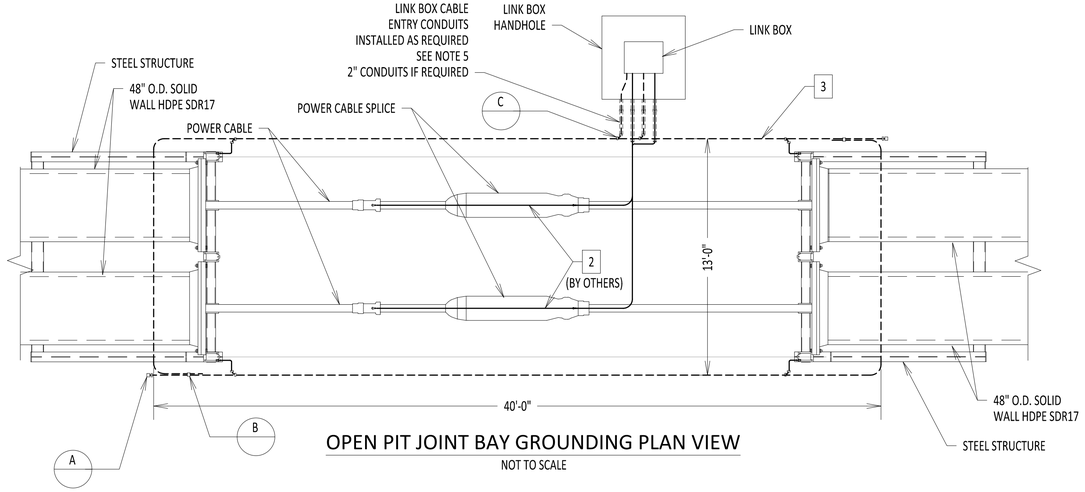
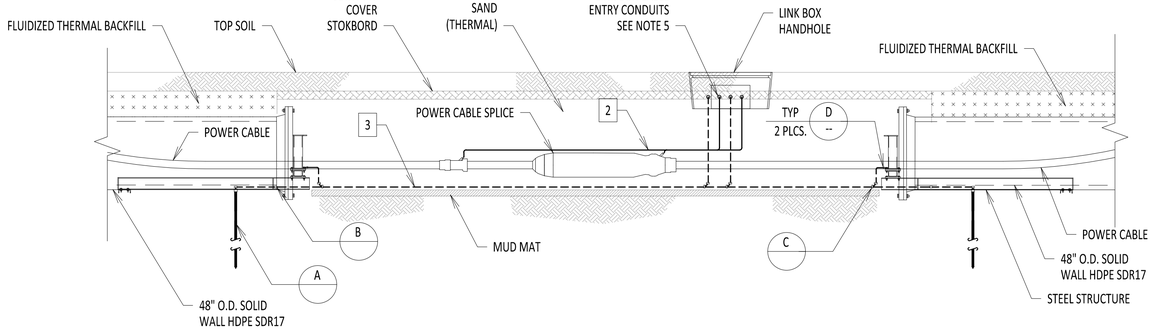


OPEN PIT JOINT BAY GROUNDING PLAN VIEW

NOT TO SCALE



OPEN PIT JOINT BAY GROUNDING ELEVATION

NOT TO SCALE

NOTES:

1. FOR ADDITIONAL DESIGN PARAMETERS SEE SPECIFICATIONS.
2. ALL GROUND CONNECTIONS SHALL BE IRREVERSIBLE COMPRESSION CONNECTION UNLESS OTHERWISE NOTED.
3. LINK BOX WILL CONTAIN FOUR DISCONNECTING LINKS, AS PROVIDED BY VENDOR.
4. POLYWATER FST SHALL BE USED TO SEAL CONDUIT.
5. BONDING CABLE CONNECTION BETWEEN HIGH VOLTAGE DC CABLE SPLICE AND LINK BOX SHALL BE NO LONGER THAN 30 FEET. FIELD FIT EXACT LOCATION.
6. RESISTANCE OF GROUND GRID MEASURED RELATIVE TO DEEP EARTH SHALL BE 10 OHMS OR LESS. LENGTH AND NUMBER OF GROUND RODS TO BE DETERMINED BASED ON MEASURED GROUND ROD RESISTANCE.
7. KIEWIT HAS PROVIDED GROUNDING AS PER NKT REQUIREMENTS. NO OTHER ELECTRICAL SYSTEM DESIGN HAS BEEN INCLUDED BY KIEWIT.

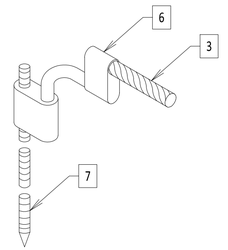
BILL OF MATERIALS

ITEM NO.	ITEM DESCRIPTION	MANUFACTURER & CATALOG NO.	PROVIDER	INSTALLER
1	LINK BOX	AS REQUIRED	NKT	KIEWIT
2	INSULATED GROUND CABLE	AS REQUIRED	NKT	NKT
3	BARE 4/0 GROUND CABLE	AS REQUIRED	KIEWIT	KIEWIT
4	COMPRESSION CROSS GRID CONNECTOR	BURNDY YGL29C29	KIEWIT	KIEWIT
5	COMPRESSION C CONNECTOR	BURNDY YGHC29C29	KIEWIT	KIEWIT
6	COMPRESSION CONNECTION TO GROUND ROD	BURNDY YGL34C29	KIEWIT	KIEWIT
7	3/4" X 10'-0" GROUND ROD	NVENT ERICO 613400	KIEWIT	KIEWIT
8	3/4" STUD RING TERMINAL	BURNDY YAD28M20E34	KIEWIT	KIEWIT

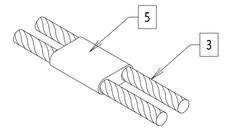
APPROVED EQUAL MATERIAL MAYBE SUBMITTED FOR REVIEW AND APPROVAL.
QUANTITIES ARE MINIMUM - PROVIDER IS RESPONSIBLE FOR ALL MATERIAL ITEMS AND QUANTITIES.

REFERENCE DRAWINGS

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



DETAIL A
NOT TO SCALE



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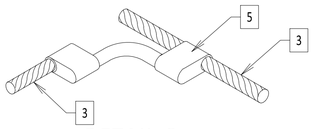

DETAIL C
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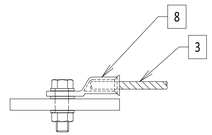

DETAIL D
NOT TO SCALE

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Albany, NY 12205-0269
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	09/16/2022	EM&CP REGULATORY RE-SUBMISSION	SD	ASM

DRAWN BY: DLM | DESIGNED BY: SD | APPROVED BY: ASM

CHAMPLAIN HUDSON POWER EXPRESS

OPEN PIT SPLICE
GROUNDING DETAILS

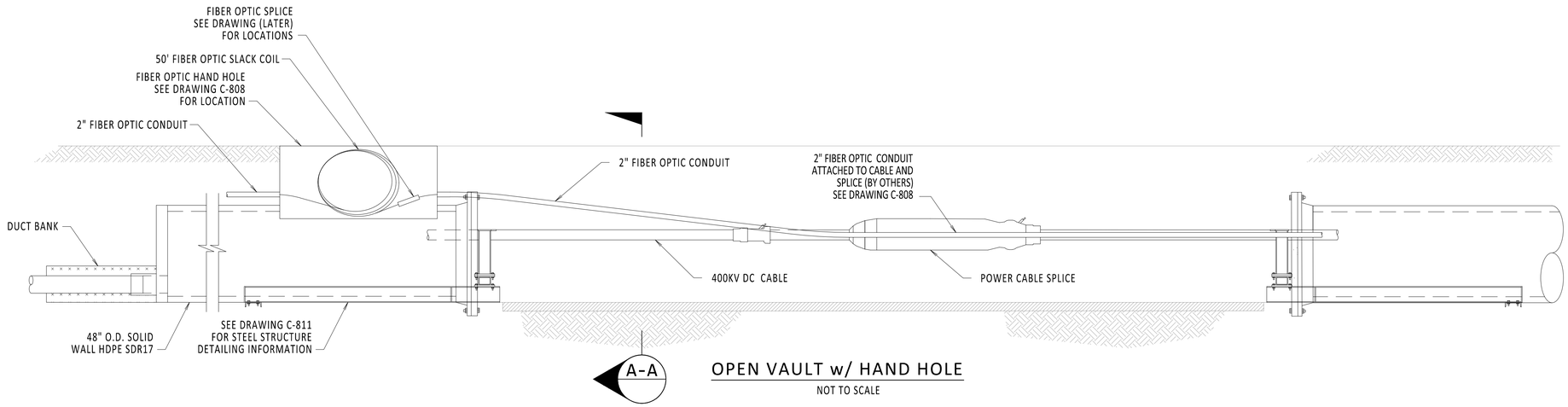
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	**C-809**
SCALE	NOT TO SCALE
DATE	09/16/2022
REV. NO.	
SH.NO.	OF XXX

NOTES:

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

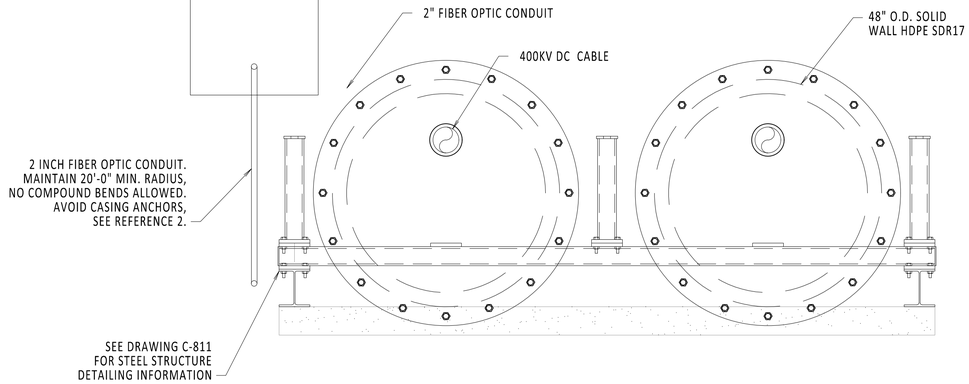
REFERENCE DOCUMENTS

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



OPEN VAULT w/ HAND HOLE

NOT TO SCALE



SECTION A-A
END WALL FIBER OPTIC CONDUIT ROUTING

NOT TO SCALE

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

DRAWN BY: TJMC | DESIGNED BY: MK | APPROVED BY: XX

CHAMPLAIN HUDSON POWER EXPRESS

OPEN VAULT w/ FIBER OPTICS
HAND HOLE

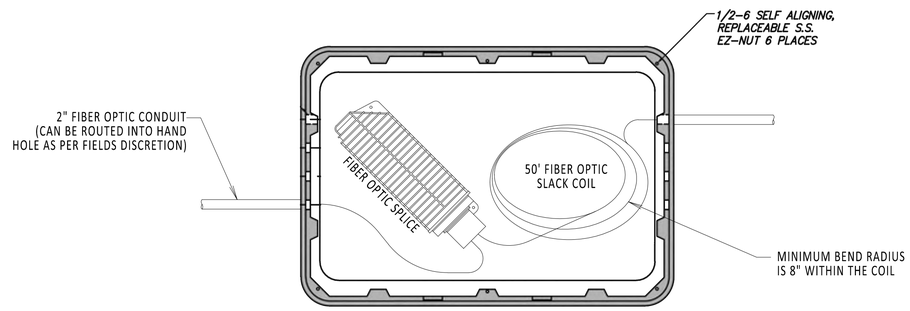
KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	**C-853**
SCALE	
REV. NO.	
DATE	09/16/2022
SH.NO.	OF XXX

NOTES:

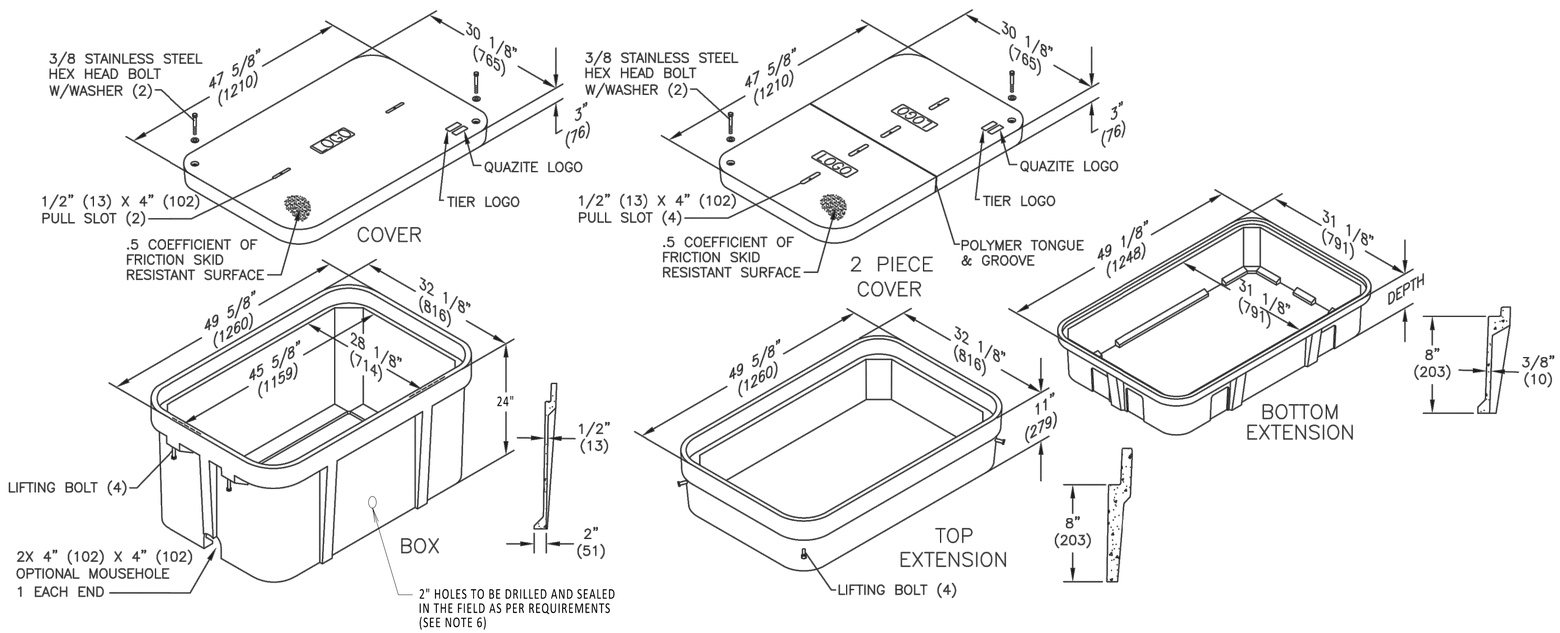
1. FIBER OPTIC COIL TO BE PLACED IN BOTTOM OF HAND HOLE. OBSERVE MINIMUM BEND RADIUS.
2. SPLICE ALL FIBERS STRAIGHT THROUGH.
3. FIBER OPTIC SPLICE CLOSURE ONLY AT SPECIFIC LOCATIONS. SEE PLAN AND PROFILE FOR DETAILS.
4. GROUNDING REQUIREMENTS TO BE DETERMINED.
5. HAND HOLE AT ALL OPEN SPLICE LOCATIONS.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

REFERENCE DOCUMENTS

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



HAND HOLE
TOP VIEW
NOT TO SCALE



ISOMETRIC VIEW
NOT TO SCALE

CHPE Champlain Hudson Power Express

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CHAMPLAIN HUDSON POWER EXPRESS

FIBER OPTIC HAND HOLE DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	**C-854**
DATE	03/15/2023
SH.NO.	OF

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

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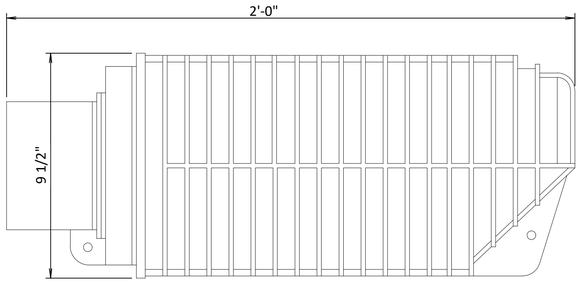
NOTES:

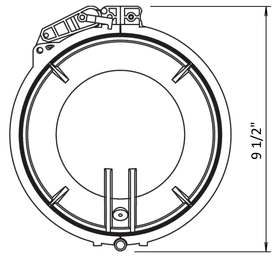
1. MAINTAIN 18" SWEEPS ON ALL CONDUITS.
2. DTS HUT FIBERS WILL SPLICE TO BLUE TUBE FIBER COLORS BLUE, ORANGE, GREEN AND BROWN.
3. SEE REFERENCE DOCUMENTS 2, 3, 4 AND 5 FOR PLACEMENT DETAILS.
4. FIBER OPTIC SPLICE CLOSURE ONLY IN SPECIFIC LOCATIONS. SEE PLAN AND PROFILES FOR DETAILS.

REFERENCE DOCUMENTS

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



FIBER OPTIC SPLICE CLOSURE
NOT TO SCALE



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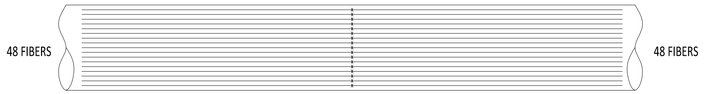
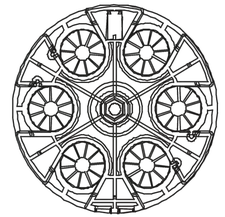
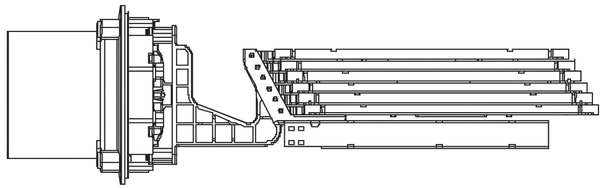


FIBER OPTIC CABLE SPLICE
DIAGRAM TYPICAL
NOT TO SCALE



FIBER OPTIC SPLICE CLOSURE
GEL-BLOCK PROFILE
NOT TO SCALE



FIBER OPTIC SPLICE CLOSURE
INSIDE DIAGRAM
NOT TO SCALE

CHPE Champlain Hudson Power Express

Kiewit

STATE OF NEW YORK · MICHAEL REIHS WHEELER · LICENSED PROFESSIONAL ENGINEER · 103646

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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	03/15/2023	ISSUED FOR CONSTRUCTION	DLM	ASM

DRAWN BY: DLM | DESIGNED BY: NM | APPROVED BY: MK

CHAMPLAIN HUDSON POWER EXPRESS

FIBER OPTIC SPLICE DETAILS

KIEWIT PROJECT NO.	21162
CHA PROJECT NO.	066076
DRAWING NO.	**C-855**
SCALE	
DATE	03/15/2023
REV. NO.	0
SH.NO.	OF

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