

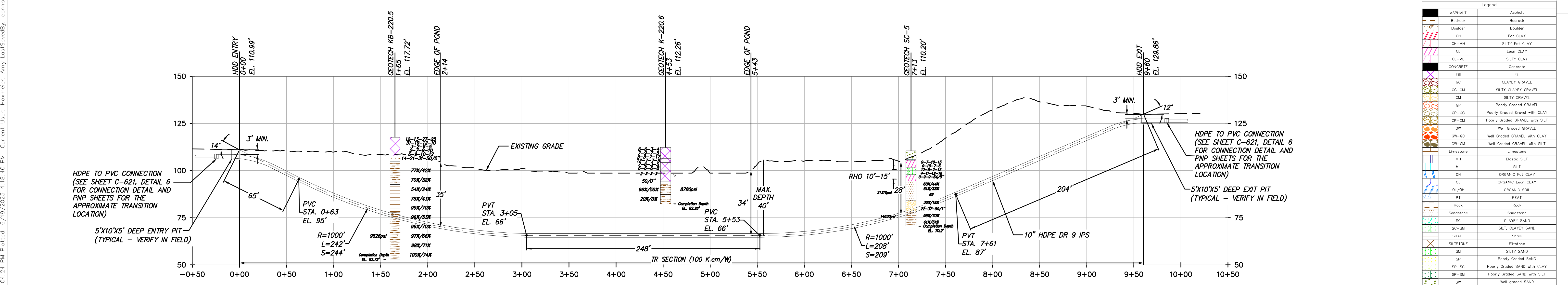
HDD 112 PLAN VIEW
CONDUIT 2

Scale in feet when printed on 22x34

BORING LOG STRIP LEGEND

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

3D strip logs show 10x exaggeration
2D strip logs have no exaggeration



HDD 112 PROFILE VIEW
CONDUIT 2

Scale in feet when printed on 22x34

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): 960'
HDD DESIGNED PIPE LENGTH (S): 970'
3. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
4. THE MINIMUM SEPARATION DISTANCE FROM EXISTING SUBSURFACE UTILITIES SHALL NOT BE LESS THAN 10 FT.
5. DRILL CONTRACTOR AND/OR GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUCTOR CASING.
6. 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.
7. 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.
2. TETRA TECH ENGINEERING AND SURVEYING P.C. IS NOT RESPONSIBLE FOR LOCATION OF FOREIGN UTILITIES IN THIS DRAWING. THE INFORMATION SHOWN HEREON IS FURNISHED WITHOUT LIABILITY ON THE PART OF TETRA TECH ENGINEERING AND SURVEYING P.C. OR ANY DAMAGES RESULTING FROM ERRORS OR OMISSIONS THEREIN.
3. ALL COORDINATES ARE IN NEW YORK STATE PLANE, NAD83, EAST ZONE, US FOOT.

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
PEAT	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



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

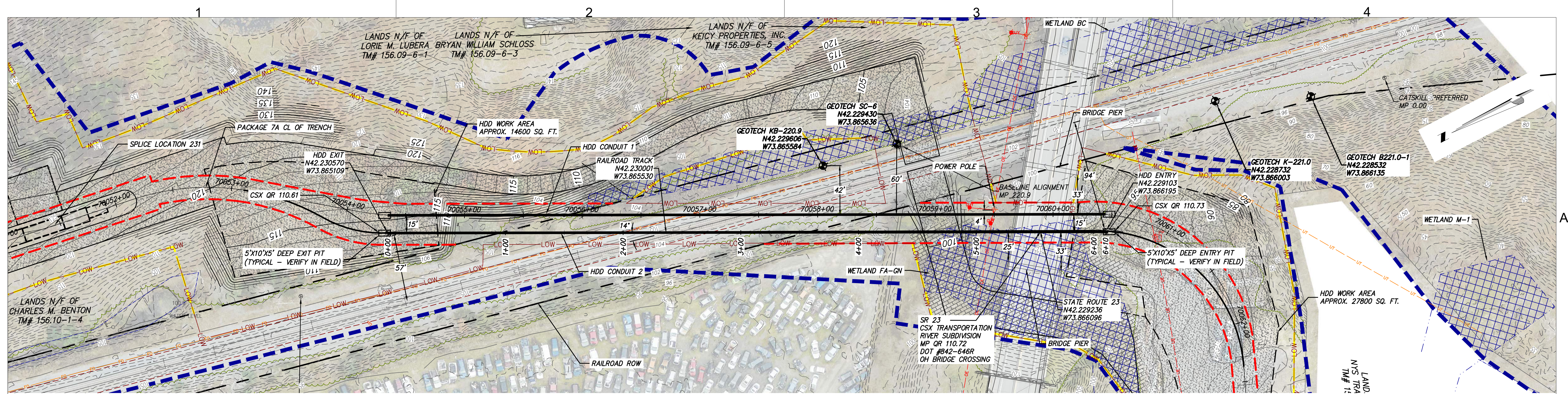
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL

PLAN AND PROFILE - HDD 112
POND CROSSING - CONDUIT 2
GREENE COUNTY, NY

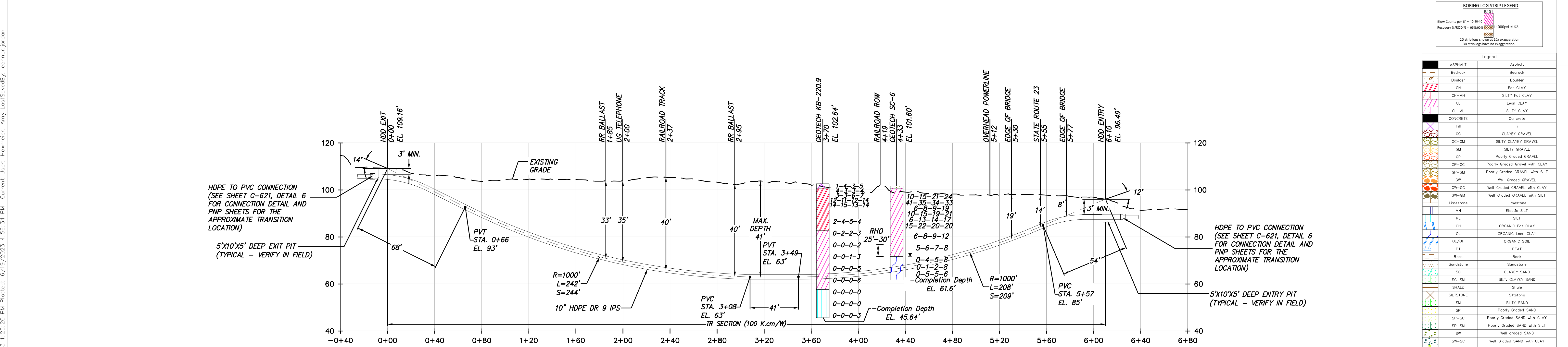
KIEWIT PROJECT NO.
21162
TT PROJECT NO.
204-3701
DRAWING NO.
C-312.2

DATE
06/19/2023
OF

DRAWN BY: MRS	DESIGNED BY: AMC	APPROVED BY: EJK	SCALE REV. NO.	AS SHOWN
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HDD 113 PLAN VIEW
CONDUIT 2



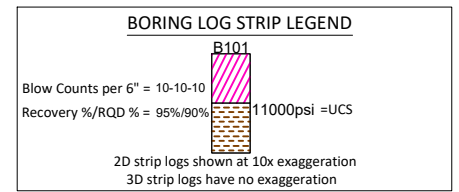
DESIGN AND CONSTRUCTION NOTES:

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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): 610'
HDD DESIGNED PIPE LENGTH (S): 617'
3. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
4. THE MINIMUM SEPARATION DISTANCE FROM EXISTING SUBSURFACE UTILITIES SHALL NOT BE LESS THAN 10 FT.
5. DRILL CONTRACTOR AND/OR GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUIT CASING.
6. 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.
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HDD 113 PROFILE VIEW
CONDUIT 2



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-GM	SILT, CLAYEY SAND
SHALE	Shale
SILTSTONE	Siltstone
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SP-GM	Poorly Graded SAND with SILT
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SW-SC	Well Graded SAND with CLAY
SW-GM	Well Graded SAND with SILT
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USGS 654	Subgravel
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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



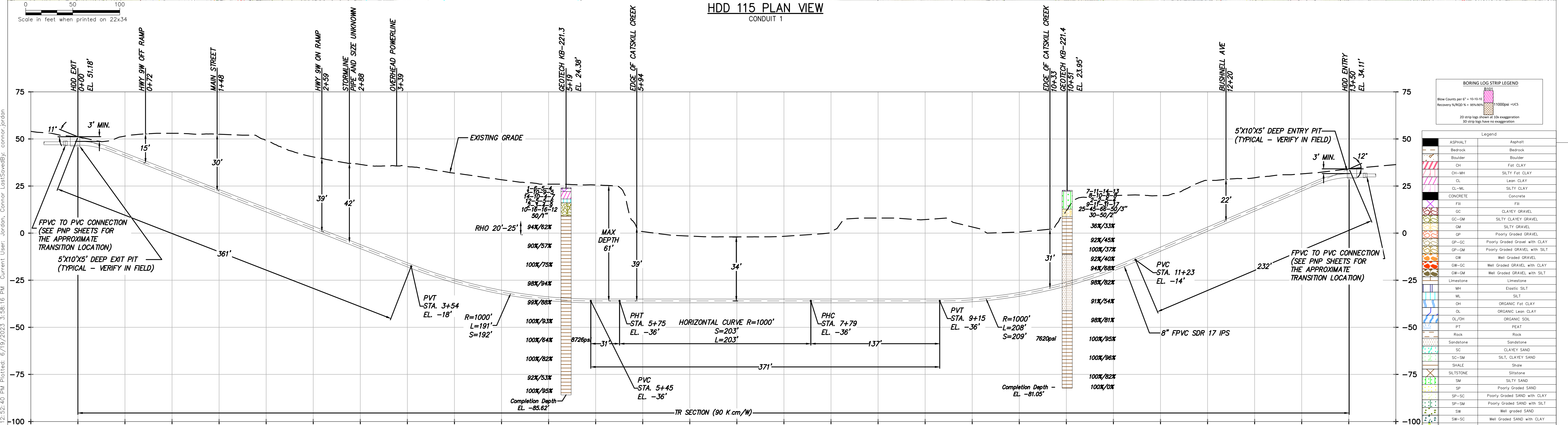
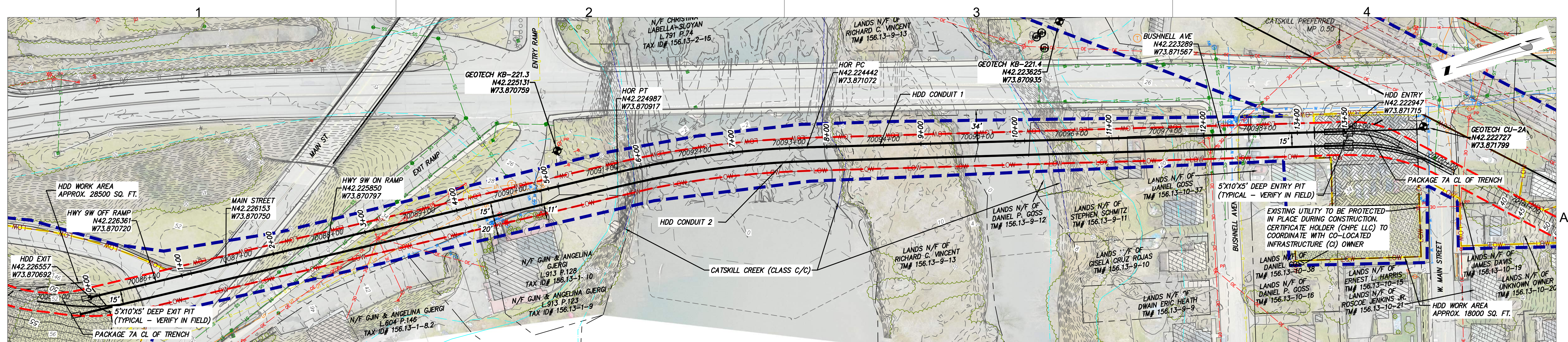
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No.	DATE	SUBMITTAL / REVISION DESCRIPTION	DB	APP

CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL
PLAN AND PROFILE - HDD 113
RAILROAD AND HWY 23 CROSSING - CONDUIT 2
GREENE COUNTY, NY

KIEWIT PROJECT NO.	21162
TT PROJECT NO.	204-3701
DRAWING NO.	C-313.2
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.
3.500" HDPE MIN. W.T. 0.389" DR 9 IPS PIPE.
HDD HORIZONTAL LENGTH (L): 1350'
HDD DESIGNED PIPE LENGTH (S): 1365'
 3. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
 4. THE MINIMUM SEPARATION DISTANCE FROM EXISTING SUBSURFACE UTILITIES SHALL NOT BE LESS THAN 10 FT.
 5. DRILL CONTRACTOR AND/OR GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUIT CASING.
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 3. ALL COORDINATES ARE IN NEW YORK STATE PLANE, NAD83, EAST ZONE, US FOOT.



Champlain Hudson
Power Express




Kiewit



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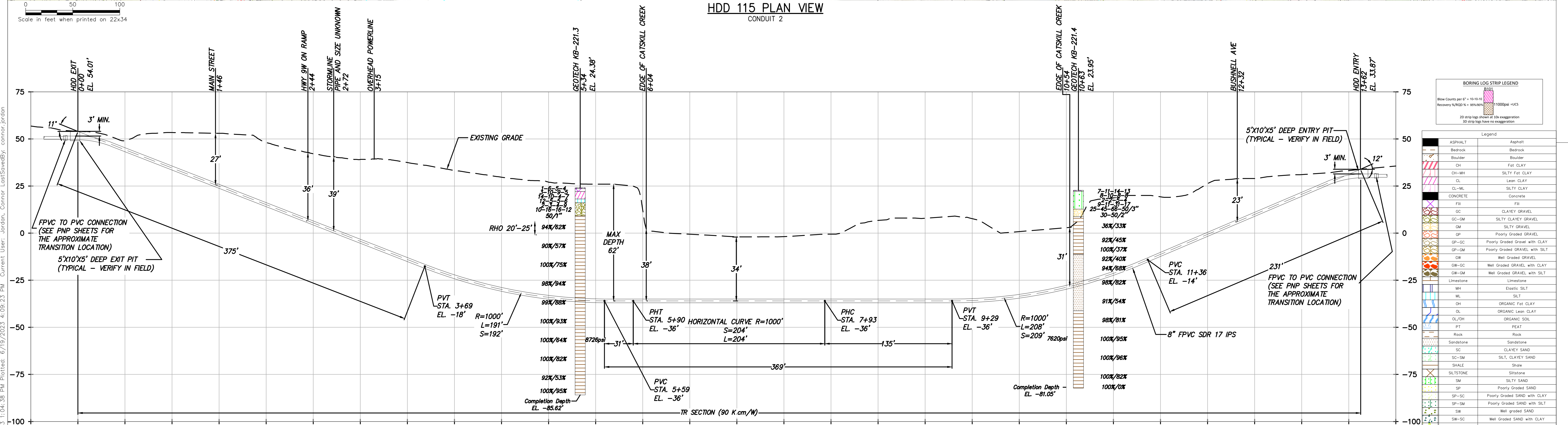
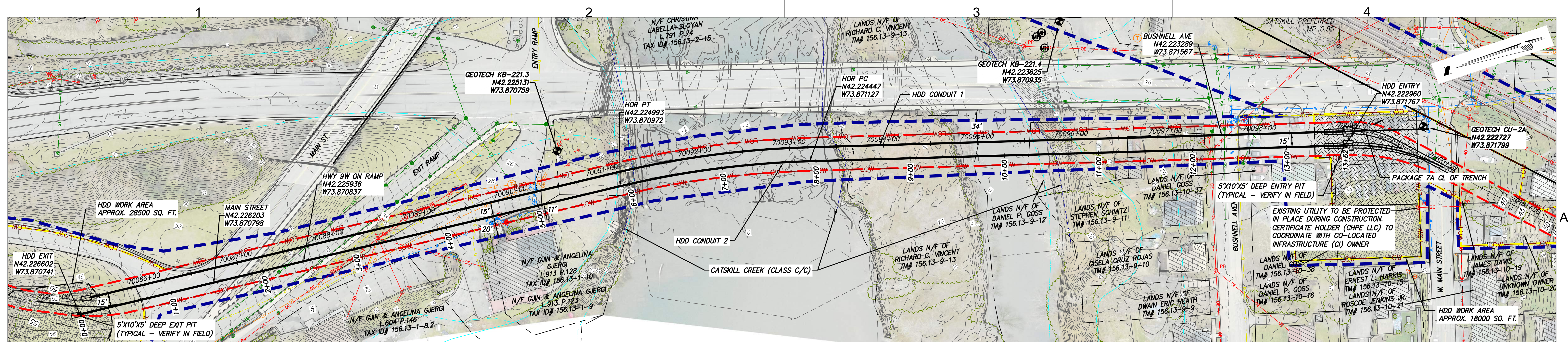
CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL

HDD 115
WATER BODY CROSSING - CONDUIT 1
GREENE COUNTY, NY

KIEWIT PROJECT NO.
21162
TT PROJECT NO.
204-3701
DRAWING NO.
C-315

DATE
06/19/2023
OF

DRAWN BY:	DESIGNED BY:	APPROVED BY:	SCALE	AS SHOWN
MRS	AMC	EJK	REV. NO.	0



DESIGN AND CONSTRUCTION NOTES:

1. INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
2. 8.625" FPVC MIN. W.T. 0.510" SDR 17 IPS PIPE.
3.500" HDPE MIN. W.T. 0.389" DR 9 IPS PIPE.
HDD HORIZONTAL LENGTH (L): 1362'
HDD DESIGNED PIPE LENGTH (S): 1377'
3. THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
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Champlain Hudson Power Express

Kiewit

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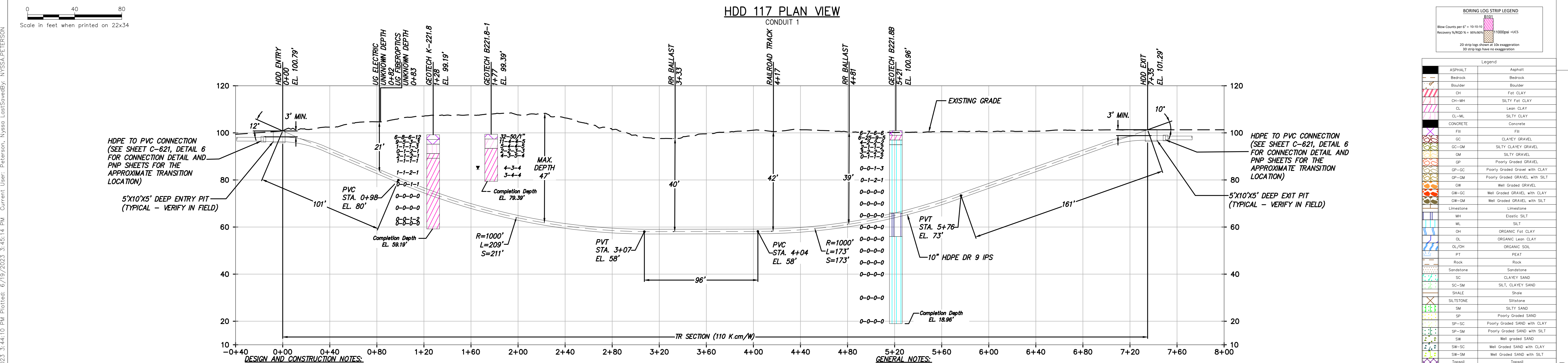
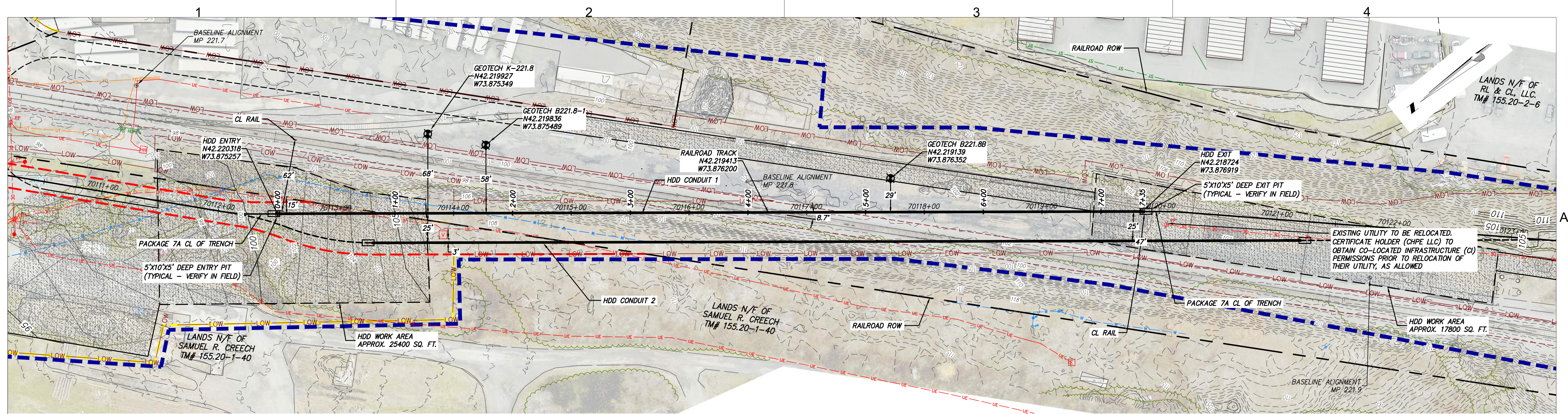
DRAWN BY: MRS DESIGNED BY: AMC APPROVED BY: EJK

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

HDD 115
WATER BODY CROSSING - CONDUIT 2
GREENE COUNTY, NY

KIEWIT PROJECT NO. 21162
TT PROJECT NO. 204-3701
DRAWING NO. C-315.2

SCALE AS SHOWN
DATE 06/19/2023
SH.NO. OF



DESIGN AND CONSTRUCTION NOTES:

- INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
- 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): 735'
- HDD DESIGNED PIPE LENGTH (S): 742'
- THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
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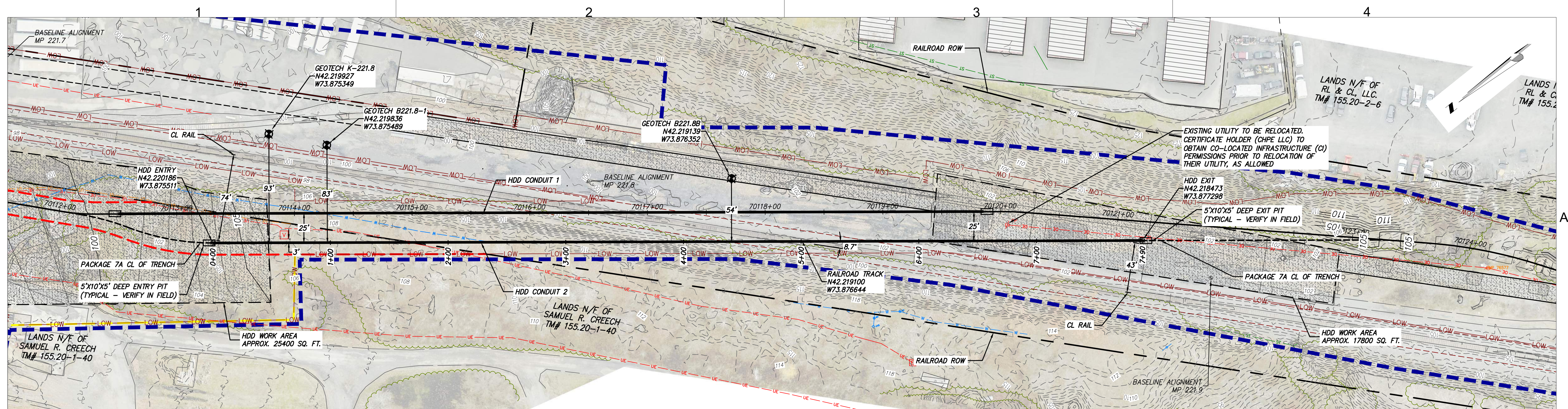
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CHAMPLAIN HUDSON POWER EXPRESS
SEGMENT 11 (PACKAGE 7A) - CSX: CATSKILL

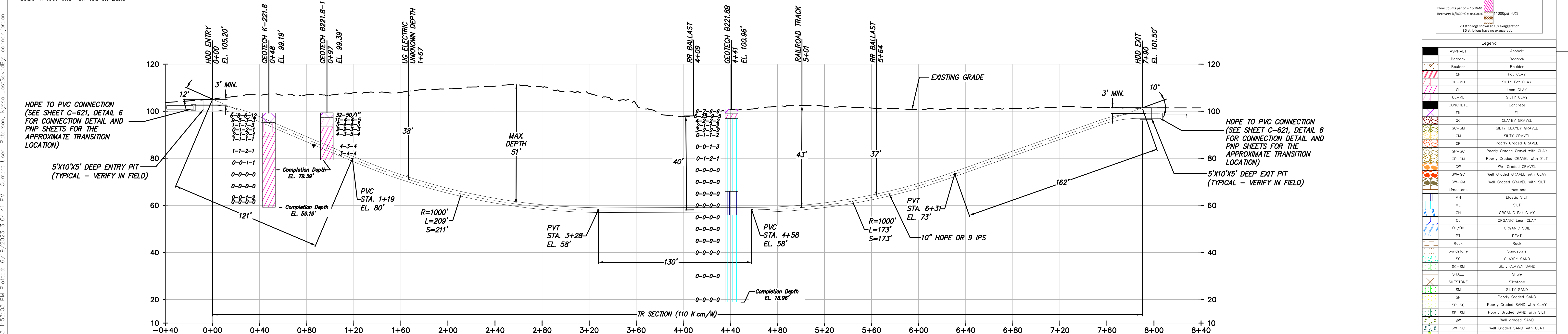
PLAN AND PROFILE - HDD 117
ROAD/CULVERT CROSSING - CONDUIT 1
GREENE COUNTY, NY

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

KIEWIT PROJECT NO. 21162
TT PROJECT NO. 204-3701
DRAWING NO. **C-317**



HDD 117 PLAN VIEW
CONDUIT 2



HDD 117 PROFILE VIEW
CONDUIT 2

DESIGN AND CONSTRUCTION NOTES:

- INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
- 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): 790'
HDD DESIGNED PIPE LENGTH (S): 797'
- THE MINIMUM THREE JOINT (APPROX. 100 FT) COMBINED CURVE (VERTICAL + HORIZONTAL) RADIUS SHALL NOT BE LESS THAN 800 FT.
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0	06/19/2023	ISSUED FOR CONSTRUCTION SUBMISSION	MRS	EJK

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

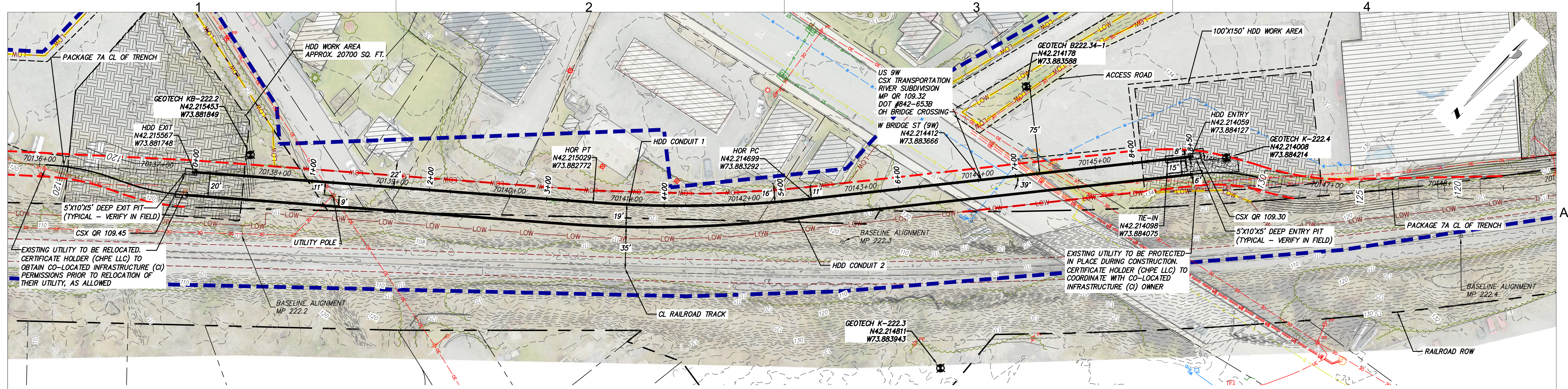
PLAN AND PROFILE - HDD 117
ROAD/CULVERT CROSSING - CONDUIT 2
GREENE COUNTY, NY

DRAWN BY: MRS DESIGNED BY:AMC APPROVED BY: EJK
SCALE AS SHOWN
REV. NO. 0

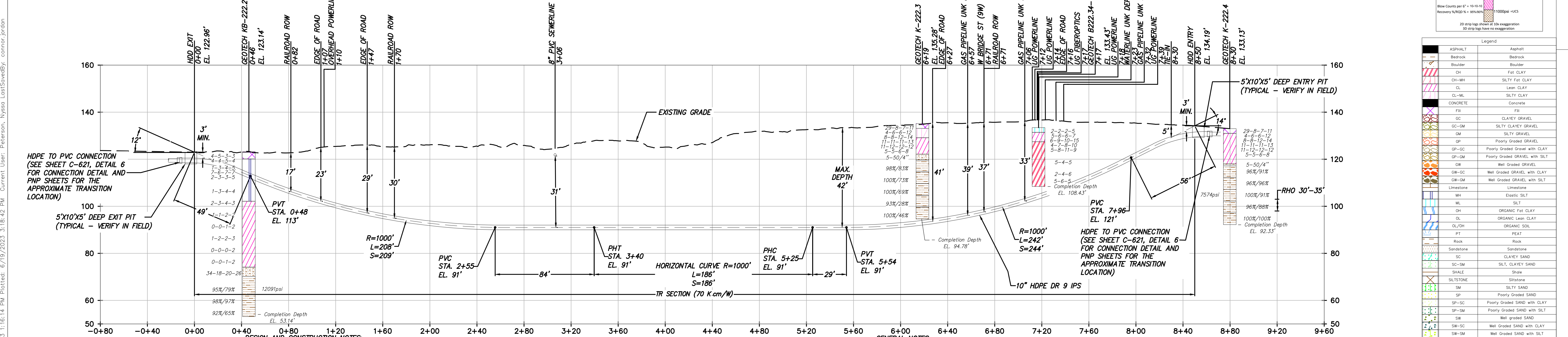
KIEWIT PROJECT NO. 21162
TT PROJECT NO. 204-3701
DRAWING NO. **C-317.2**

DATE 06/19/2023
SH.NO. OF

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HDD 118 PLAN VIEW
CONDUIT 1



- DESIGN AND CONSTRUCTION NOTES:**
- INSTALLATION METHOD: HORIZONTAL DIRECTIONAL DRILL.
 - 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): 850'
HDD DESIGNED PIPE LENGTH (S): 857'
 - 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.
 - DRILL CONTRACTOR AND/OR GEOTECHNICAL ENGINEER TO DETERMINE LENGTH OF TEMPORARY SURFACE/CONDUCTOR CASING.
 - 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.
 - DRILL CONTRACTOR SHALL UTILIZE BUOYANCY CONTROL MEASURES (INTERNAL WATER USED FOR BALLAST) DURING PULLBACK FOR ALL BUNDLED CASINGS.
- GENERAL NOTES:**
- 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.
 - TETRA TECH ENGINEERING AND SURVEYING P.C. IS NOT RESPONSIBLE FOR LOCATION OF FOREIGN UTILITIES IN THIS DRAWING. THE INFORMATION SHOWN HEREON IS FURNISHED WITHOUT LIABILITY ON THE PART OF TETRA TECH ENGINEERING AND SURVEYING P.C. OR ANY DAMAGES RESULTING FROM ERRORS OR OMISSIONS THEREIN.
 - ALL COORDINATES ARE IN NEW YORK STATE PLANE, NAD83, EAST ZONE, US FOOT.

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

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

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

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

PLAN AND PROFILE - HDD 118
ROAD CROSSING - CONDUIT 1
GREENE COUNTY, NY

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

KIEWIT PROJECT NO. 21162
TT PROJECT NO. 204-3701
DRAWING NO. C-318

