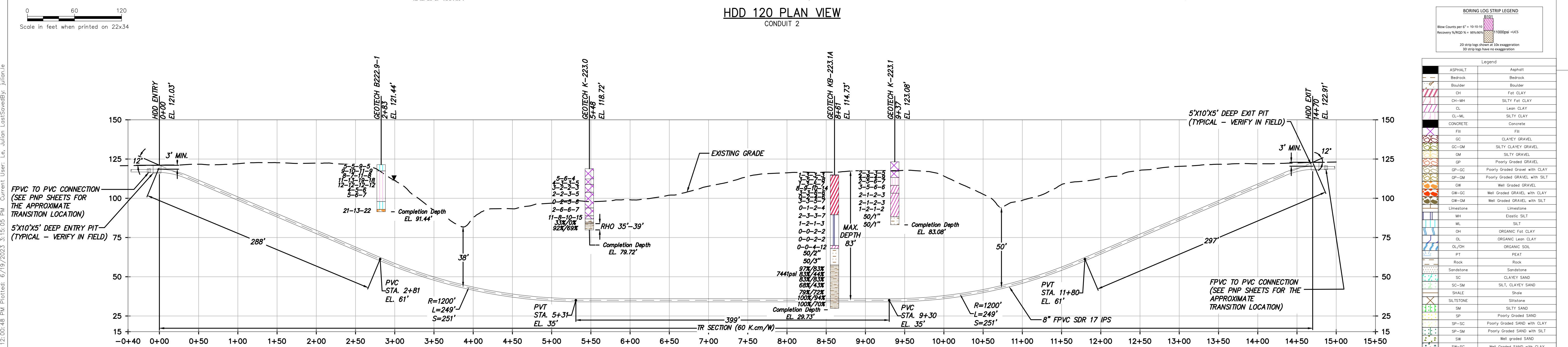
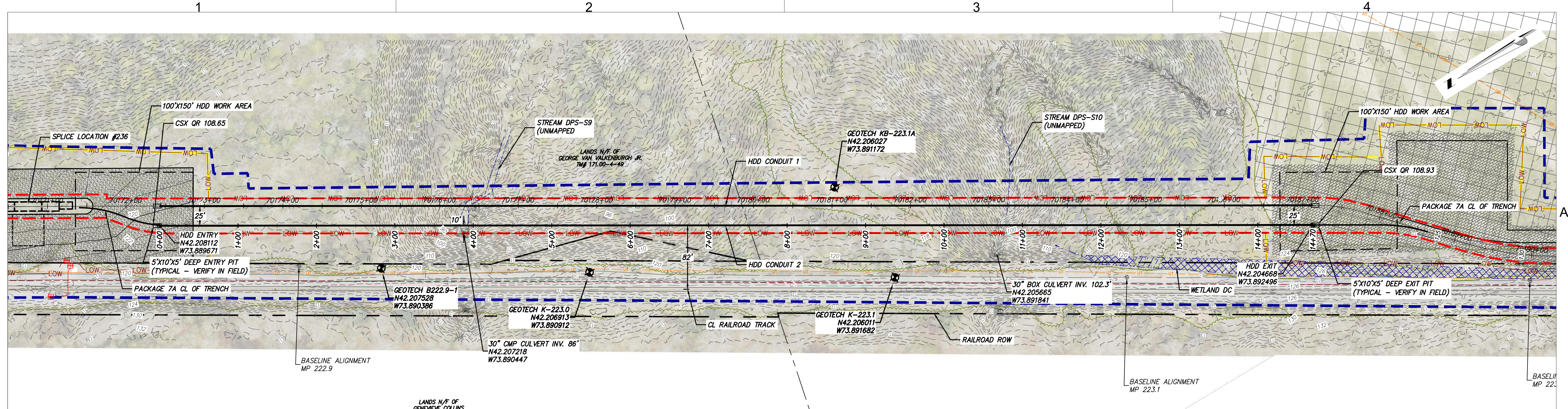




- DESIGN AND CONSTRUCTION NOTES:**

 1. INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
 2. 8.625" FPVC MIN. W.T. 0.510" SDR 17 IPS PIPE.
 3. 3.500" HDPE MIN. W.T. 0.389" DR 9 IPS PIPE.
 4. HDD HORIZONTAL LENGTH (L): 1487'
 5. HDD DESIGNED PIPE LENGTH (S): 1487'
 6. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
 7. THE MINIMUM SEPARATION DISTANCE FROM EXISTING SUBSURFACE UTILITIES SHALL NOT BE LESS THAN 10 FT.
 8. AS-BUILT HORIZONTAL SEPARATION BETWEEN CASING 1 AND CASING 2 SHALL BE GREATER THAN 15 FT.
 9. DRILL CONTRACTOR AND/OR GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUCTOR CASING.
 10. SPT N-VALUES SHOWN ON THIS DRAWING ARE NOT CORRECTED FOR SAMPLER SIZE OR HAMMER ENERGY. REFERENCE BORING LOGS AND GEOTECHNICAL REPORTS FOR ADDITIONAL SOIL INFORMATION.
 11. DRILL CONTRACTOR SHALL UTILIZE BUOYANCY CONTROL MEASURES (INTERNAL WATER USED FOR BALLAST) DURING PULLBACK FOR ALL BUNDLED CASINGS.
- GENERAL NOTES:**

 1. ALL BURIED LINE DEPTHS ARE APPROXIMATE. PRIOR TO ANY EXCAVATION OR EXPLORATORY BORING, CONTRACTOR MUST CONTACT 811 AND ABIDE BY ALL STATE EXCAVATION REQUIREMENTS. CONTRACTOR MUST CONTACT CSX WHENEVER ON RR ROW.
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 3. ALL COORDINATES ARE IN NEW YORK STATE PLANE, NAD83, EAST ZONE, US FOOT.



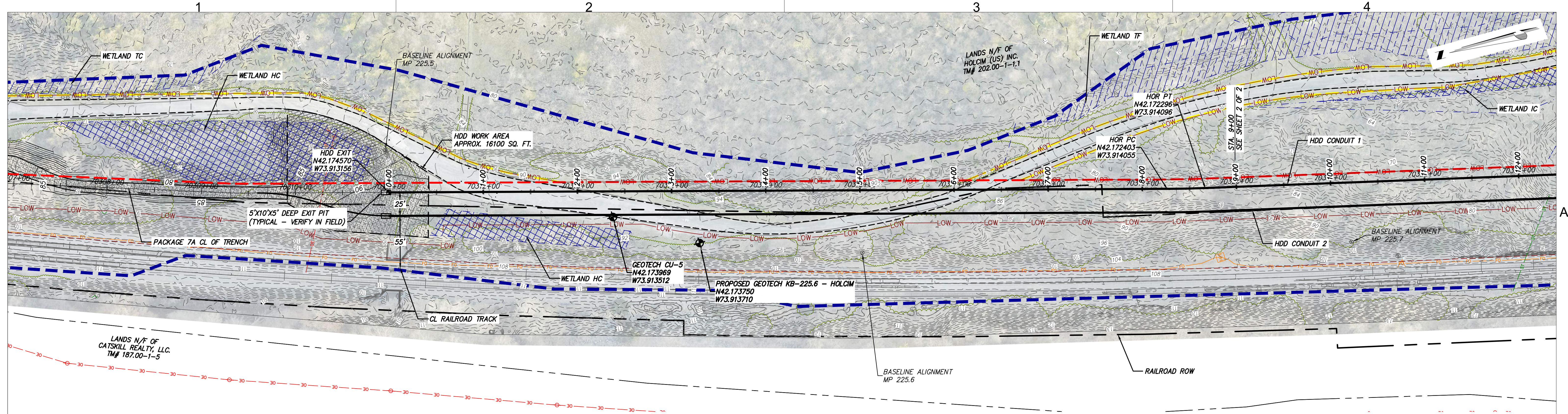
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL

PLAN AND PROFILE - HDD 120
RAILROAD CULVERT CROSSING - CONDUIT 2
GREENE COUNTY, NY

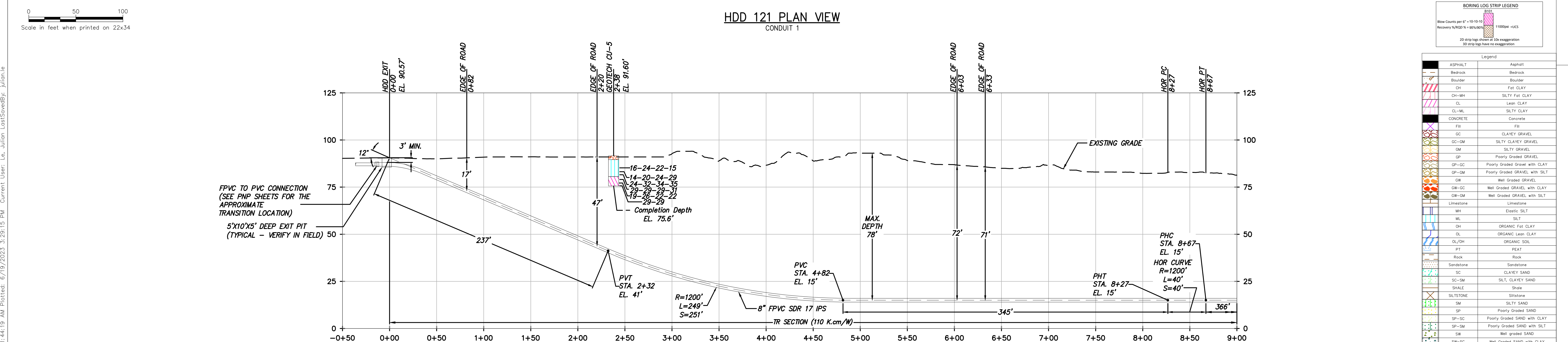
KIEWIT PROJECT NO. 21162
TT PROJECT NO. 204-3701
DRAWING NO. **C-320.2**

DATE 06/19/2023
OF

No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP	DRAWN BY:	DESIGNED BY:	APPROVED BY:	SCALE	AS SHOWN	DATE
0	06/19/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MRS	EJK	MRS	AMC	EJK	REV. NO.	0	06/19/2023



HDD 121 PLAN VIEW
CONDUIT 1



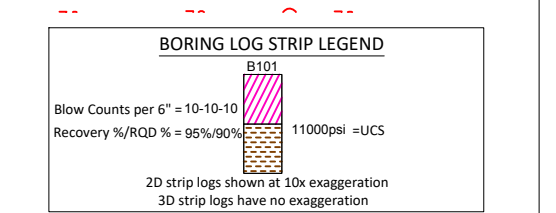
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4. HDD HORIZONTAL LENGTH (L): 1740'
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GENERAL NOTES:

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3. ALL COORDINATES ARE IN NEW YORK STATE PLANE, NAD83, EAST ZONE, US FOOT.

HDD 121 PROFILE VIEW
CONDUIT 1



Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
CH	Fat CLAY
CH-MH	SILTY Fat CLAY
CL	Lean CLAY
CL-MH	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-GM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
SP	Poorly Graded SAND
SP-SC	Poorly Graded SAND with CLAY
SP-SM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-SM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgravel
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling

Champlain Hudson Power Express

Kiewit

TETRA TECH

TETRA TECH ENGINEERING AND SURVEYING P.C.
(A NEW YORK PROFESSIONAL CORPORATION)

STATE OF NEW YORK
EDWARD J. KELLY
LICENSED PROFESSIONAL ENGINEER
094981

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0	06/19/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MRS	EJK
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL

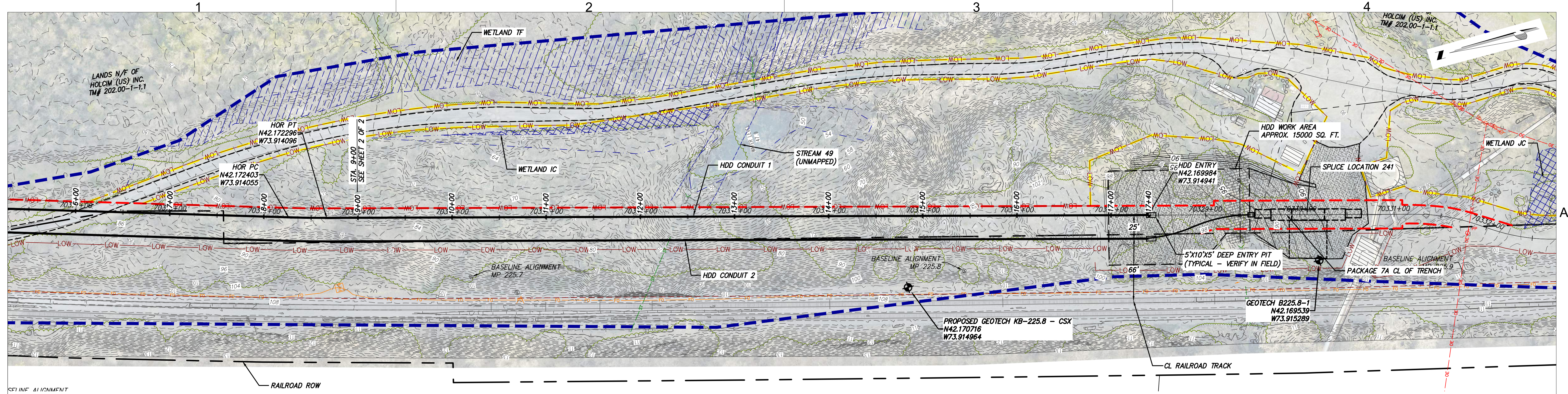
PLAN AND PROFILE - HDD 121 PAGE 1
WETLAND CROSSING - CONDUIT 1
GREENE COUNTY, NY

DRAWN BY: MRS	DESIGNED BY: AMC	APPROVED BY: EJK	SCALE	AS SHOWN	DATE
			REV. NO.		06/19/2023
					OF

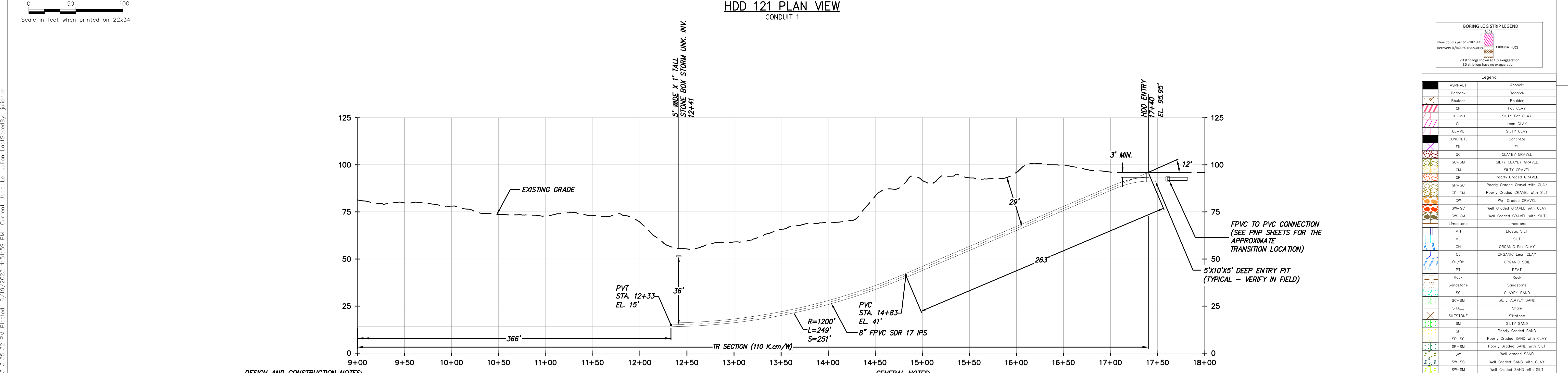
KIEWIT PROJECT NO.
21162

TT PROJECT NO.
204-3701

DRAWING NO.
C-321



HDD 121 PLAN VIEW
CONDUIT 1



HDD 121 PROFILE VIEW
CONDUIT 1

DESIGN AND CONSTRUCTION NOTES:

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BORING LOG STRIP LEGEND	
Blow Counts per 6" = 10-10-10	Recovery %/RQD % = 95%/80%
1100psi - UCS	
3D strip logs shown at 10x exaggeration 3D strip logs have no exaggeration	

Legend	
ASPHALT	Asphalt
Bedrock	Bedrock
Boulder	Boulder
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Water Table	Water Table during drilling
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TETRA TECH ENGINEERING AND SURVEYING P.C.
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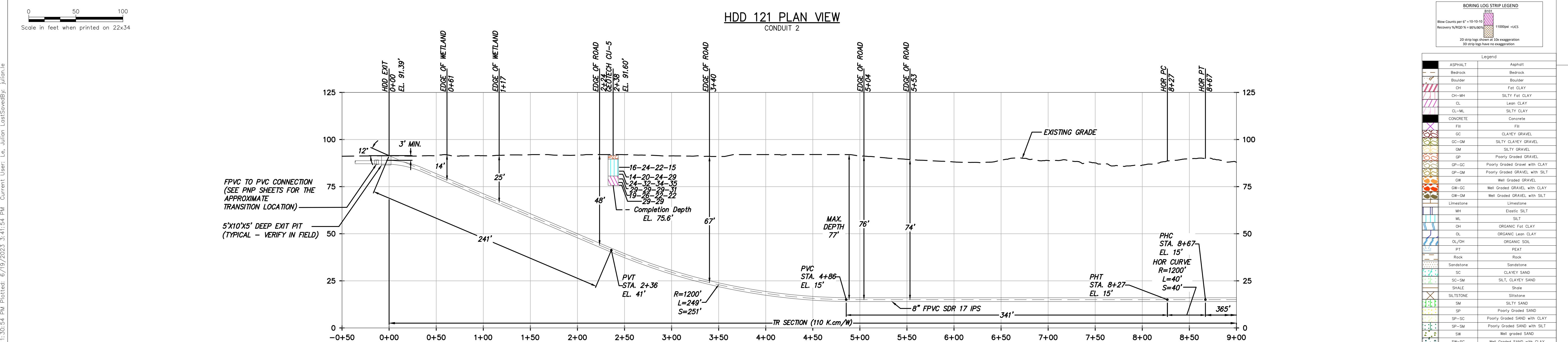
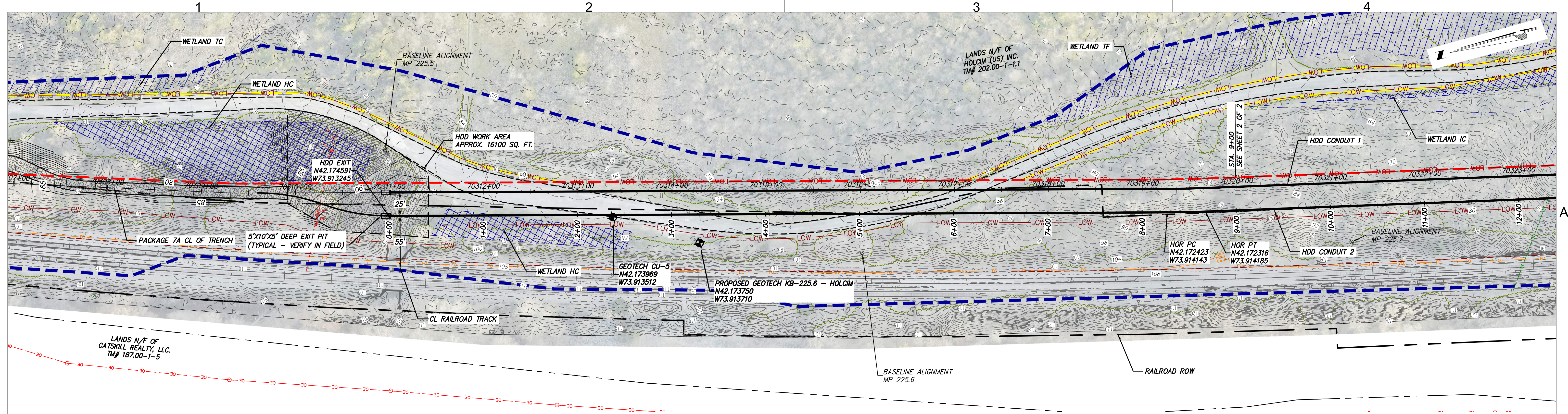
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	06/19/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MRS	EJK

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL
PLAN AND PROFILE - HDD 121 PAGE 2
WETLAND CROSSING - CONDUIT 1
GREENE COUNTY, NY

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	C-321
DATE	06/19/2023
SH.NO.	OF

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DESIGN AND CONSTRUCTION NOTES:

1. INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
2. 8.625" FPVC MIN. W.T. 0.510" SDR 17 IPS PIPE.
3. 3.500" HDPE MIN. W.T. 0.389" DR 9 IPS PIPE.
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Champlain Hudson Power Express

Kiewit

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STATE OF NEW YORK
EDWARD J. KELLY
LICENSED PROFESSIONAL ENGINEER
084981

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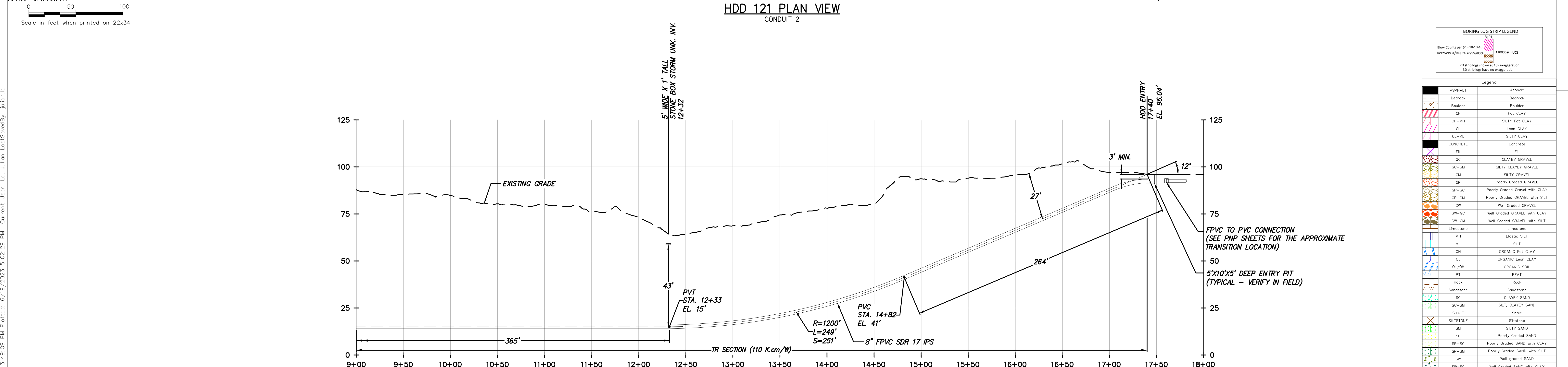
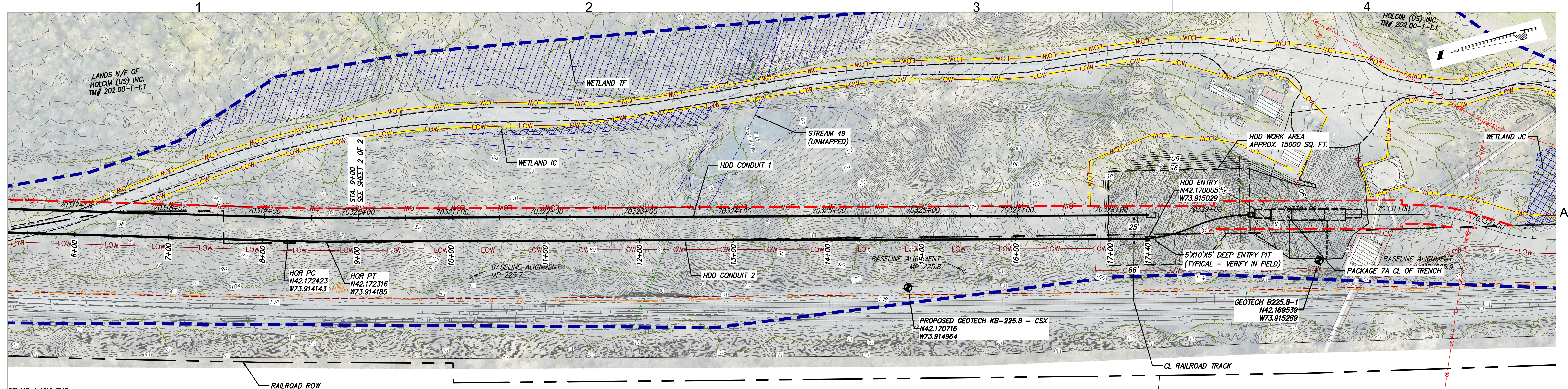
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	06/19/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MRS	EJK

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL

PLAN AND PROFILE - HDD 121 PAGE 1
WETLAND CROSSING - CONDUIT 2
GREENE COUNTY, NY

KIEWIT PROJECT NO.
21162
TT PROJECT NO.
204-3701
DRAWING NO.
C-321.2

DATE
06/19/2023
OF



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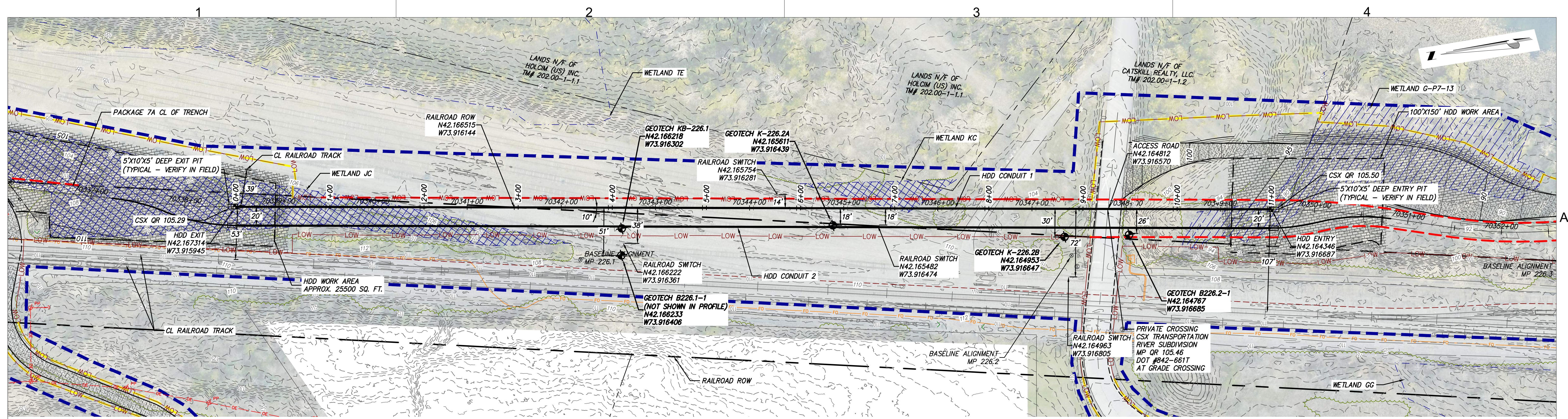


CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL

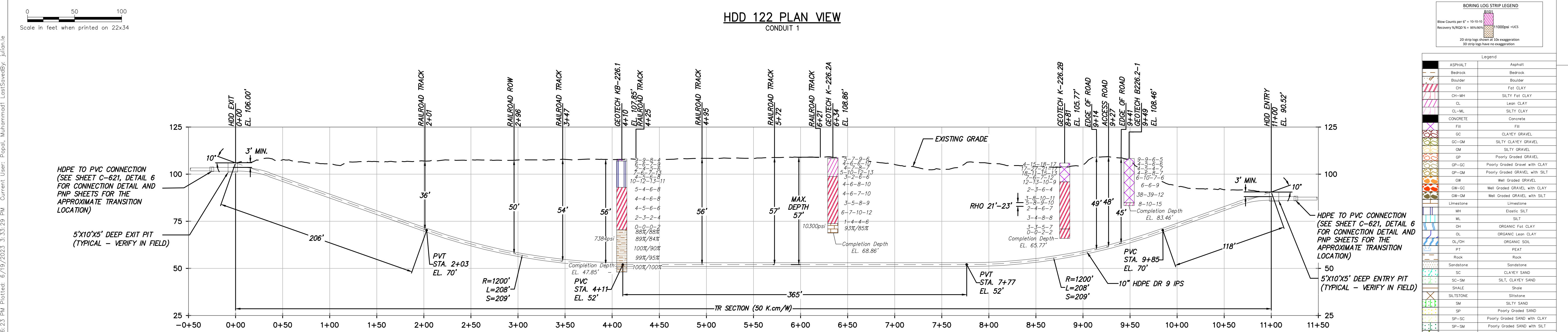
PLAN AND PROFILE - HDD 121 PAGE 2
WETLAND CROSSING - CONDUIT 2
GREENE COUNTY, NY

DRAWN BY: MRS DESIGNED BY:AMC APPROVED BY: EJK SCALE AS SHOWN DATE 06/19/2023

KIEWIT PROJECT NO. 21162
TT PROJECT NO. 204-3701
DRAWING NO. C-321.2



HDD 122 PLAN VIEW
CONDUIT 1



DESIGN AND CONSTRUCTION NOTES:

1. INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
2. 10.750" HDPE MIN. W.T. 1.194" DR 9 IPS PIPE.
3.500" HDPE MIN. W.T. 0.389" DR 9 IPS PIPE.
HDD HORIZONTAL LENGTH (L): 1100'
HDD DESIGNED PIPE LENGTH (S): 1107'
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HDD 122 PROFILE VIEW
CONDUIT 1

BORING LOG STRIP LEGEND

Blow Counts per 6" = 10-10-10
Recovery %/RSD % = 85%/80%

3D strip logs shown for 10' 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-GM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
SM	SILTY SAND
SP	Poorly Graded SAND
SP-SC	Poorly Graded SAND with CLAY
SP-GM	Poorly Graded SAND with SILT
SW	Well graded SAND
SW-SC	Well Graded SAND with CLAY
SW-GM	Well Graded SAND with SILT
Topsoil	Topsoil
USGS 601	Gravel or Conglomerate 1
USGS 654	Subgravel
USGS 670	Interbedded Sandstone and Shale
USGS 702	Quartzite
USGS 705	Schist
USGS 705	Schist
USGS 708	Gneiss
USGS 708	Gneiss
USGS 718	Granite
Void	Void
Water	Water
Weathered Rock	Undefined
Water Table	Water Table during drilling
Delayed Water Table	Water Table after drilling



TETRA TECH ENGINEERING AND SURVEYING P.C.
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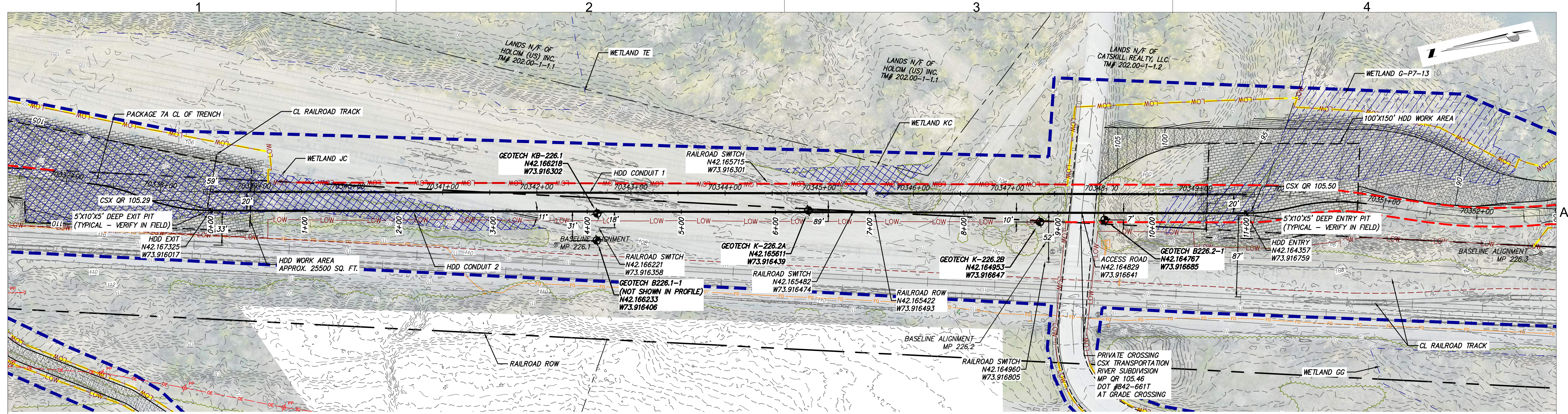


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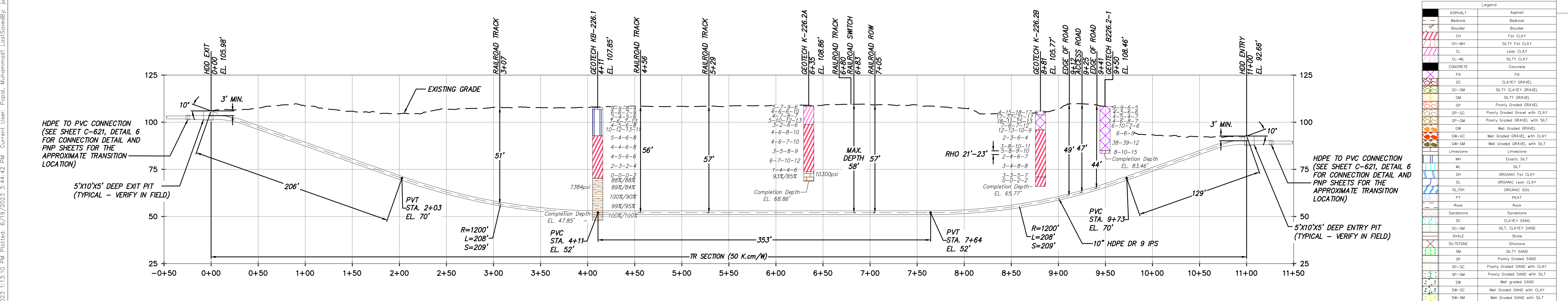
No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP
0	06/19/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MRS	EJK

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL
PLAN AND PROFILE - HDD 122
RAILROAD CROSSING - CONDUIT 1
GREENE COUNTY, NY

KIEWIT PROJECT NO. 21162	DATE 06/19/2023
TT PROJECT NO. 204-3701	OF
DRAWING NO. C-322	



HDD 122 PLAN VIEW
CONDUIT 2



DESIGN AND CONSTRUCTION NOTES:

1. INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
2. 10.750" HDPE MIN. W.T. 1.194" DR 9 IPS PIPE.
3.500" HDPE MIN. W.T. 0.389" DR 9 IPS PIPE.
HDD HORIZONTAL LENGTH (L): 1100'
HDD DESIGNED PIPE LENGTH (S): 1107'
3. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
THE MINIMUM SEPARATION DISTANCE FROM EXISTING SUBSURFACE UTILITIES SHALL NOT BE LESS THAN 10 FT.
4. DRILL CONTRACTOR AND/OR GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUIT CASING.
5. SPT N-VALUES SHOWN ON THIS DRAWING ARE NOT CORRECTED FOR SAMPLER SIZE OR HAMMER ENERGY. REFERENCE BORING LOGS AND GEOTECHNICAL REPORTS FOR ADDITIONAL SOIL INFORMATION.
6. DRILL CONTRACTOR SHALL UTILIZE BUOYANCY CONTROL MEASURES (INTERNAL WATER USED FOR BALLAST) DURING PULLBACK FOR ALL BUNDLED CASINGS.

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL

PLAN AND PROFILE - HDD 122
RAILROAD CROSSING - CONDUIT 2
GREENE COUNTY, NY

KIEWIT PROJECT NO.
21162
TT PROJECT NO.
204-3701
DRAWING NO.
C-322.2

DRAWN BY: MRS

DESIGNED BY: AMC

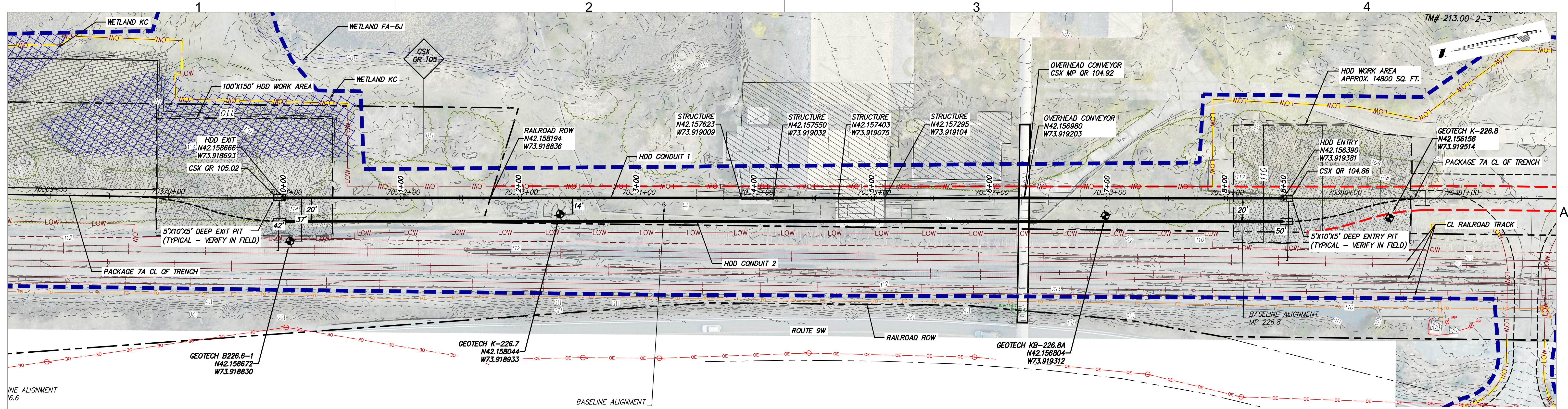
APPROVED BY: EJK

SCALE
REV. NO.

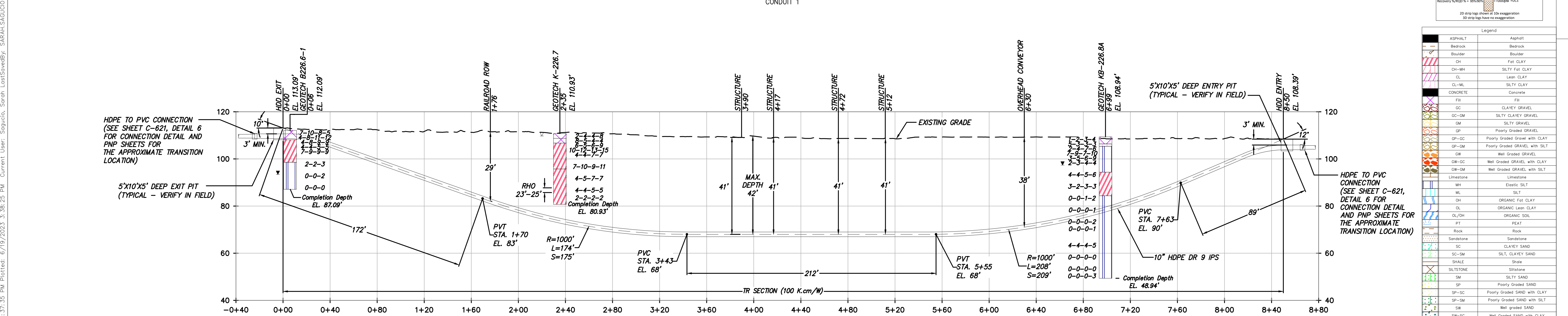
AS SHOWN

DATE
06/19/2023

OF



HDD 123 PLAN VIEW
CONDUIT 1



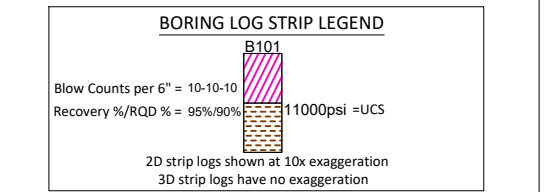
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HDD 123 PROFILE VIEW
CONDUIT 1



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Champlain Hudson Power Express



Kiewit



TETRA TECH

TETRA TECH ENGINEERING AND SURVEYING P.C.
(A NEW YORK PROFESSIONAL CORPORATION)



STATE OF NEW YORK
EDWARD J. KELLY
LICENSED PROFESSIONAL ENGINEER

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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A)- CSX: CATSKILL

PLAN AND PROFILE - HDD 123
PRIVATE PLANT CROSSING - CONDUIT 1
GREENE COUNTY, NY

DRAWN BY: MRS	DESIGNED BY: AMC	APPROVED BY: EJK	SCALE	AS SHOWN	DATE
			REV. NO.	0	06/19/2023

KIEWIT PROJECT NO.
21162
TT PROJECT NO.
204-3701
DRAWING NO.
C-323

DATE
SH.NO.
OF

