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Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295

INTERIM SEEP REMEDIATION SEEP A EFFECTIVENESS DEMONSTRATION REPORT

Chemours Fayetteville Works

Prepared for

The Chemours Company FC, LLC
22828 NC Highway 87
Fayetteville, NC 28306

Prepared by

Geosyntec Consultants of NC, P.C.
2501 Blue Ridge Road, Suite 430
Raleigh, NC 27607

Geosyntec Project Number TR0795A

August 26, 2021

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LIST OF ACRONYMS AND ABBREVIATIONS

CO Addendum	Addendum to Consent Order Paragraph 12
ESB	Effluent Stilling Basin
FTC	flow-through cell
GAC	granular activated carbon
gpm	gallons per minute
HFPO-DA	hexafluoropropylene oxide dimer
IC	Inlet Chamber
ISB	influent Stilling Basin
ng/L	nanograms per liter
NCDEQ	North Carolina Department of Environmental Quality
NCDPS	North Carolina Department of Public Safety
NCNFIP	Division of Emergency Management National Flood Insurance Program
O&M	Operations and Maintenance
PFAS	per- and polyfluoroalkyl substances
PFMOAA	perfluoro-2-methoxyaceticacid
PMPA	perfluoromethoxypropyl carboxylic acid
USACE	United States Army Corps of Engineers
WQC	Water Quality Certification

1 INTRODUCTION

Geosyntec Consultants of NC, P.C. (Geosyntec) has prepared this Interim Seep Remediation Seep A Effectiveness Demonstration Report ("Effectiveness Report") on behalf of The Chemours Company FC, LLC (Chemours). This report provides a record of construction completion and demonstration of interim effectiveness for the flow-through cell (FTC) installed as the interim remediation system at Seep A at the Chemours Fayetteville Works Site (the Site).

Pursuant to requirements of Paragraph 2(a)(vi) of the Addendum to Consent Order Paragraph 12 (CO Addendum), within four months after the construction of each seep's FTC, Chemours shall submit a report demonstrating that:

i. the FTC intercepted total base flow (during dry weather flow) at each seep; and

ii. removed per- and polyfluoroalkyl substances (PFAS) - as measured by influent and effluent concentrations of indicator parameters hexafluoropropylene oxide dimer (HFPO-DA), perfluoromethoxypropyl carboxylic acid (PMPA), and perfluoro-2-methoxyaceticacid (PFMOAA) - at a minimum removal efficiency of 80% on a monthly average basis (the "Interim Effectiveness Demonstration") for each of the second and third full calendar months of operation.

Substantial completion of construction was achieved at Seep A on April 28, 2021, and startup commenced thereafter. Therefore, this Effectiveness Report details the performance record of June and July 2021 (the second and third full calendar months of operation, respectively). Note that the third Operations and Maintenance (O&M) Report was submitted on July 30, 2021 (O&M Report #3, Geosyntec, 2021) for the reporting period of May 1, 2021 through June 30, 2021; therefore, some overlap in data presentation (June 2021) is included herein.

As the O&M Report #1 from March 31, 2021 presented performance data for the first time, information was provided that is generally applicable to all four FTCs regarding hydraulic mechanics, flood management practices, data collection methodology and reduction process, and flow calculation formulas. As a simplifying step for presentation clarity, at various sections in this Effectiveness Report, reference is made to these details in O&M Report #1. For an overview of the hydraulic functionality of the system, see Section 1.1 of O&M Report #1.

2 SEEP A CONSTRUCTION

This section describes the regulatory permits that were obtained for the Seep A FTC, and the construction and startup sequence that was performed immediately following.

2.1 Permits Obtained

The following permits were obtained prior to construction:

- December 18, 2020: Section 401 Water Quality Certification (WQC) and Section 404 Permit, permit modification to SAW-2019-00206, from NCDEQ and the United States Army Corps of Engineers (USACE) respectively, provided herein as Appendix A. The original permit was authorized for Seep C on October 5, 2020, and was modified for Seeps A, B, and D. Proof of payment of stream and wetland mitigation credits for Seeps A, B, and D was submitted on December 29, 2020 and the USACE issued approval for in-stream construction that same day. The Certificate of Completion for Seeps A, B, and D will be submitted to USACE in October 2021 with the Seep D Effectiveness Report.
- January 14, 2021: Stormwater discharge (i.e., land disturbance) permit from Bladen County, North Carolina Department of Environmental Quality (NCDEQ), project ID BLADE-2021-007 (for Seep A), provided herein as Appendix B.

2.2 Construction and Startup Sequence

Construction initiated with access road and laydown area clearing and grading on December 2, 2020. In-stream construction began on January 22, 2021 after river flooding from extreme rain in late December and early January receded (see Figure 1).

The in-stream earthwork was completed on January 29, with sheet pile installation beginning immediately after. As shown in the civil as-built record drawings (Appendix C), two rows of sheet pile were installed (the upgradient and downgradient faces the FTC). Concrete formwork began on March 3, with the slab and walls poured on March 23. Mechanical work (piping and valving) began on April 5. The mechanical as-built record drawings are provided in Appendix D. Hydrostatic testing to evaluate the water tightness of each FTC chamber was performed from April 20 to 23. The FTC was put into service on April 28.

Some construction elements continued after substantial completion allowed for startup of the system, namely:

- Installation of the concrete cap on the dam;
- Installation of support beams and grating; and
- Surface restoration.

3 SEEP A PERFORMANCE EVALUATION

The following sections describe the evaluation of base flow capture and PFAS removal efficiency, per the requirements of Paragraph 2(a)(vi).

3.1 Base Flow Capture

3.1.1 System Flowrate

A detailed discussion of pressure transducer water level measurements in the Effluent Stilling Basin (ESB), and the data reduction process to convert these levels to flow rates, is provided in Sections 3.1, 3.4.1, and 4.1.1 of O&M Report #1 (March 31, 2021). This data reduction process, updated for the Effectiveness Report period of June - July 2021, is provided in Appendix E.

Figure 2 shows the measurable discharge flowrates through the FTC over the reporting period. The median of the measured flowrate through the FTC during the reporting period was 132 gallons per minute (gpm), as compared to the pre-design median value of 129 gpm (from flumes prior to construction). The calculated 95th percentile value of treated flow over the reporting period was 353 gpm, as compared to the 95th percentile value of pre-design dry weather base flow (the design basis treatment flow) of 205 gpm. The higher value of calculated 95th percentile of treated flow, as compared to the design basis dry weather flow, is attributed to partial capture of wet weather flow by the system, particularly during peak surges after large rain events. Based on these results, the system is capable of treating more than the design basis under favorable hydraulic conditions.

Using the measured flowrate calculations, approximately 12,800,000 gallons of water was treated by the FTC from June 1 through July 31, 2021.

3.1.2 Bypass Flow

A detailed discussion of pressure transducer water level measurements in the FTC Influent Stilling Basin (ISB), and the data reduction process to convert these levels to the elevation of the bypass spillway, is provided in Section 3.1, 3.4.1, and 4.1.2 of O&M Report #1. This data reduction process, updated for the Effectiveness Report period of June- July 2021, is provided in Appendix E.

The resulting figure for influent water level elevation, and occurrences of bypass flow, is provided in Figure 3. As shown, bypass flow was observed in June and July due to a high number of rain events occurring during this reporting period. In June, approximately 8.94 inches of rain fell, which is approximately double the historical average of 4.87 inches. In July, approximately 8.4 inches of rain fell, which is also approximately double the historical average of 3.89 inches. Overall, the total rainfall in the reporting period (17.34 inches) was approximately double the average (8.76 inches).

All instances of FTC bypass during this reporting period were preceded by a rain event. Fewer instances of bypass flow were observed in July than in June due to slightly less frequent rainfall events and continued improvement in the preventative maintenance procedures employed at the FTC. Eight separate rain events with at least 0.5 inches of rainfall occurred in June and July.

Maintenance events were conducted following each rain event to return the system to a condition of no bypass. Due to the high frequency of rainfall and the associated increase in turbidity, eight GAC maintenance events were conducted to improve the processing capacity of the system.

3.2 PFAS Removal

The sections that follow discuss the FTC performance monitoring sampling procedures, and analytical results, and the overall efficiency of PFAS removal by the FTC.

3.2.1 Performance Monitoring Sampling

Five performance monitoring samples – a minimum of twice per calendar month per CO Addendum Paragraph 2(a)(iii) - were collected during this reporting period (Table 1). Sampling procedures using the Teledyne autosamplers are described in Section 3.3.1 in the O&M Report #1. Samples were stored on wet ice in a cooler until shipment to an external laboratory (Eurofins TestAmerica Laboratories Sacramento or Lancaster). Chain-of-custody documents were completed and included with each shipment. Performance monitoring samples were analyzed for Table 3+ PFAS, as outlined in the *Interim Seep Remediation System Plan* (Geosyntec, 2020). The Laboratory Analytical Data Review Narrative is provided in Appendix F. Full lab reports will be uploaded to OneDrive and EquIS.

3.2.2 Performance Monitoring Sampling Results

Analytical results for the five composite performance monitoring samples are provided in Table 2 and described below.

Total Table 3+ PFAS compounds (17 compounds) in the influent ranged from 140,000 to 220,000 nanograms per liter (ng/L). The average and median total Table 3+ (17 compounds) concentrations were approximately 184,000 and 190,000 ng/L, respectively. Within each influent sample, the constituents of highest concentration were HFPO DA, PFMOAA, and PFO2HxA.

Total Table 3+ PFAS compounds (17 compounds) in the effluent ranged from non-detect in all compounds, up to 160 ng/L, representing a minimum removal efficiency of 99.9% in the five composite samples.

3.2.3 System Effectiveness

System effectiveness, defined by the percentage removal of the combined concentrations of the three indicator parameters (HFPO-DA, PFMOAA and PMPA), is determined on a monthly average basis for the system using volume weighted concentrations of the influent and effluent samples. Volume weighted concentrations were developed so that if either the influent and effluent autosamplers have different compositing durations or that the two composite sampling periods in the month have different durations (e.g., 14 days and 10 days). Both circumstances could arise due to a potential equipment malfunction or severe weather event. Weighting by volume provides a representative assessment of mass present in both the influent and effluent over time; samples corresponding to greater flow volumes will have a proportionately higher weight. System effectiveness is calculated using the equation presented in Section 4.3 of the O&M Report #1.

Based on the system flowrate data (Section 3.1.1) and the performance monitoring composite sample data of the three indicator compounds (Section 3.2.2), the system effectiveness was calculated to be 99.95%. This value is similar to the Table 3+ removal efficiency described in Section 3.2.2 which is due to the fact that the removal efficiency was mostly steady throughout the reporting period, and that the influent and effluent composite periods were nearly identical.

4 SUMMARY

The following summarizes the evaluation of Seep A FTC's effectiveness at capturing total baseflow and removing PFAS for the second and third full calendar months of operation (June and July 2021).

- Flow data from the FTC demonstrates the system can treat more than the design basis flow rate under favorable hydraulic conditions (i.e., the 95th percentile of measured flow was 353 gpm as compared to the pre-construction estimated 95th percentile of dry weather flow value of 205 gpm). FTC process flow rates can be affected by sediment accumulating within the filter beds and river levels increasing above the discharge pipe, both of which affect the dynamic head losses through the system. Nonetheless, the system has demonstrated the ability to process total base flow, and will likely continue to treat at least a portion of wet weather flow during future operation.
- Performance monitoring results from the composite samples indicate the removal efficiency, based on the Total Table 3+ 17 Compounds, was at least 99.9% and on average was 99.97%. The System Effectiveness flow-weighted calculation yielded a similar result (99.95%). The system prevented an estimated 23.25 lbs of PFAS from being discharged to the Cape Fear River during the reporting period.
- Dataloggers within the FTC indicate that large storms result in significant, but transient, spikes of fine-grained sediment into the filter beds. As detailed in the O&M Report #1, maintenance techniques continue to be optimized. To date, the most effective method has been the replacement of the top layer of geocomposite and the removal of the top few inches of GAC within the lead filter bed after a storm event. A turbidity curtain was installed within the impoundment on May 5 to attempt to capture suspended sediment before it enters the FTC, and a sand filter layer was installed in the Inlet Chamber (IC) on July 28 to improve fine-grained sediment removal prior to the influent reaching the filter beds. Although the FTC has demonstrated the ability to successfully capture above the design basis flow rate during storm events, improvements will continue to be developed to mitigate, to the extent possible, sediment accumulation in the GAC and FTC bypass even during wet weather events.

5 REFERENCES

Geosyntec, 2020. Interim Seep Remediation System Plan. Chemours Fayetteville Works. 31 August 2020.

Geosyntec, 2021. Interim Seep Remediation System Plan Operations and Maintenance Report #1. Chemours Fayetteville Works. 31 March 2021.

Geosyntec, 2021. Interim Seep Remediation Seep C Effectiveness Demonstration Report. Chemours Fayetteville Works. 16 April 2021.

Geosyntec, 2021. Interim Seep Remediation System Plan Operations and Maintenance Report #2. Chemours Fayetteville Works. 28 May 2021.

Geosyntec, 2021. Interim Seep Remediation System Plan Operations and Maintenance Report #3. Chemours Fayetteville Works. 30 July 2021.

TABLES

Table 1
Sampling Summary (June - July 2021)
Chemours Fayetteville Works
Fayetteville, North Carolina

Performance Monitoring Composite Samples

Sample ID	Composite Period	Sample Date
SEEP-A-INFLUENT-336-061421 SEEP-A-EFFLUENT-336-061421	May 31 - June 14, 2021	June 14, 2021
SEEP-A-INFLUENT-336-062921 SEEP-A-EFFLUENT-336-062921	June 15 - June 29, 2021	June 29, 2021
SEEP-A-INFLUENT-300-071421 SEEP-A-EFFLUENT-336-071421	July 1 - July 14, 2021	July 14, 2021
SEEP-A-INFLUENT-24-072321 SEEP-A-EFFLUENT-24-072321	July 22 - July 23	July 23, 2021
SEEP-A-INFLUENT-24-073021 SEEP-A-EFFLUENT-24-073021	July 29 - July 30	July 30, 2021

Notes

1 Sample Identification Label Key: "Seep - [A, B, C, or D] - [Sample Location Inside FTC] - [# of Aliquots in Composite Sample] - [MMDDYY]"
2 Precipitation data obtained from the USGS gauge #02105500 at the William O. Huske Lock and Dam
3 24-hour composite samples were collected on July 23, 2021 and July 30, 2021 rather than 14-day composite samples because of flooding of the sampling systems from the rainfall on July 19, 2021.

Table 2
Performance Monitoring Analytical Results
June - July 2021
Chemours Fayetteville Works
Fayetteville, NC

Table 3+ SOP (ng/L)	**SEEP-A-INFLUENT-336-061421** Sample Date: 14-Jun-21	**SEEP-A-EFFLUENT-336-061421** Sample Date: 14-Jun-21	**Percent Removal**	**SEEP-A-INFLUENT-336-062921** Sample Date: 29-Jun-21	**SEEP-A-EFFLUENT-336-062921** Sample Date: 29-Jun-21	**Percent Removal**	**SEEP-A-INFLUENT-300-140721** Sample Date: 14-Jul-21	**SEEP-A-EFFLUENT-336-140721** Sample Date: 14-Jul-21	**Percent Removal**
Hfpo Dimer Acid	**22,000**	**11**	99.95%	**26,000**	**3.2**	99.99%	**24,000**	<2.0	> 99.99%
PFMOAA	**68,000**	**74**	99.89%	**63,000**	**21**	99.97%	**63,000**	**10**	99.98%
PFO2HxA	**36,000**	**19**	99.95%	**35,000**	**5.2**	99.99%	**33,000**	**2**	99.99%
PFO3OA	**14,000**	**8**	99.94%	**13,000**	<2.0	> 99.99%	**12,000**	<2.0	> 99.99%
PFO4DA	**7,300**	**5**	99.93%	**7,000**	<2.0	> 99.99%	**6,400**	<2.0	> 99.99%
PFO5DA	**4,100**	**3.6**	99.91%	**5,700**	<2.0	> 99.99%	**3,500**	<2.0	> 99.99%
PMPA	**19,000**	**41**	99.78%	**23,000**	<10	> 99.99%	**22,000**	**11**	99.95%
PEPA	**10,000**	<20	> 99.99%	**6,900**	<20	> 99.99%	**7,600**	<20	> 99.99%
PS Acid	**4,500**	<2.0	> 99.99%	**5,100**	<2.0	> 99.99%	**3,500**	<2.0	> 99.99%
Hydro-PS Acid	**1,400**	<2.0	> 99.99%	**1,400**	<2.0	> 99.99%	**1,000**	<2.0	> 99.99%
R-PSDA	**2,200**	<2.0	> 99.99%	**2,400**	<2.0	> 99.99%	**2,900**	<2.0	> 99.99%
Hydrolyzed PSDA	**18,000**	**15**	99.92%	**26,000**	<2.0	> 99.99%	**32,000**	<2.0	> 99.99%
R-PSDCA	**45**	<2.0	> 99.99%	**55**	<2.0	> 99.99%	**42**	<2.0	> 99.99%
NVHOS, Acid Form	**950**	<2.0	> 99.99%	**1,000**	<2.0	> 99.99%	**980**	<2.0	> 99.99%
EVE Acid	**1,000**	<2.0	> 99.99%	**890**	<2.0	> 99.99%	**710**	<2.0	> 99.99%
Hydro-EVE Acid	**1,500**	<2.0	> 99.99%	**1,600**	<2.0	> 99.99%	**1,300**	<2.0	> 99.99%
R-EVE	**1,100**	<2.0	> 99.99%	**1,200**	<2.0	> 99.99%	**1,400**	<2.0	> 99.99%
PES	<3.4	<2.0	> 99.99%	<6.7	<2.0	> 99.99%	<6.7	<2.0	> 99.99%
PFECA B	<13	<2.0	> 99.99%	<27	<2.0	> 99.99%	<27	<2.0	> 99.99%
PFECA-G	<24	<2.0	> 99.99%	<48	<2.0	> 99.99%	<48	<2.0	> 99.99%
Total Table 3+ (17 Compounds)[1,2]	**190,000**	**160**	**99.92%**	**190,000**	**29**	**99.98%**	**180,000**	**23**	**99.99%**
Total Table 3+ (20 Compounds)[1]	**210,000**	**180**	**99.91%**	**220,000**	**29**	**99.99%**	**220,000**	**23**	**99.99%**

Notes:

1 - The total Table 3+ sum is rounded to two significant figures.
2 - The three Table 3+ compounds that are not included in the list of 17, but are included in the list of 20, are R-PSDA, R-EVE, and Hydrolyzed PSDA.

Bold - Analyte detected above associated reporting limit

EPA - Environmental Protection Agency

J - Analyte detected. Reported value may not be accurate or precise

ng/L - nanograms per liter

QA/QC - Quality assurance/ quality control

SOP - standard operating procedure

B - Analyte detected in the blank and sample.

UJ – Analyte not detected. Reporting limit may not be accurate or precise.

< - Analyte not detected above associated reporting limit.

Sample Identification Label Key: "Seep - [A, B, C, or D] - [Sample Location Inside FTC] - [# of Aliquots in Composite Sample] - [MMDDYY]"

Table 2
Performance Monitoring Analytical Results
June - July 2021
Chemours Fayetteville Works
Fayetteville, NC

Table 3+ SOP (ng/L)	**SEEP-A-INFLUENT-24-072321** Sample Date: 23-Jul-21	**SEEP-A-EFFLUENT-24-072321** Sample Date: 23-Jul-21	**Percent Removal**	**SEEP-A-INFLUENT-24-300721** Sample Date: 30-Jul-21	**SEEP-A-EFFLUENT-24-300721** Sample Date: 30-Jul-21	**Percent Removal**
Hfpo Dimer Acid	**19,000**	**2.3**	99.99%	**27,000**	<2.0	> 99.99%
PFMOAA	**49,000**	**31**	99.94%	**83,000**	<2.0	> 99.99%
PFO2HxA	**26,000**	**8.3**	99.97%	**39,000**	<2.0	> 99.99%
PFO3OA	**9,700**	**2.2**	99.98%	**15,000**	<2.0	> 99.99%
PFO4DA	**5,800**	<2.0	> 99.99%	**7,500**	<2.0	> 99.99%
PFO5DA	**4,100**	<2.0	> 99.99%	**3,400**	<2.0	> 99.99%
PMPA	**17,000**	<10	> 99.99%	**25,000**	<10	> 99.99%
PEPA	**6,000**	<20	> 99.99%	**9,300**	<20	> 99.99%
PS Acid	**3,400**	<2.0	> 99.99%	**5,100**	<2.0	> 99.99%
Hydro-PS Acid	**870**	<2.0	> 99.99%	**1,500**	<2.0	> 99.99%
R-PSDA	**1,800**	<2.0	> 99.99%	**3,400**	<2.0	> 99.99%
Hydrolyzed PSDA	**16,000**	<2.0	> 99.99%	**38,000**	<2.0	> 99.99%
R-PSDCA	**32**	<2.0	> 99.99%	**58**	<2.0	> 99.99%
NVHOS, Acid Form	**670**	<2.0	> 99.99%	**1,400**	<2.0	> 99.99%
EVE Acid	**780**	<2.0	> 99.99%	**900**	<2.0	> 99.99%
Hydro-EVE Acid	**1,100**	<2.0	> 99.99%	**1,800**	<2.0	> 99.99%
R-EVE	**960**	<2.0	> 99.99%	**1,500**	<2.0	> 99.99%
PES	<6.7	<2.0	> 99.99%	**77**	<2.0	> 99.99%
PFECA B	<27	<2.0	> 99.99%	**51**	<2.0	> 99.99%
PFECA-G	<48	<2.0	> 99.99%	<48	<2.0	> 99.99%
Total Table 3+ (17 Compounds)[1,2]	**140,000**	**44**	**99.97%**	**220,000**	**ND**	**> 99.99 %**
Total Table 3+ (20 Compounds)[1]	**160,000**	**44**	**99.97%**	**260,000**	**ND**	**> 99.99 %**

Notes:

1 - The total Table 3+ sum is rounded to two significant figures.
2 - The three Table 3+ compounds that are not included in the list of 17, but are included in the list of 20, are R-PSDA, R-EVE, and Hydrolyzed PSDA.

Bold - Analyte detected above associated reporting limit

EPA - Environmental Protection Agency

J - Analyte detected. Reported value may not be accurate or precise

ng/L - nanograms per liter

QA/QC - Quality assurance/ quality control

SOP - standard operating procedure

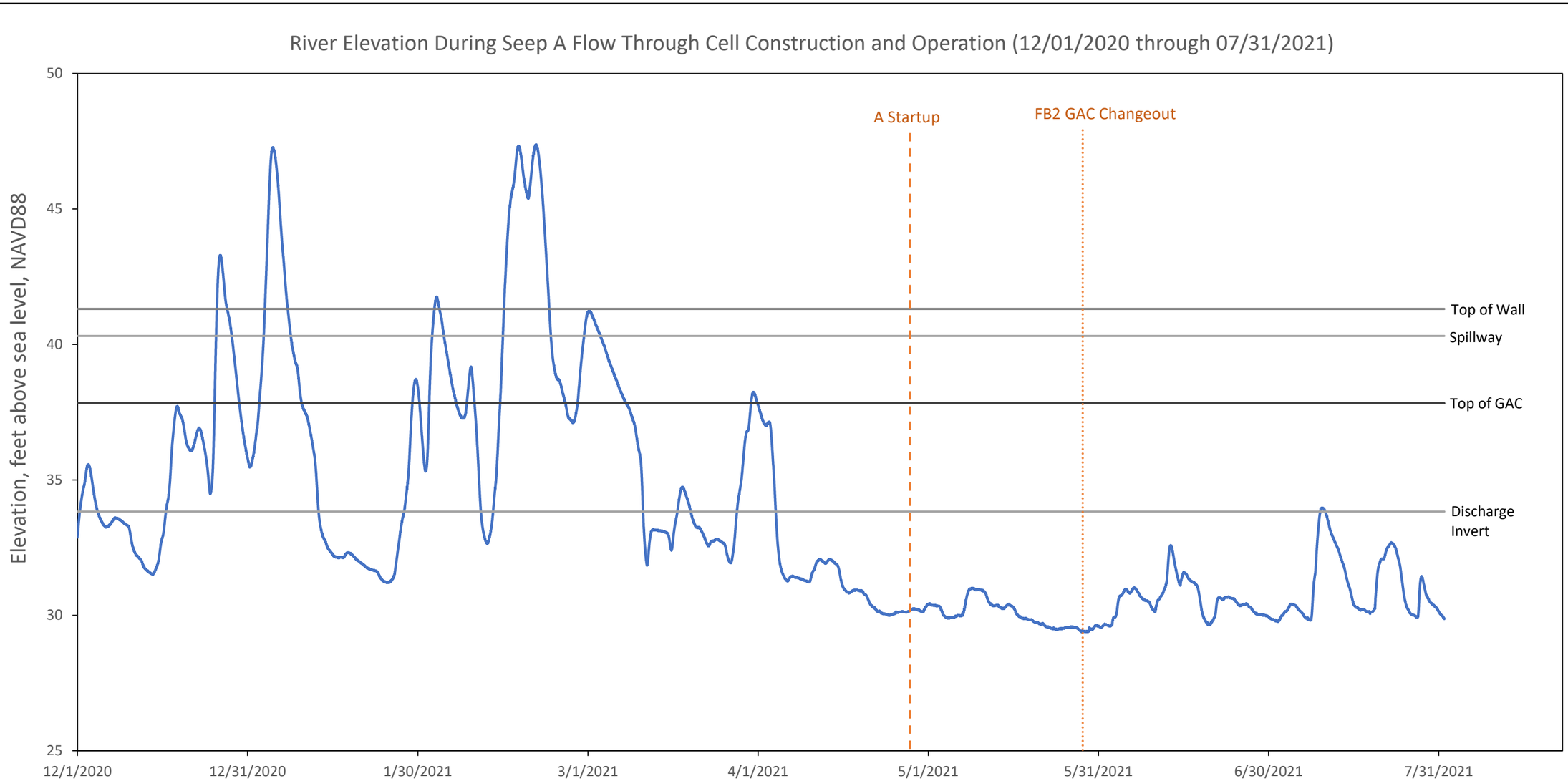
B - Analyte detected in the blank and sample.

UJ – Analyte not detected. Reporting limit may not be accurate or precise.

< - Analyte not detected above associated reporting limit.

Sample Identification Label Key: "Seep - [A, B, C, or D] - [Sample Location Inside FTC] - [# of Aliquots in Composite Sample] - [MMDDYY]"

FIGURES



Notes:
As-built survey information from GEOS Surveying August 2021.
River elevation from USGS Huske Lock and Dam site 02105500, converted to NAVD88.
The operation of Seep A started on April 28, 2021.
GAC = Granular Activated Carbon
FB1 / FB2 = Filter Bed 1 / Filter Bed 2

River Level & FTC As-Built Elevations (Dec 2020 - Jul 2021)
Chemours Fayetteville Works
Fayetteville, North Carolina

Geosyntec consultants
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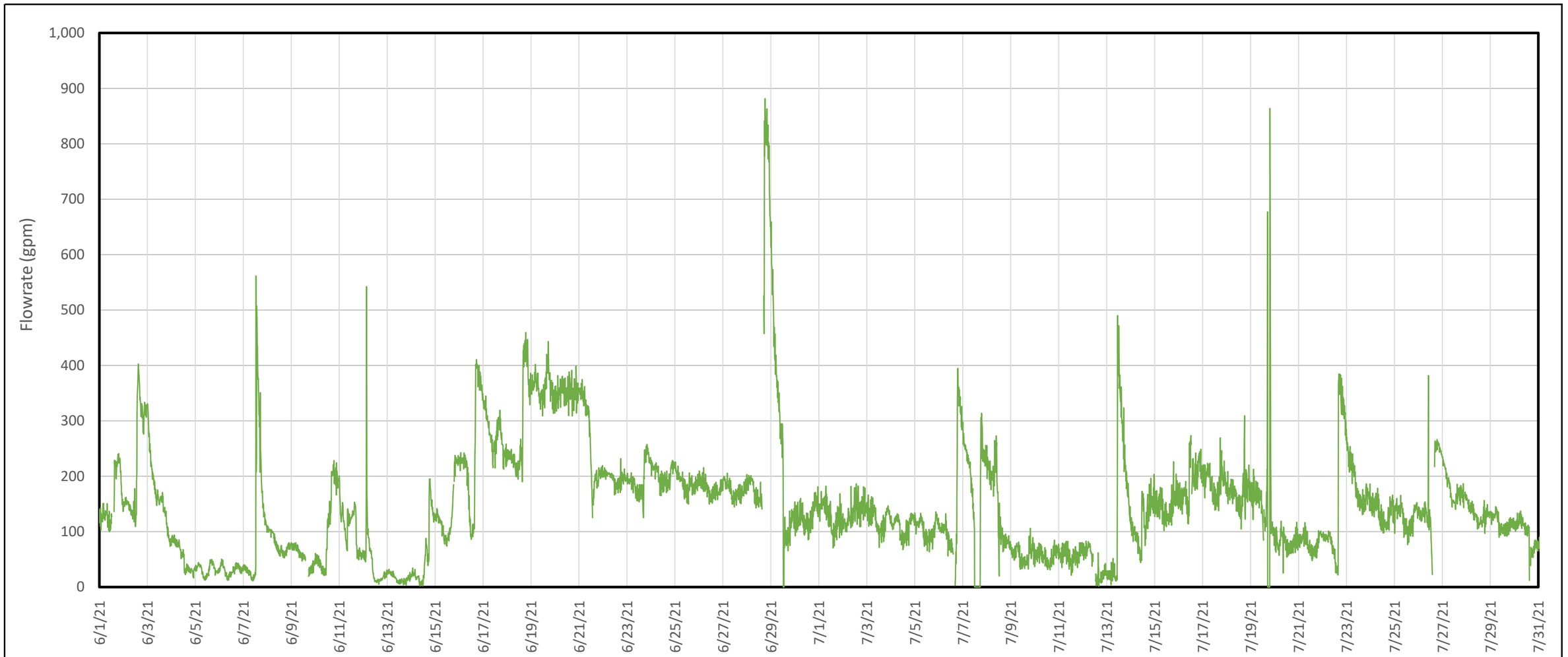
Figure 1



Legend

Measurable Discharge Flowrate

Flowrate Statistics (gpm)

	(06/01 - 07/31)	Since Startup
Median	132	138
95th percentile	353	326
Max	882	882

Notes:

gpm - gallons per minute

Figure 2 depicts the measurable discharge flowrate calculated using the Effluent Stilling Basin transducer data (solid green).

Measured Discharge Flowrate
(June - July 2021)

Chemours Fayetteville Works
Fayetteville, North Carolina

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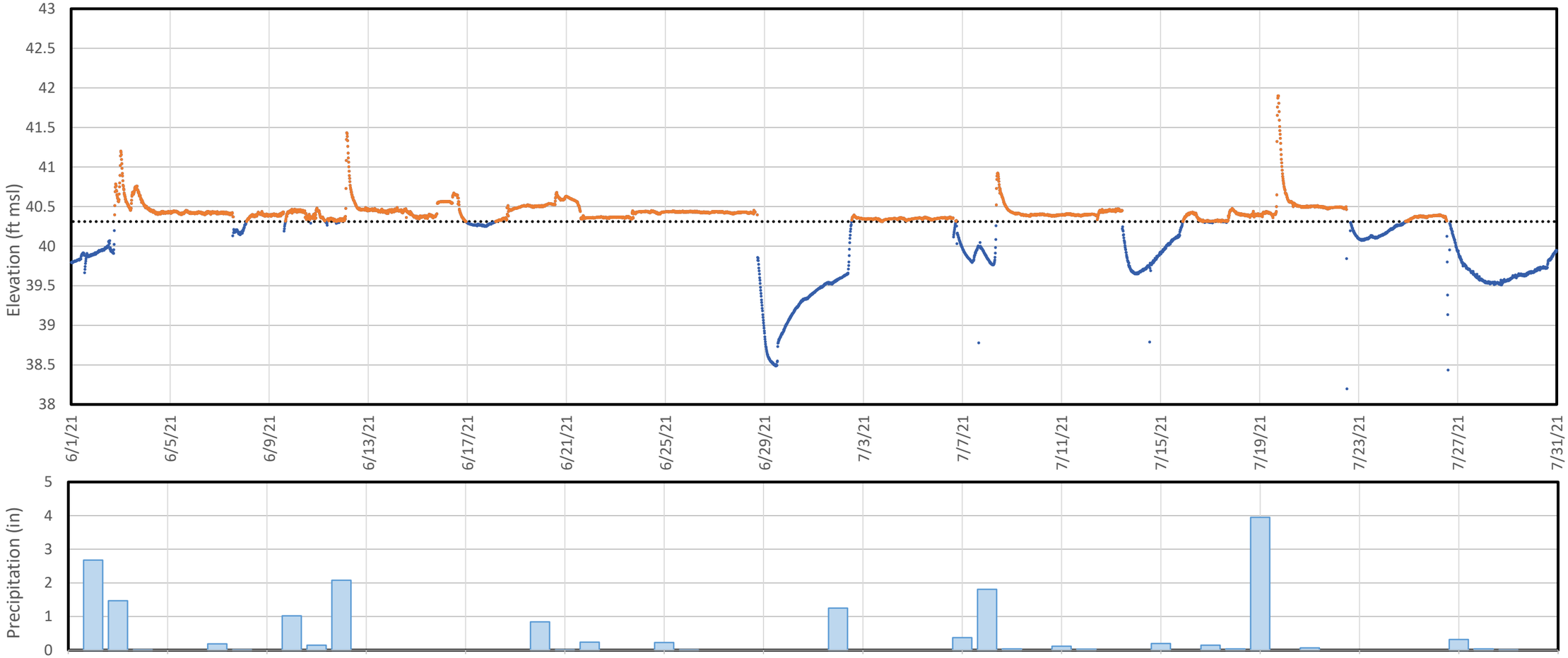
Figure 2



Legend

- Influent Chamber/Impoundment Water Elevation
- Impoundment Water Elevation Above Bypass Spillway
- Bypass Spillway Elevation
- Precipitation (daily totals)

Notes:

Figure 3 depicts the influent transducer data that was collected during the reporting period (blue line). Instances of impoundment bypass flow are shown in orange.
Precipitation data obtained from USGS gauge# 02105500 at the William O. Huske Lock and Dam.

Influent Water Elevation and Bypass Flow (June - July 2021)

Chemours Fayetteville Works
Fayetteville, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
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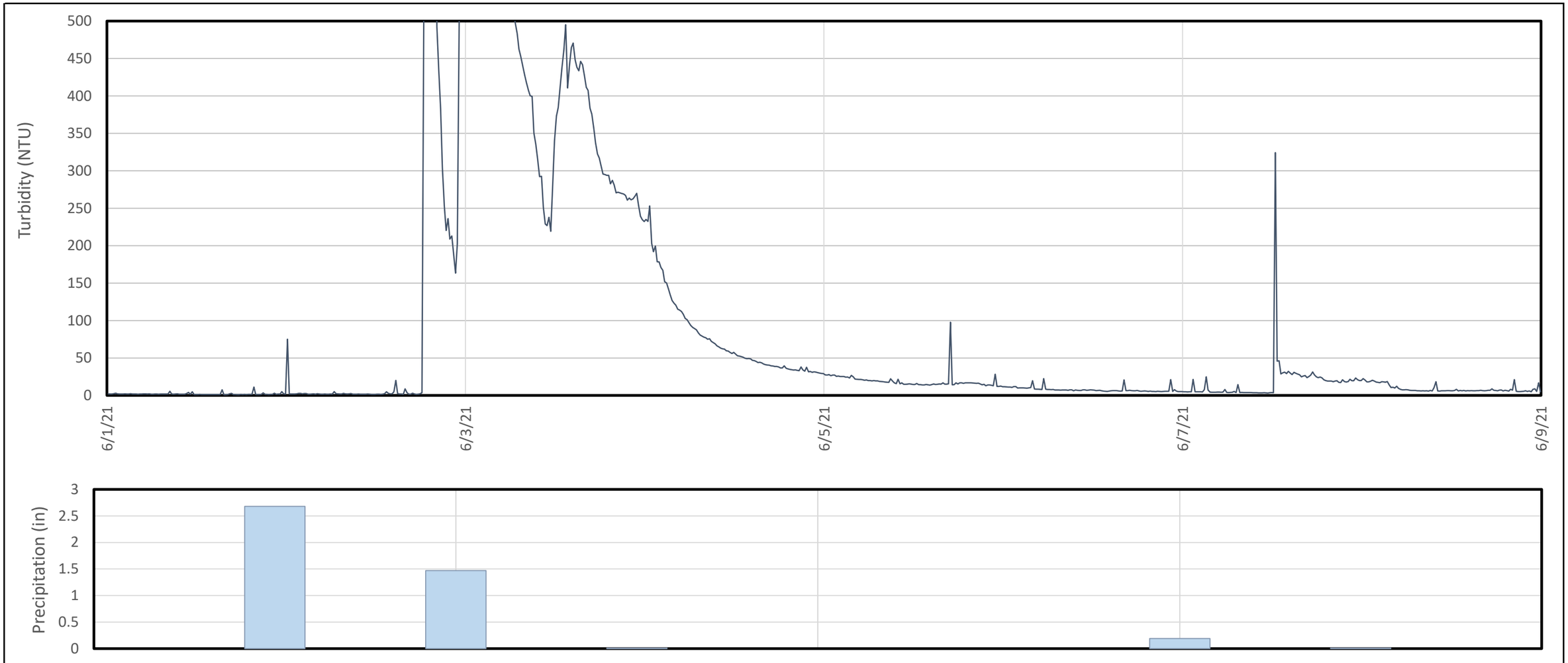
Figure 3



Legend

- Turbidity
- Precipitation (daily totals)

Notes

NTU - Nephelometric Turbidity Unit

Turbidity data logged with a AquaTROLL Turbidiy Sensor placed in the Influent Stilling Basin.

The peak values recorded by the turbidity sensor (over 1,000 NTU) may be biased high, as the sensors can become clogged during high sediment-loading events. The interpretation of the turbidity data in the report is largely derived on the timing of the readings (i.e., baseline dry weather turbidity is very low and spikes after rain events). For clarity, the y-axis above is limited to 500 NTU.

Precipitation data obtained from USGS gauge# 02105500 at the William O. Huske Lock and Dam.

Turbidity Logging and Precipitation (June - July 2021)

Chemours Fayetteville Works
Fayetteville, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C 3500 and C 295

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Figure 4

APPENDIX A
Section 401 WQC/Section 404 Permit and Certificate of Completion

DEPARTMENT OF THE ARMY
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

December 18, 2020

Regulatory Division

Action ID. SAW-2019-00206

The Chemours Company
Ms. Christel Compton
22828 NC Highway 87 W
Fayetteville, NC 28306
CHRISTEL.E.COMPTON@chemours.com

Dear Ms. Compton:

Reference the Department of the Army (DA) permit issued on 5 October 2020, for the discharge of fill material into waters and wetlands adjacent to the Cape Fear River at your facility located on Highway 87 at the Bladen-Cumberland County line, North Carolina. This modification requests additional impacts to 1.95 acres of wetland and 1,710 linear feet of perennial stream for the purpose of removing PFAS from surface water at three impact locations, Seeps A, B, and D, by installing an in-stream interim remediation system, or flow-through cells, that will treat surface water prior to discharging into the Cape Fear River. The proposed work is being conducted in accordance with the current Consent Order issued by the North Carolina Superior Court for Bladen County.

I have determined that the proposed project modifications described above are not contrary to the public interest and are consistent with the 404(b)(1) Guidelines; therefore, the DA permit is hereby modified. The authorized work shall be completed in accordance with the attached revised drawings. All other conditions of the original permit and previous modifications remain applicable, as well as the permit expiration date, October 5, 2025. The permit modifications are as follows:

Additional Special Condition(s):

1. Compensatory Mitigation: In order to compensate for impacts associated with this permit, mitigation shall be provided in accordance with the provisions outlined on the most recent version of the attached Compensatory Mitigation Responsibility Transfer Form. The requirements of this form, including any special conditions listed on this form, are hereby incorporated as special conditions of this permit.

In order to compensate for the permanent loss of perennial stream and riparine riverine wetland and the functional loss of perennial stream and wetlands through the conversion of these waters, the Permitte shall debit 1,280 warm water stream credits from NC DMS

ILF program in HUC 03030005 and 1.84 riparine riverine wetland credits from the Lower Cape Fear Umbrella Mitigation bank.

2. Work Limits: All work authorized by this permit shall be performed in strict compliance with the attached permit plans dated November 2020 (revised from October 2020) which are a part of this permit. The Permittee shall ensure that the construction design plans for this project do not deviate from the permit plans attached to this authorization. Any modification to the attached permit plans must be approved by the U.S. Army Corps of Engineers (Corps) prior to any active construction in waters or wetlands.

3. Compliance with Other Permits: In accordance with 33 U.S.C. 1341(d), all conditions of the North Carolina Division of Water Resources 401 Water Quality Certification #004235, dated 16 December 2020, are incorporated by reference as part of the Department of the Army permit and attached for your convenience.

4. Maintain Flows and Circulation Patterns of Waters: Except as specified in the plans attached to this permit, no excavation, fill or mechanized land-clearing activities shall take place at any time in the construction or maintenance of this project, in such a manner as to impair normal flows and circulation patterns within waters or wetlands or to reduce the reach of waters and/or wetlands.

5. Sediment and Erosion Control:

a) During the clearing phase of the project, heavy equipment shall not be operated in surface waters or stream channels. Temporary stream crossings will be used to access the opposite sides of stream channels. All temporary diversion channels and stream crossings will be constructed of non-erodible materials. Grubbing of riparian vegetation will not occur until immediately before construction begins on a given segment of stream channel.

b) No fill or excavation impacts for the purposes of sedimentation and erosion control shall occur within jurisdictional waters, including wetlands, unless the impacts are included on the plan drawings and specifically authorized by this permit. This includes, but is not limited to, sediment control fences and other barriers intended to catch sediment losses.

c) The Permittee shall remove all sediment and erosion control measures placed in waters and/or wetlands, and shall restore natural grades on those areas, prior to project completion.

d) The Permittee shall use appropriate sediment and erosion control practices which equal or exceed those outlined in the most recent version of the “North Carolina Sediment and Erosion Control Planning and Design Manual” to ensure compliance with the appropriate turbidity water quality standard. Erosion and sediment control practices

shall be in full compliance with all specifications governing the proper design, installation and operation and maintenance of such Best Management Practices in order to ensure compliance with the appropriate turbidity water quality standards. This shall include, but is not limited to, the immediate installation of silt fencing or similar appropriate devices around all areas subject to soil disturbance or the movement of earthen fill, and the immediate stabilization of all disturbed areas. Additionally, the project shall remain in full compliance with all aspects of the Sedimentation Pollution Control Act of 1973 (North Carolina General Statutes Chapter 113A Article 4). Adequate sedimentation and erosion control measures shall be implemented prior to any ground disturbing activities to minimize impacts to downstream aquatic resources. These measures shall be inspected and maintained regularly, especially following rainfall events. All fill material shall be adequately stabilized at the earliest practicable date to prevent sediment from entering into adjacent waters or wetlands.

6. As-Built Construction Plans: Within 60 days following the completion of construction, the Permittee shall submit to the Corps as-built plans for those portions that affect waters of the United States, including wetlands. The as-built plans shall include all grading, structures and activities in or affecting waters and/or wetlands at Seeps A, B, C, and D.

This approved modification should be attached to the original permit and will be utilized for future compliance reviews of the project. If you have questions, please contact Emily Greer of the Wilmington Regulatory Field Office, at 910.251.4567 or emily.c.greer@usace.army.mil.

FOR THE DISTRICT COMMANDER

Sincerely,

SUGG.MICKEY.T.1229800830 Digitally signed by SUGG.MICKEY.T.1229800830 Date: 2020.12.18 14:06:58 -05'00'

Mickey Sugg
Chief, Wilmington Field Office

Enclosures:
Approved Project Drawings
Mitigation Responsibility Transfer Form
Section 401 Water Quality Certification

Copies Furnished (electronic):

Mr. Pete Benjamin
U. S. Fish and Wildlife Service
pete_benjamin@fws.gov

Mr. Todd Bowers
U. S. Environmental Protection Agency, Region IV
bowers.todd@epa.gov

Paul Wojoski
NC Division of Water Quality
Paul.wojoski@ncdenr.gov

Mr. Spencer Varnado
GeoSyntec, Inc.
SVarnado@Geosyntec.com

Mr. Chris Shores
GeoSyntec, Inc.
CShores@geosyntec.com

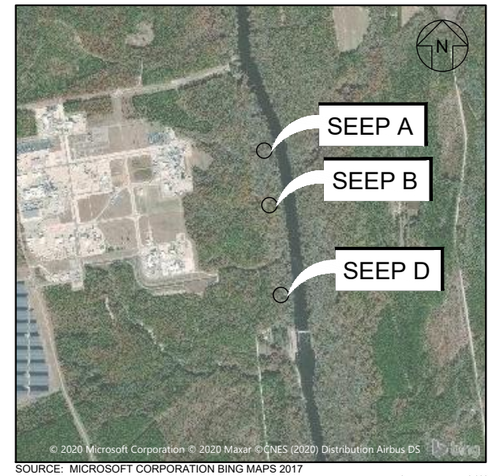
THE CHEMOURS COMPANY
FAYETTEVILLE WORKS PROJECT
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM
WILLIS CREEK AND CAPE FEAR RIVER CORRIDOR
FAYETTEVILLE, BLADEN AND CUMBERLAND COUNTIES
STATE OF NORTH CAROLINA
NOVEMBER 2020

SOURCE: U.S. BUREAU OF THE CENSUS

VICINITY MAP

SCALE: 1" = 30 MILES

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
G-01	COVER SHEET
G-02	NOTES AND SPECIFICATIONS
A-01	SEEP A INTERIM REMEDIATION SYSTEM WETLAND AND STREAM IMPACTS
A-02	SEEP A FILTER BED AND GRADING PLAN
A-03	SEEP A INTERIM REMEDIATION SYSTEM CROSS SECTIONS
B-01	SEEP B INTERIM REMEDIATION SYSTEM WETLAND AND STREAM IMPACTS
B-02	SEEP B FILTER BED AND GRADING PLAN
B-03	SEEP B INTERIM REMEDIATION SYSTEM CROSS SECTIONS
D-01	SEEP D INTERIM REMEDIATION SYSTEM WETLAND AND STREAM IMPACTS
D-02	SEEP D FILTER BED AND GRADING PLAN
D-03	SEEP D INTERIM REMEDIATION SYSTEM CROSS SECTIONS



SOURCE: MICROSOFT CORPORATION BING MAPS 2017

LOCATION MAP

SCALE: 1" = 3,000'

0 3,000

SCALE IN FEET

PREPARED FOR:

Chemours™

22828 NC-87
FAYETTEVILLE, NC 28306
910.483.4681

PREPARED BY:

Geosyntec consultants of NC, P.C.

NC LICENSE NO.: C-3500 AND C-295

ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

PERMIT DRAWING - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
B	11.18.20	REVISED PERMIT SUBMITTAL	JFH	CAS
A	10.23.20	PERMIT SUBMITTAL	JFH	CAS

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295

ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: COVER SHEET

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-G01.DWG
REVIEWED BY:	JJD	DRAWING NO.:	G-01
APPROVED BY:	CAS		

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CONCRETE NOTES

1. ALL CONCRETE WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION AND/OR ADDENDUM REFERENCED IN DESIGN STANDARDS ACI 318 AND ACI 301.
2. ADDITION OF WATER TO THE BATCH FOR MATERIAL WITH INSUFFICIENT SLUMP WILL NOT BE PERMITTED, UNLESS THE SUPPLIER HAS SPECIFICALLY WITHHELD WATER FROM THE BATCH AT THE PLANT. IN SUCH CASE, THE MIX DESIGN AND TRUCK TICKET MUST CLEARLY STATE THE MAXIMUM AMOUNT OF WATER THAT CAN BE ADDED TO THE BATCH ON SITE. IN NO CASE SHALL THE DESIGN WATER TO CEMENTITIOUS MATERIAL RATIO BE EXCEEDED.
3. MECHANICALLY VIBRATE ALL CONCRETE WHEN PLACED.
4. CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 3/4" X 45 DEGREE CHAMFER, UNLESS NOTED OTHERWISE.
5. CONTRACTOR TO REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS.
6. ALL CEMENT SHALL BE TYPE I/II, EXCEPT TYPE III MAY BE USED TO PROVIDE HIGH-EARLY STRENGTH FOR 4,000 PSI AT 14 DAYS. COMPLY WITH ACI 318 TESTING REQUIREMENTS FOR 14-DAY STRENGTH IN ACCORDANCE WITH ACI 318 CHAPTER 19.
7. THE STRUCTURAL DRAWINGS SHALL BE COORDINATED WITH MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS FOR THE SIZE AND LOCATION OF EMBEDDED ITEMS, OPENINGS, SLEEVES, INSERTS, DOWELS, DEPRESSIONS, ETC. DO NOT CUT REINFORCEMENT UNLESS INDICATED BY SECTION OR DETAIL. AT LOCATIONS OF CONFLICT, SPREAD THE REINFORCEMENT TO ACCOMMODATE PLACEMENT. ADD ADDITIONAL BARS IF NECESSARY, TO MAINTAIN SPACING REQUIREMENTS.
8. CONCRETE CONTAINING SUPERPLASTICIZING ADMIXTURE SHALL HAVE A SLUMP OF 4" ± 1", TO BE FIELD VERIFIED, PRIOR TO ADDING ADMIXTURE, AND NOT EXCEEDING 8" AT PLACEMENT.
9. STRUCTURAL CONCRETE TO MEET THE REQUIREMENTS SHOWN IN THE FOLLOWING TABLE:

CONCRETE PROPERTIES				
CONCRETE USE	MIN 28 DAY COMPRESSIVE STRENGTH	SLUMP AT PLACEMENT	MAX W/C RATIO	REMARKS
ALL CONCRETE SHALL BE	4,000 PSI	4" ± 1"	0.45	AIR ENTRAINED TO 5% ± 1%

10. ALL AGGREGATES SHALL CONFORM TO ASTM C33.
11. FLY ASH WILL NOT BE PERMITTED.
12. CONCRETE MIX DESIGNS MUST COMPLY WITH THE REQUIREMENTS OF ACI 318 CHAPTER 9. FOLLOW SECTION 19.2 FOR AVERAGE COMPRESSIVE STRENGTHS WHEN TEST DATA ARE NOT AVAILABLE.
13. ADMIXTURES SHALL NOT CONTAIN MORE THAN 0.1% CHLORIDE IONS AND CONFORM TO THE FOLLOWING:
    A. AIR-ENTRAINING ADMIXTURES: ASTM C260
    B. WATER REDUCING ADMIXTURES: ASTM C494, TYPE A
    C. RETARDING ADMIXTURES: ASTM C494, TYPE D
14. CURE CONCRETE IN ACCORDANCE WITH ACI 301 USING WET CURE OR LIQUID CURING COMPOUND.
15. CURING COMPOUND SHALL CONFORM TO REQUIREMENTS OF ASTM C309 AND NOT IMPAIR NATURAL BONDING CHARACTERISTICS OF SUBSEQUENT COATINGS.
16. CONCRETE FORMWORK FOR VERTICAL LOADS AND LATERAL PRESSURES SHALL BE IN ACCORDANCE WITH ACI 347.
17. NONSHRINK GROUT SHALL BE USED FOR PIPE PENETRATIONS. MIX AND PLACE AS RECOMMENDED BY THE MANUFACTURER AND IN ACCORDANCE WITH ASTM C1107.
18. CONCRETE SLAB AND INTERIOR FACE OF RETAINING WALL SURFACES SHALL BE COATED USING CARBOLINE PLASITE 9029, OR APPROVED EQUAL AS A PRIMER LAYER, AND PLASITE 9060, OR APPROVED EQUAL, AS A TOP COAT. THE PLASITE 9060 SHALL BE APPLIED IN A MINIMUM OF THREE COATINGS. EXTEND COATING TO THE TOP OF CHAMFERED EDGE.

STEEL REINFORCING NOTES

1. ALL BARS PER CRSI SPECIFICATIONS AND HANDBOOK. LATEST ACI DESIGN STANDARDS AND DETAILING MANUAL APPLY. SECURELY TIE ALL BARS IN LOCATION BEFORE PLACING CONCRETE. REINFORCING BAR SPACINGS GIVEN ARE MAXIMUM, ON-CENTER SPACING.
2. REINFORCING LAP SPLICES IN CONCRETE SHALL BE CLASS "B" TENSION SPLICES PER LATEST ACI DESIGN STANDARD UNLESS NOTED OTHERWISE. ALL SPLICE LOCATIONS ARE SUBJECT TO APPROVAL OF THE STRUCTURAL ENGINEER. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS OF INTERSECTIONS OF FOUNDATIONS.
3. #6 AND SMALLER BARS MAY BE SPLICED USING MECHANICAL CONNECTIONS OR CONTACT LAP SPLICES. BAR LAPS SHALL BE SECURELY WIRED TOGETHER.
4. REINFORCING BARS SHALL BE COLD BENT. BARS PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT, EXCEPT WHEN INDICATED ON DRAWINGS OR WHEN REALIGNMENT IS NECESSARY. IN SUCH CASES, THE ANGLE OF BENDING SHALL BE LIMITED TO 45 DEGREES FOR #6 BARS AND SMALLER.
5. ALL REINFORCING BAR HOOKS INDICATED ON THE DRAWINGS SHALL BE ACI STANDARD HOOKS CONFORMING TO THE BEND DIMENSION REQUIREMENTS OF SECTION 25.3.1 OF ACI 318, UNLESS SPECIFICALLY NOTED OTHERWISE.
6. STEEL REINFORCING TO MEET THE REQUIREMENTS SHOWN IN THE FOLLOWING TABLE:

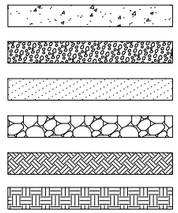
TYPICAL REINFORCING BAR STRENGTHS	
REINFORCING #4 AND #6 (NON-WELDABLE)	ASTM A615, DEFORMED Fy = 60 KSI
REINFORCING (WELDABLE)	ASTM A705, DEFORMED Fy = 60 KSI

7. PROVIDE THE MINIMUM CONCRETE COVER INDICATED IN THE FOLLOWING SCHEDULE, UNLESS NOTED OTHERWISE IN A SPECIFIC SECTION OR DETAIL.

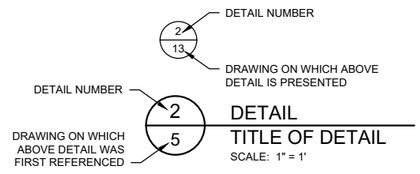
TYPICAL CLEAR CONCRETE COVERAGES	
CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH	3"
FORMED CONCRETE EXPOSED TO EARTH OR WEATHER - #6 BARS	2"
FORMED CONCRETE EXPOSED TO EARTH OR WEATHER - #4 BARS	1 1/2"
ALL OTHERS PER LATEST EDITION OF ACI 318 DESIGN STANDARD	

8. CONTRACTOR SHALL FURNISH EMBEDMENT MATERIALS SUCH AS BOLTS AND FASTENERS FOR SECURING PIPE HANGERS, PIPE STANDS, AND OTHER EQUIPMENT THAT REQUIRES BOLTING TO CONCRETE.
9. CONTRACTOR SHALL FURNISH EPOXY RESIN FOR ANCHORING BOLTS AND FASTENERS TO CONCRETE. EPOXY RESIN SHALL CONFORM TO THE REQUIREMENTS OF ASTM C881.

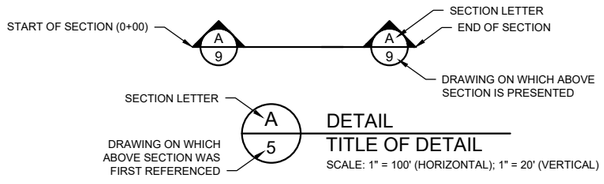
HATCH PATTERN LEGEND



DETAIL AND SECTION IDENTIFICATION LEGEND



EXAMPLE: DETAIL NUMBER 2 WHICH IS PRESENTED ON DRAWING NO. 13 WAS FIRST REFERENCED ON DRAWING NO. 5.



EXAMPLE: SECTION LETTER "A" WHICH IS PRESENTED ON DRAWING NO. 9 WAS FIRST REFERENCED ON DRAWING NO. 5.

ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
APP	APPROVED BY
℄	CENTER LINE
DRN	DRAWN BY
DWG	DRAWING
E	EAST OR EASTING
EL	ELEVATION
FT	FEET
HDPE	HIGH DENSITY POLYETHYLENE
H:V	HORIZONTAL TO VERTICAL LENGTH RATIO FOR A SLOPE
HWY	HIGHWAY
IN	INCH
INV	INVERT
MAX	MAXIMUM
MIN	MINIMUM
MSL	MEAN SEA LEVEL
N	NORTH OR NORTHING
NAD	NORTH AMERICAN DATUM
NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988
NCDEQ	NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY
NO.	NUMBER
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
N.S.A.	NATIONAL STONE ASSOCIATION
NTS	NOT TO SCALE
OC	ON CENTER
OZ	OUNCE
PFAS	PER- AND POLYFLUOROALKYL SUBSTANCES
PROJ	PROJECT
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REV	REVISION
S	SOUTH
SWP	STORMWATER PIPE
TYP	TYPICAL
U.S.	UNITED STATES
USEPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
W	WEST
W.S.	WATER SURFACE
%	PERCENT OR PERCENTILE

REV	DATE	DESCRIPTION	DRN	APP
B	11.18.20	REVISED PERMIT SUBMITTAL	JFH	CAS
A	10.23.20	PERMIT SUBMITTAL	JFH	CAS

Geosyntec consultants
Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295
ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: NOTES AND SPECIFICATIONS

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-G02.DWG
REVIEWED BY:	JJD	DRAWING NO.:	G-02
APPROVED BY:	CAS		

PERMIT DRAWING - NOT FOR CONSTRUCTION

L:\CADD\CHEMOURS\INTERIM SEEP REMEDY\SEEPS A B D\PERMIT ABD\DRAWINGS\TR0795-G02.DWG

E 2051750
E 2052000
E 2052250
E 2052500
N 399000
N 398750
N 398500
N 398250
N

LIMIT OF DISTURBANCE
SILT FENCE
EXISTING ROAD
EXISTING CLEARED AREA
EQUIPMENT AND MATERIAL STAGING AREA
MAINTENANCE PLATFORM (NOTE 5) EL 41.35
FILTER BED AND SPILLWAY (NOTE 4)
CAPE FEAR RIVER
FILTER BED OVERTOPPING EL 41.35
BEGIN BYPASS EL 40.35
FILTER BED IMPOUNDMENT EL 38.35
WETLANDS (NOTE 7)

TOTAL TEMPORARY WETLAND IMPACT (YELLOW) = 0.38 AC

TOTAL TEMPORARY STREAM IMPACT (PURPLE) = 295 LF

TOTAL PERMANENT WETLAND IMPACT = 0.39 AC
DIRECT FILL IMPACT (DARK RED) = 0.13 AC
INDIRECT IMPACTS (LIGHT RED) = 0.26 AC

TOTAL PERMANENT STREAM IMPACT = 570 LF
DIRECT FILL IMPACT (DARK BLUE) = 90 LF
INDIRECT IMPACTS (LIGHT BLUE) = 480 LF

LEGEND

- EXISTING CONTOUR
- FINISHED GRADE CONTOUR
- EXISTING CLEARED AREA
- PROPERTY LINE
- EXISTING ROAD
- SEEP CHANNEL / RIVER
- WETLANDS
- INDIRECT WETLAND IMPACT
- DIRECT FILL WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- INDIRECT STREAM IMPACT
- DIRECT STREAM IMPACT
- TEMPORARY STREAM IMPACT

NOTES:

1. GRID COORDINATE SYSTEM CORRESPONDS TO NAD83, NORTH CAROLINA.
2. ELEVATIONS PRESENTED ARE IN FEET, NAVD 88.
3. TOPOGRAPHIC, ROADS, BUILDINGS, AND PROPERTY LINE INFORMATION OBTAINED FROM FREELAND-CLINK SCALES & ASSOCIATES, INC. OF NC. SURVEY OF THE CHEMOURS FAYETTEVILLE WORKS SITE DATE 7 JANUARY 2019.
4. BYPASS SPILLWAY AND SLOPES SHALL BE ARMORED WITH 12-INCH THINK (MIN) LAYER OF RIPRAP AND UNDERLAIN WITH A GEOTEXTILE SEPARATOR.
5. MAINTENANCE PLATFORM SHALL BE SURFACED WITH A 6-INCH (MIN) LAYER OF AGGREGATE AND UNDERLAIN WITH A GEOTEXTILE SEPARATOR.
6. DISTURBED AREAS NOT SURFACED WITH AGGREGATE OR CONCRETE WILL BE SEEDED AND MULCHED UPON DISTURBANCE. EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED AND MONITORED THROUGHOUT CONSTRUCTION AND UNTIL RESTORATION.
7. APPROXIMATE EXTENT OF WETLANDS AND STREAMS ASSOCIATED WITH SEEP C IMPACTS DELINEATED BY PARSONS (WOTUS REPORT, CHEMOURS FAYETTEVILLE WORKS, FLOW THROUGH CELLS, SEEP C PILOT STUDY. AUGUST 2020). APPROXIMATE EXTENT OF WETLANDS AND STREAMS ASSOCIATED WITH SEEPS A, B, AND D DELINEATED BY GEOSYNTEC, SEPTEMBER 2020 (WATERS OF THE US FINDINGS REPORT, CHEMOURS FAYETTEVILLE WORKS PROJECT, BLADEN/CUMBERLAND COUNTY, NORTH CAROLINA. OCTOBER 2020).

0 100 200
SCALE IN FEET

PERMIT DRAWING - NOT FOR CONSTRUCTION

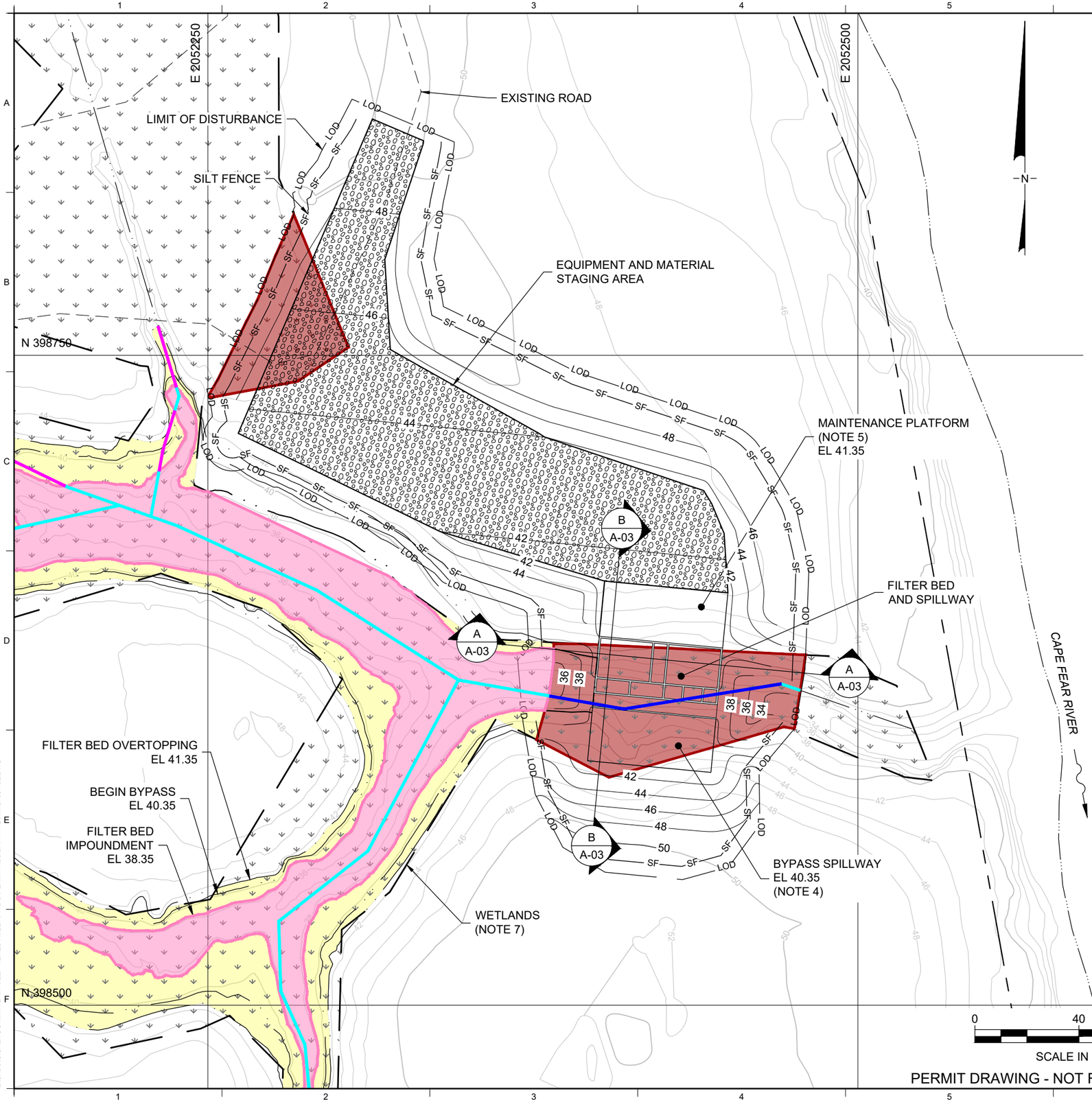
REV	DATE	DESCRIPTION	DRN	APP
B	11.18.20	REVISED PERMIT SUBMITTAL	JFH	CAS
A	10.23.20	PERMIT SUBMITTAL	JFH	CAS

Geosyntec consultants
Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295
ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: SEEP A INTERIM REMEDIATION SYSTEM WETLAND AND STREAM IMPACTS
PROJECT: THE CHEMOURS COMPANY SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM
SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-A01.DWG
REVIEWED BY:	JJD	DRAWING NO.:	A-01
APPROVED BY:	CAS		

L:\CADD\C\CHEMOURS\INTERIM SEEP REMEDY\SEEPS A B D\PERMIT ABD\DRAWINGS\TR0795-A01.DWG



LEGEND

- EXISTING CONTOUR
- FINISHED GRADE CONTOUR
- EXISTING CLEARED AREA
- PROPERTY LINE
- EXISTING ROAD
- SEEP CHANNEL / RIVER
- WETLANDS
- INDIRECT WETLAND IMPACT
- DIRECT FILL WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- INDIRECT STREAM IMPACT
- DIRECT STREAM IMPACT
- TEMPORARY STREAM IMPACT

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0 40 80

SCALE IN FEET

PERMIT DRAWING - NOT FOR CONSTRUCTION

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B	11.18.20	REVISED PERMIT SUBMITTAL	JFH	CAS
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ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

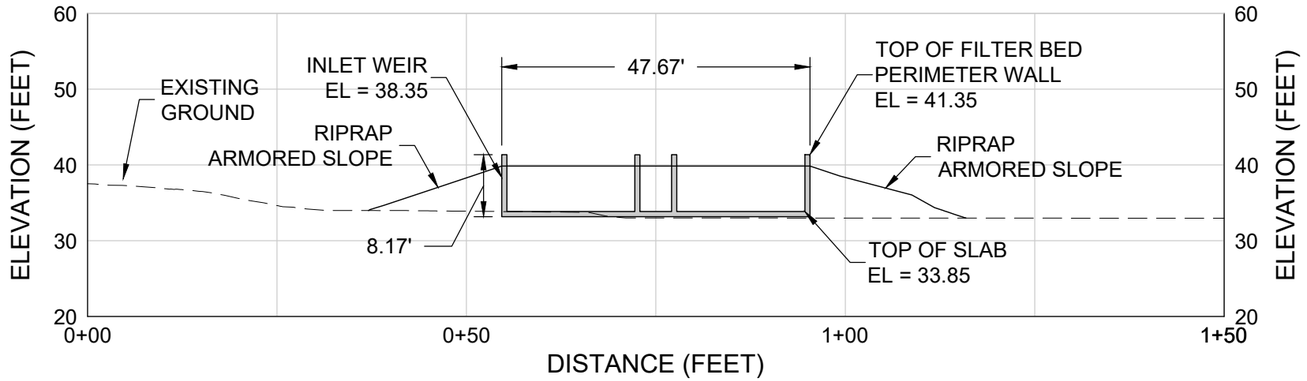
TITLE: SEEP A FILTER BED AND GRADING PLAN

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

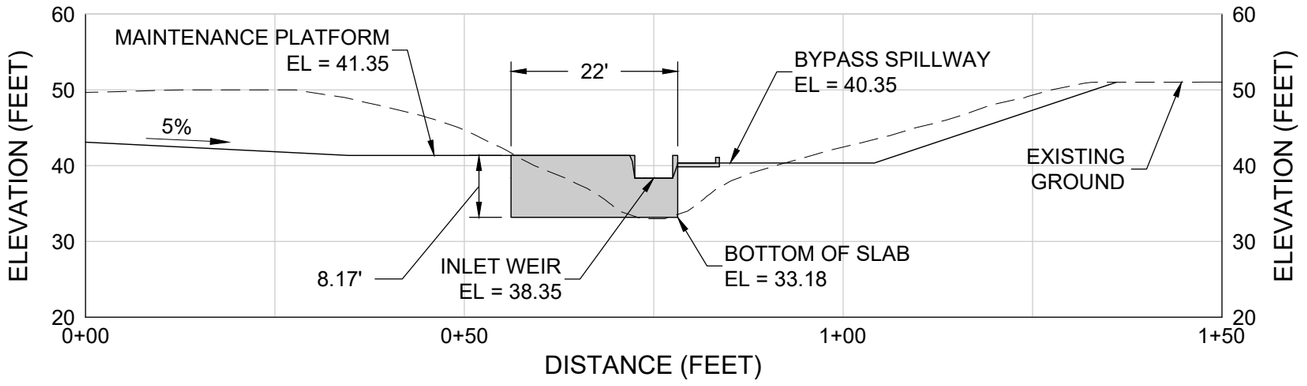
SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-A02.DWG
REVIEWED BY:	JJD	DRAWING NO.:	A-02
APPROVED BY:	CAS		

L:\CADD\CHEMOURS\INTERIM SEEP REMEDY\SEEPS A B D\PERMIT ABD\DRAWINGS\TR0795-A02.DWG



SEEP A - SECTION A



SEEP A - SECTION B

0 20 40

SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
B	11.18.20	REVISED PERMIT SUBMITTAL	JFH	CAS
A	10.23.20	PERMIT SUBMITTAL	JFH	CAS

Geosyntec consultants
Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295

ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: SEEP A INTERIM REMEDIATION SYSTEM
CROSS SECTIONS

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-A03.DWG
REVIEWED BY:	JJD	DRAWING NO.:	A-03
APPROVED BY:	CAS		

PERMIT DRAWING - NOT FOR CONSTRUCTION

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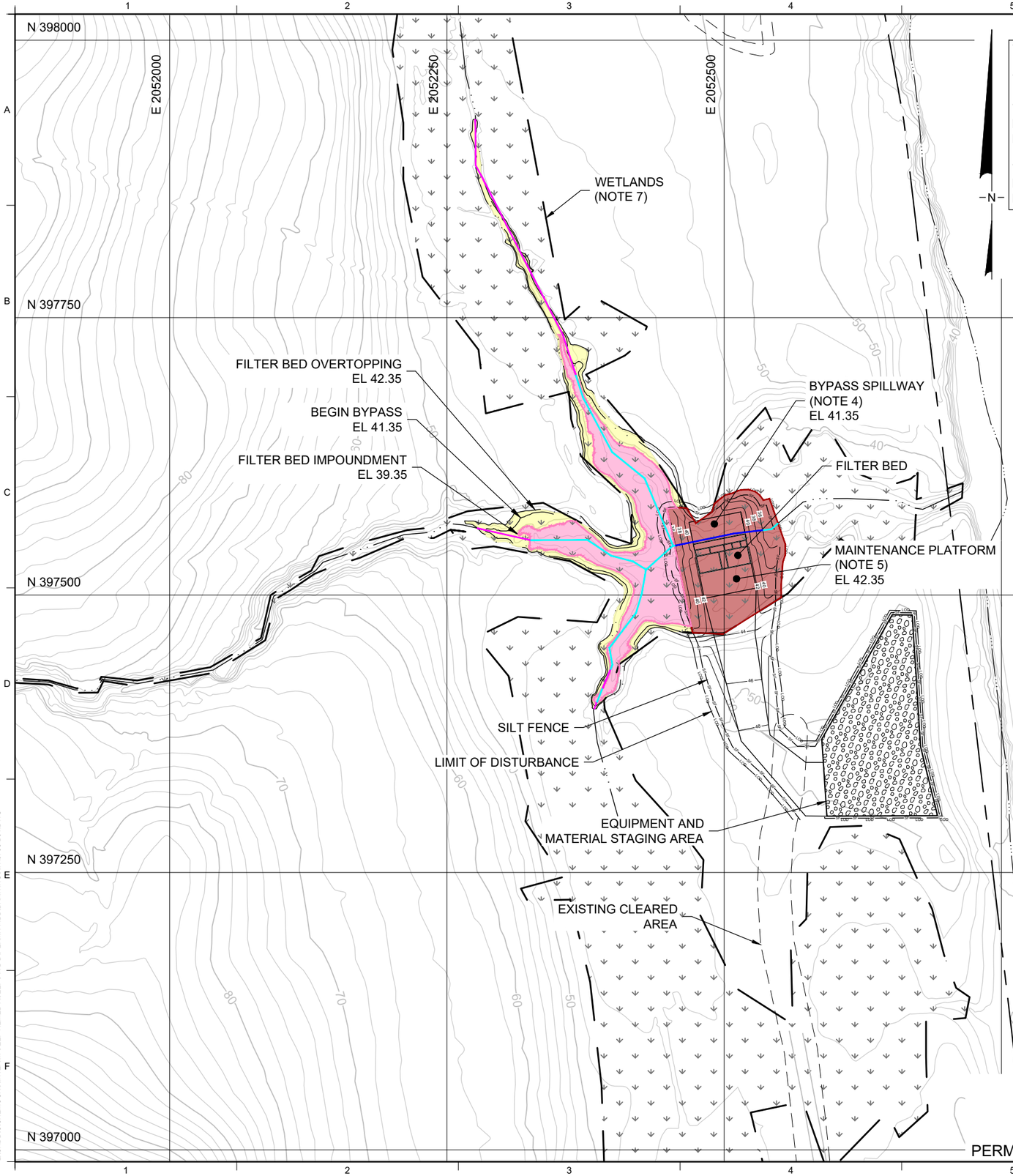

TOTAL TEMPORARY WETLAND IMPACT (YELLOW) = 0.18 AC

TOTAL TEMPORARY STREAM IMPACT (PURPLE) = 305 LF

TOTAL PERMANENT WETLAND IMPACT = 0.47 AC
DIRECT FILL IMPACT (DARK RED) = 0.23 AC
INDIRECT IMPACTS (LIGHT RED) = 0.24 AC

TOTAL PERMANENT STREAM IMPACT = 540 LF
DIRECT FILL IMPACT (DARK BLUE) = 80 LF
INDIRECT IMPACTS (LIGHT BLUE) = 460 LF

LEGEND

- EXISTING CONTOUR
- FINISHED GRADE CONTOUR
- EXISTING CLEARED AREA
- PROPERTY LINE
- EXISTING ROAD
- SEEP CHANNEL / RIVER
- WETLANDS
- INDIRECT WETLAND IMPACT
- DIRECT FILL WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- INDIRECT STREAM IMPACT
- DIRECT STREAM IMPACT
- TEMPORARY STREAM IMPACT

NOTES:

1. GRID COORDINATE SYSTEM CORRESPONDS TO NAD83, NORTH CAROLINA.
2. ELEVATIONS PRESENTED ARE IN FEET, NAVD 88.
3. TOPOGRAPHIC, ROADS, BUILDINGS, AND PROPERTY LINE INFORMATION OBTAINED FROM FREELAND-CLINK SCALES & ASSOCIATES, INC. OF NC. SURVEY OF THE CHEMOURS FAYETTEVILLE WORKS SITE DATE 7 JANUARY 2019.
4. BYPASS SPILLWAY AND SLOPES SHALL BE ARMORED WITH 12-INCH THINK (MIN) LAYER OF RIPRAP AND UNDERLAIN WITH A GEOTEXTILE SEPARATOR.
5. MAINTENANCE PLATFORM SHALL BE SURFACED WITH A 6-INCH (MIN) LAYER OF AGGREGATE AND UNDERLAIN WITH A GEOTEXTILE SEPARATOR.
6. DISTURBED AREAS NOT SURFACED WITH AGGREGATE OR CONCRETE WILL BE SEEDED AND MULCHED UPON DISTURBANCE. EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED AND MONITORED THROUGHOUT CONSTRUCTION AND UNTIL RESTORATION.
7. APPROXIMATE EXTENT OF WETLANDS AND STREAMS ASSOCIATED WITH SEEP C IMPACTS DELINEATED BY PARSONS (WOTUS REPORT, CHEMOURS FAYETTEVILLE WORKS, FLOW THROUGH CELLS, SEEP C PILOT STUDY. AUGUST 2020). APPROXIMATE EXTENT OF WETLANDS AND STREAMS ASSOCIATED WITH SEEPS A, B, AND D DELINEATED BY GEOSYNTEC, SEPTEMBER 2020 (WATERS OF THE US FINDINGS REPORT, CHEMOURS FAYETTEVILLE WORKS PROJECT, BLADEN/CUMBERLAND COUNTY, NORTH CAROLINA. OCTOBER 2020).

0 100 200

SCALE IN FEET

PERMIT DRAWING - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
B	11.18.20	REVISED PERMIT SUBMITTAL	JFH	CAS
A	10.23.20	PERMIT SUBMITTAL	JFH	CAS

Geosyntec consultants
Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295
ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: SEEP B INTERIM REMEDIATION SYSTEM
WETLAND AND STREAM IMPACTS

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-B01.DWG
REVIEWED BY:	JJD	DRAWING NO.:	B-01
APPROVED BY:	CAS		

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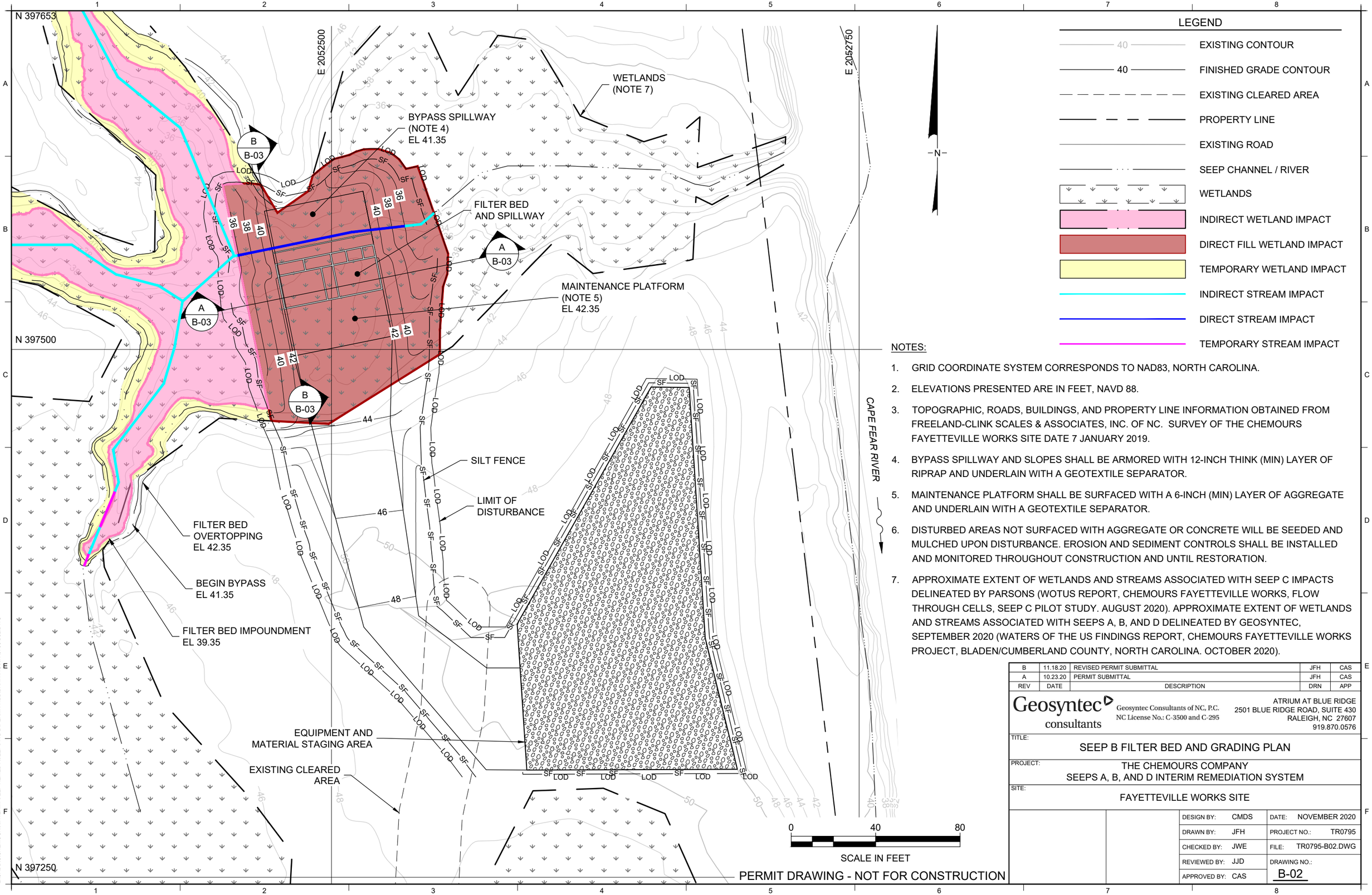

LEGEND

- EXISTING CONTOUR
- FINISHED GRADE CONTOUR
- EXISTING CLEARED AREA
- PROPERTY LINE
- EXISTING ROAD
- SEEP CHANNEL / RIVER
- WETLANDS
- INDIRECT WETLAND IMPACT
- DIRECT FILL WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- INDIRECT STREAM IMPACT
- DIRECT STREAM IMPACT
- TEMPORARY STREAM IMPACT

NOTES:

1. GRID COORDINATE SYSTEM CORRESPONDS TO NAD83, NORTH CAROLINA.
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4. BYPASS SPILLWAY AND SLOPES SHALL BE ARMORED WITH 12-INCH THINK (MIN) LAYER OF RIPRAP AND UNDERLAIN WITH A GEOTEXTILE SEPARATOR.
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0 40 80

SCALE IN FEET

PERMIT DRAWING - NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	DRN	APP
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NC License No.: C-3500 and C-295
ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: SEEP B FILTER BED AND GRADING PLAN

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-B02.DWG
REVIEWED BY:	JJD	DRAWING NO.:	B-02
APPROVED BY:	CAS		

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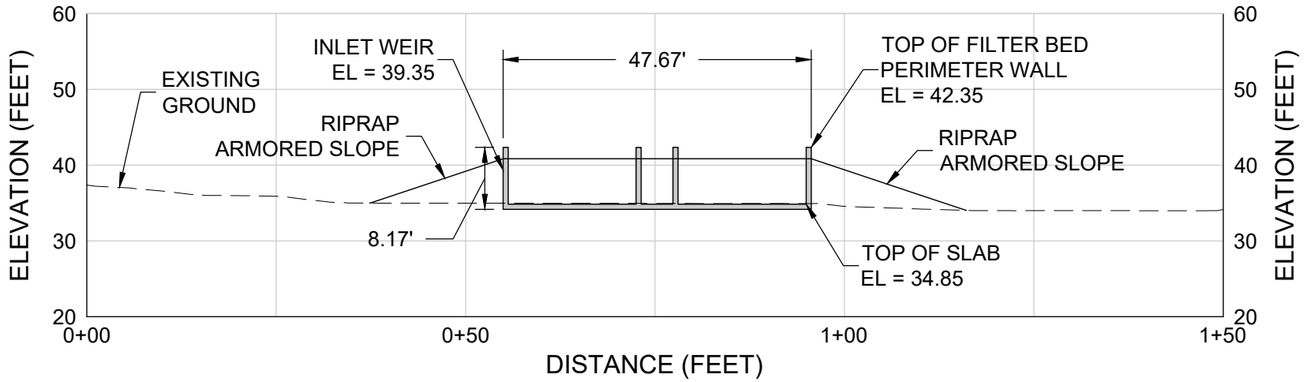
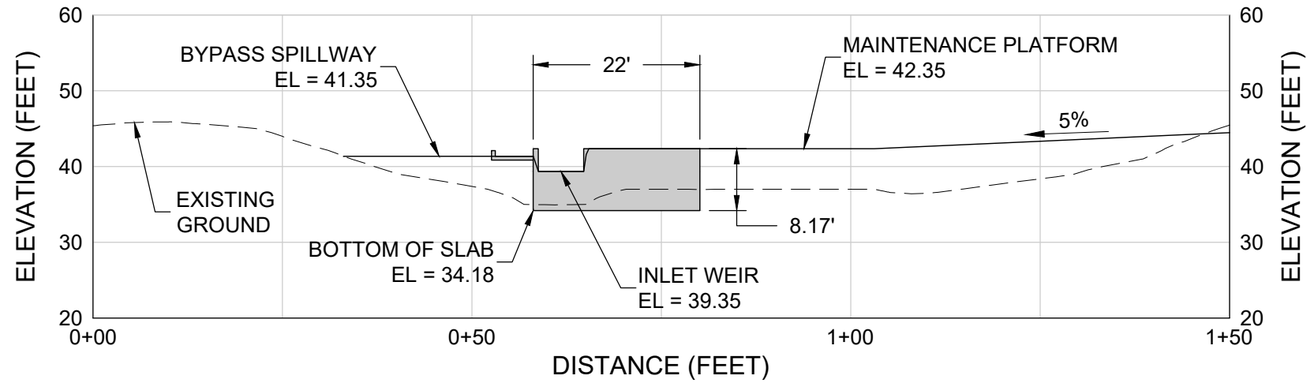


SEEP B - SECTION A



SEEP B - SECTION B

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SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
B	11.18.20	REVISED PERMIT SUBMITTAL	JFH	CAS
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NC License No.: C-3500 and C-295
ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: SEEP B INTERIM REMEDIATION SYSTEM
CROSS SECTIONS

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-B03.DWG
REVIEWED BY:	JJD	DRAWING NO.:	B-03
APPROVED BY:	CAS		

PERMIT DRAWING - NOT FOR CONSTRUCTION

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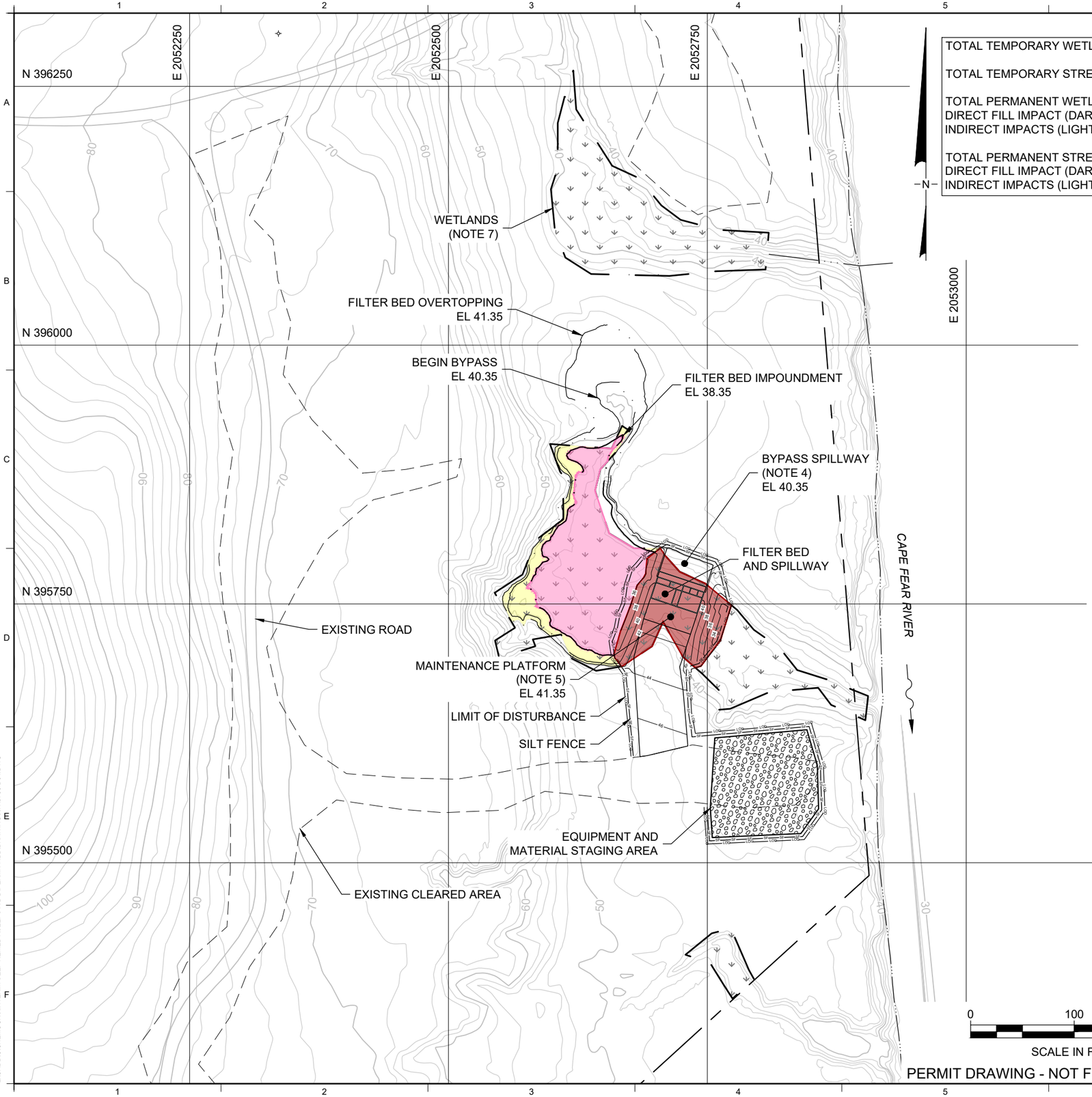

TOTAL TEMPORARY WETLAND IMPACT (YELLOW) = 0.08 AC

TOTAL TEMPORARY STREAM IMPACT (PURPLE) = 0 LF

TOTAL PERMANENT WETLAND IMPACT = 0.45 AC
DIRECT FILL IMPACT (DARK RED) = 0.17 AC
INDIRECT IMPACTS (LIGHT RED) = 0.28 AC

TOTAL PERMANENT STREAM IMPACT = 0 LF
DIRECT FILL IMPACT (DARK BLUE) = 0 LF
INDIRECT IMPACTS (LIGHT BLUE) = 0 LF

LEGEND

- EXISTING CONTOUR
- FINISHED GRADE CONTOUR
- EXISTING CLEARED AREA
- PROPERTY LINE
- EXISTING ROAD
- SEEP CHANNEL / RIVER
- WETLANDS
- INDIRECT WETLAND IMPACT
- DIRECT FILL WETLAND IMPACT
- TEMPORARY WETLAND IMPACT

NOTES:

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SCALE IN FEET

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NC License No.: C-3500 and C-295
ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: SEEP D INTERIM REMEDIATION SYSTEM
WETLAND AND STREAM IMPACTS

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-D01.DWG
REVIEWED BY:	JJD	DRAWING NO.:	D-01
APPROVED BY:	CAS		

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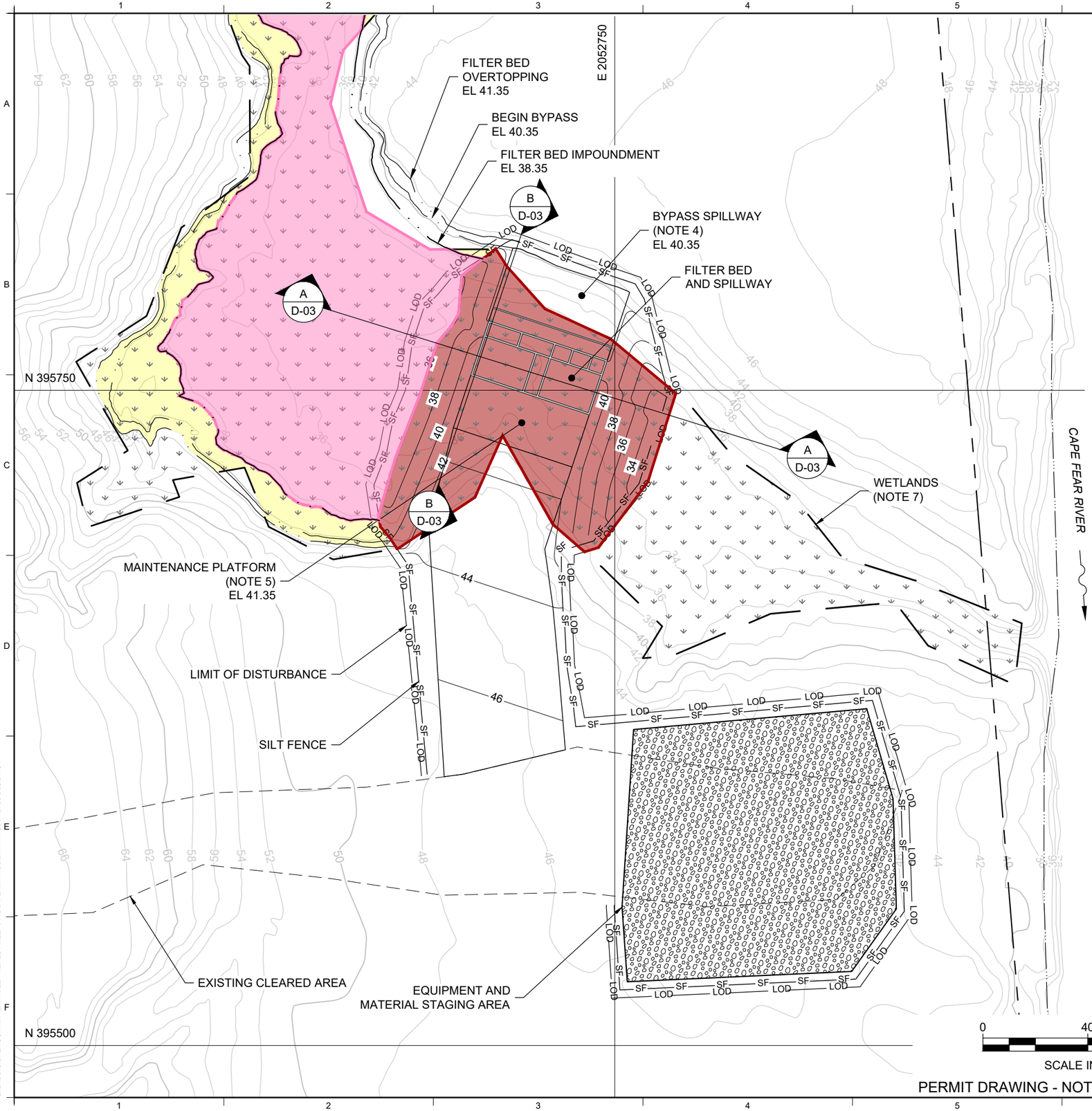

LEGEND

- EXISTING CONTOUR
- FINISHED GRADE CONTOUR
- EXISTING CLEARED AREA
- PROPERTY LINE
- EXISTING ROAD
- SEEP CHANNEL / RIVER
- WETLANDS
- INDIRECT WETLAND IMPACT
- DIRECT FILL WETLAND IMPACT
- TEMPORARY WETLAND IMPACT
- INDIRECT STREAM IMPACT
- DIRECT STREAM IMPACT
- TEMPORARY STREAM IMPACT

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0 40 80

SCALE IN FEET

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2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: SEEP D FILTER BED AND GRADING PLAN

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-D02.DWG
REVIEWED BY:	JJD	DRAWING NO.:	D-02
APPROVED BY:	CAS		

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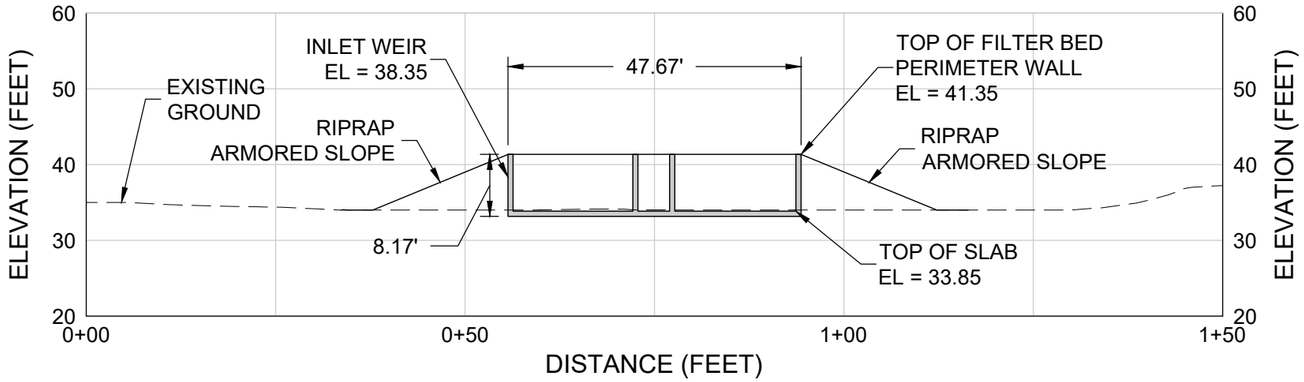
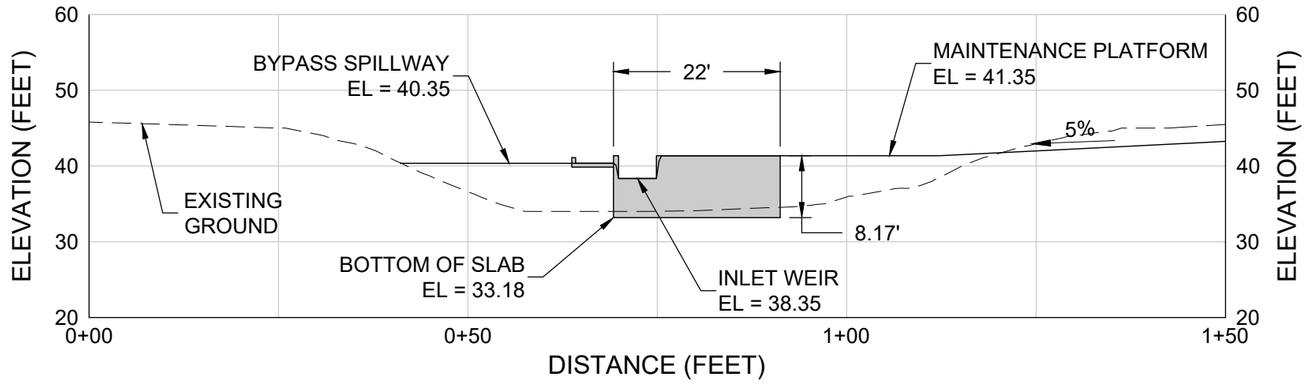


SEEP D - SECTION A



SEEP D - SECTION B

0 20 40

SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
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RALEIGH, NC 27607
919.870.0576

TITLE: SEEP D INTERIM REMEDIATION SYSTEM
CROSS SECTIONS

PROJECT: THE CHEMOURS COMPANY
SEEPS A, B, AND D INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

DESIGN BY:	CMDS	DATE:	NOVEMBER 2020
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-D03.DWG
REVIEWED BY:	JJD	DRAWING NO.:	D-03
APPROVED BY:	CAS		

PERMIT DRAWING - NOT FOR CONSTRUCTION

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U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: Chemours Chemical-Fayetteville Works **Action ID: SAW-2019-00206**
Project Name: Chemours Chemical PFAS Remediation Project **County: Bladen**

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that Wilmington District Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one Mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate Mitigation Sponsors.

Instructions to Sponsor: The Sponsor verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: **8-digit HUC and Basin:** 03030005, Cape Fear River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
1,110						

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: **8-digit HUC and Basin:** 03030005, Cape Fear River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
1,280						

Mitigation Site Debited: NC DMS HUC 03030005
(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the Wilmington District, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

_____ _____
Signature of Sponsor's Authorized Representative **Date of Signature**

USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the District is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the District is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. When NCDMS provides mitigation for authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by NCDMS must be provided to the District within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the District has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the District Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the District, the Sponsor must obtain case-by-case approval from the District Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the District administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This form is not valid unless signed below by the District Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil)***. Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: Emily Greer
USACE Field Office: Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403
Email: emily.c.greer@usace.army.mil

GREER.EMILY.C.1385325300

Digitally signed by GREER.EMILY.C.1385325300
Date: 2020.12.17 15:49:24 -05'00'

Wilmington District Project Manager Signature

December 17, 2020
Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at http://ribits.usace.army.mil.

U.S. ARMY CORPS OF ENGINEERS
Wilmington District
Compensatory Mitigation Responsibility Transfer Form

Permittee: Chemours Chemical-Fayetteville Works **Action ID: SAW-2019-00206**
Project Name: Chemours Chemical PFAS Remediation Project **County: Bladen**

Instructions to Permittee: The Permittee must provide a copy of this form to the Mitigation Sponsor, either an approved Mitigation Bank or the North Carolina Division of Mitigation Services (NCDMS), who will then sign the form to verify the transfer of the mitigation responsibility. Once the Sponsor has signed this form, it is the Permittee's responsibility to ensure that Wilmington District Project Manager identified on page two is in receipt of a signed copy of this form before conducting authorized impacts, unless otherwise specified below. If more than one Mitigation Sponsor will be used to provide the mitigation associated with the permit, or if the impacts and/or the mitigation will occur in more than one 8-digit Hydrologic Unit Code (HUC), multiple forms will be attached to the permit, and the separate forms for each Sponsor and/or HUC must be provided to the appropriate Mitigation Sponsors.

Instructions to Sponsor: The Sponsor verifies that the mitigation requirements (credits) shown below have been released and are available at the identified site. By signing below, the Sponsor is accepting full responsibility for the identified mitigation, regardless of whether they have received payment from the Permittee. Once the form is signed, the Sponsor must update the bank ledger and provide a copy of the signed form and the updated ledger to the Permittee, the Project Manager who issued the permit, the Bank Project Manager, and the District Mitigation Office (see contact information on page 2). The Sponsor must also comply with all reporting requirements established in their authorizing instrument.

Permitted Impacts and Compensatory Mitigation Requirements

Permitted Impacts Requiring Mitigation*: **8-digit HUC and Basin:** 03030005, Cape Fear River Basin

Stream Impacts (linear feet)			Wetland Impacts (acres)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
			1.31			

*If more than one mitigation sponsor will be used for the permit, only include impacts to be mitigated by this sponsor.

Compensatory Mitigation Requirements: **8-digit HUC and Basin:** 03030005, Cape Fear River Basin

Stream Mitigation (credits)			Wetland Mitigation (credits)			
Warm	Cool	Cold	Riparian Riverine	Riparian Non-Riverine	Non-Riparian	Coastal
			1.84			

Mitigation Site Debited: Lower Cape Fear UMB
(List the name of the bank to be debited. For umbrella banks, also list the specific site. For NCDMS, list NCDMS. If the NCDMS acceptance letter identifies a specific site, also list the specific site to be debited).

Section to be completed by the Mitigation Sponsor

Statement of Mitigation Liability Acceptance: I, the undersigned, verify that I am authorized to approve mitigation transactions for the Mitigation Sponsor shown below, and I certify that the Sponsor agrees to accept full responsibility for providing the mitigation identified in this document (see the table above), associated with the USACE Permittee and Action ID number shown. I also verify that released credits (and/or advance credits for NCDMS), as approved by the Wilmington District, are currently available at the mitigation site identified above. Further, I understand that if the Sponsor fails to provide the required compensatory mitigation, the USACE Wilmington District Engineer may pursue measures against the Sponsor to ensure compliance associated with the mitigation requirements.

Mitigation Sponsor Name: _____

Name of Sponsor's Authorized Representative: _____

_____ _____
Signature of Sponsor's Authorized Representative **Date of Signature**

USACE Wilmington District
Compensatory Mitigation Responsibility Transfer Form, Page 2

Conditions for Transfer of Compensatory Mitigation Credit:

- Once this document has been signed by the Mitigation Sponsor and the District is in receipt of the signed form, the Permittee is no longer responsible for providing the mitigation identified in this form, though the Permittee remains responsible for any other mitigation requirements stated in the permit conditions.
- Construction within jurisdictional areas authorized by the permit identified on page one of this form can begin only after the District is in receipt of a copy of this document signed by the Sponsor, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein. When NCDMS provides mitigation for authorized impacts conducted by the North Carolina Department of Transportation (NCDOT), construction within jurisdictional areas may proceed upon permit issuance; however, a copy of this form signed by NCDMS must be provided to the District within 30 days of permit issuance. NCDOT remains fully responsible for the mitigation until the District has received this form, confirming that the Sponsor has accepted responsibility for providing the mitigation requirements listed herein.
- Signed copies of this document must be retained by the Permittee, Mitigation Sponsor, and in the USACE administrative records for both the permit and the Bank/ILF Instrument. It is the Permittee's responsibility to ensure that the District Project Manager (address below) is provided with a signed copy of this form.
- If changes are proposed to the type, amount, or location of mitigation after this form has been signed and returned to the District, the Sponsor must obtain case-by-case approval from the District Project Manager and/or North Carolina Interagency Review Team (NCIRT). If approved, higher mitigation ratios may be applied, as per current District guidance and a new version of this form must be completed and included in the District administrative records for both the permit and the Bank/ILF Instrument.

Comments/Additional Conditions:

This form is not valid unless signed below by the District Project Manager and by the Mitigation Sponsor on Page 1. ***Once signed, the Sponsor should provide copies of this form along with an updated bank ledger to: 1) the Permittee, 2) the District Project Manager at the address below, 3) the Bank Manager listed in RIBITS, and 4) the Wilmington District Mitigation Office, 3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587 (or by email to SAWMIT@usace.army.mil)***. Questions regarding this form or any of the permit conditions may be directed to the District Mitigation Office.

USACE Project Manager: Emily Greer
USACE Field Office: Wilmington Regulatory Field Office
US Army Corps of Engineers
69 Darlington Avenue
Wilmington, NC 28403
Email: emily.c.greer@usace.army.mil

GREER.EMILY.C.1385325300

Digitally signed by GREER.EMILY.C.1385325300
Date: 2020.12.17 15:53:19 -05'00'

Wilmington District Project Manager Signature

December 17, 2020
Date of Signature

Current Wilmington District mitigation guidance, including information on mitigation ratios, functional assessments, and mitigation bank location and availability, and credit classifications (including stream temperature and wetland groupings) is available at http://ribits.usace.army.mil.

ROY COOPER
Governor
MICHAEL S. REGAN
Secretary
S. DANIEL SMITH
Director

NORTH CAROLINA
Environmental Quality

December 16, 2020

DWR # 20190752 Ver 5
Bladen County

Chemours Company
Fayetteville Works Facility
ATTN: Ms. Christel E. Compton
22828 NC Highway 87 W.
Fayetteville, NC 28306-7332

(***Delivered via email to Christel.E.Compton@chemours.com***)

Subject: **Approval of Individual 401 Water Quality Certification with Additional Conditions**
Chemours – Seep C Flow-through Cell – Pilot Study Project and Flow Through Cells A, B, and D
USACE Action ID. No. SAW-2019-00206

Dear Ms. Compton:

Attached hereto is a copy of Certification No. WQC004235 issued to Chemours Company, dated December 12, 2020. **This Certification replaces the Certification No. 4235 issued on October 2, 2020.** Please note that you should get any other federal, state or local permits before proceeding with the subject project, including those required by (but not limited to) Sediment and Erosion Control, Non-Discharge, and Water Supply Watershed regulations.

This approval and its conditions are final and binding unless contested. This Certification can be contested as provided in Articles 3 and 4 of General Statute 150B by filing a written petition for an administrative hearing to the Office of Administrative Hearings (hereby known as OAH) **within sixty (60) calendar days**.

A petition form may be obtained from the OAH at http://www.ncoah.com/ or by calling the OAH Clerk's Office at (919) 431-3000 for information. A petition is considered filed when the original and one (1) copy along with any applicable OAH filing fee is received in the OAH during normal office hours (Monday through Friday between 8:00am and 5:00pm, excluding official state holidays).

The petition may be faxed to the OAH at (919) 431-3100, provided the original and one copy of the petition along with any applicable OAH filing fee is received by the OAH within five (5) business days following the faxed transmission.

Mailing address for the OAH:

If sending via US Postal Service:	*If sending via delivery service (UPS, FedEx, etc):*
Office of Administrative Hearings	Office of Administrative Hearings
6714 Mail Service Center	1711 New Hope Church Road
Raleigh, NC 27699-6714	Raleigh, NC 27609-6285

One (1) copy of the petition must also be served to DEQ:

William F. Lane, General Counsel
Department of Environmental Quality
1601 Mail Service Center
Raleigh, NC 27699-1601

Unless such a petition is filed, this Certification shall be final and binding.

This certification completes the review of the Division under section 401 of the Clean Water Act and 15A NCAC 02H .0500. Contact Paul Wojoski at 919-707-9015 or Paul.Wojoski@ncdenr.gov if you have any questions or concerns.

Sincerely,

DocuSigned by:
Paul Wojoski
949D91BA53EF4E0...

Paul Wojoski, Supervisor
401 & Buffer Permitting Branch

cc: Mr. Spencer Varnado, Geosyntech Consultants, Inc. (via email)
Ms. Emily Greer, USACE Wilmington Regulatory Field Office (via email)
Todd Bowers, EPA Region 4 (via email)
DWR FRO
DWR 401 & Buffer Permitting Branch files (Laserfiche)

NORTH CAROLINA 401 WATER QUALITY CERTIFICATION

CERTIFICATION #WQC004235 is issued in conformity with the requirements of Section 401, Public Laws 92-500 and 95-217 of the United States and subject to North Carolina's Regulations in 15 NCAC 02H .0500, to Chemours Company, who has authorization for the impacts listed below, as described within your application received by the N.C. Division of Water Resources (Division) on August 6, 2020 and subsequent information received on September 21, September 24, and September 29, 2020, and by Public Notice issued by the U. S. Army Corps of Engineers and received by the Division on September 1, 2020; and described in your subsequent application received by the N.C. Division of Water Resources (Division) on October 23, 2020 and additional information received on November 18, and December 4, 2020, and by Public Notice issued by the U. S. Army Corps of Engineers and received by the Division on October 30, 2020.

The State of North Carolina certifies that this activity will not violate the applicable portions of Sections 301, 302, 303, 306, 307 of the Public Laws 92-500 and PL 95-217 if conducted in accordance with the application, the supporting documentation, and conditions hereinafter set forth.

This approval requires you to follow the conditions listed in the certification below.
Conditions of Certification:

1. The following impacts are hereby approved. No other impacts are approved, including incidental impacts. [15A NCAC 02H .0506(b) and/or (c)]

Type of Impact	**Amount Approved (units) Permanent**	**Amount Approved (units) Temporary**
Stream		
Seep C – Fill	70 (linear feet)	0 (linear feet)
Seep C – Impoundment	260 (linear feet) [1]	0 (linear feet)
Seep C – Filter Bed Overtopping Level Impoundment	0 (linear feet)	125 (linear feet)
Seep C Total	**330 (linear feet)**	**125 (liner feet)**
Seep A – Fill	90 (linear feet)	0 (linear feet)
Seep A – Impoundment	480 (linear feet) [1]	0 (linear feet)
Seep A – Filter Bed Overtopping Level Impoundment	0 (linear feet)	295 (linear feet)
Seep A Total	**570 (linear feet)**	**295 (liner feet)**
Seep B – Fill	80 (linear feet)	0 (linear feet)

[1] Permanent impact, not counted as permanent loss for the purposes of mitigation.

Seep B – Impoundment	460 (linear feet) [1]	0 (linear feet)
Seep B – Filter Bed Overtopping Level Impoundment	0 (linear feet)	305 (linear feet)
Seep B Total	**540 (linear feet)**	**305 (liner feet)**
Seep D – Fill	0 (linear feet)	0 (linear feet)
Seep D – Impoundment	0 (linear feet)	0 (linear feet)
Seep D – Filter Bed Overtopping Level Impoundment	0 (linear feet)	0 (linear feet)
Seep D Total	**0 (linear feet)**	**0 (liner feet)**
Wetland		
Seep C - W1 Direct Fill	0.16 (acres)	0 (acres)
Seep C - W1 Impoundment	0.06 (acres)[1]	0 (acres)
Seep C – Filter Bed Overtopping Level Impoundment	0 (acres)	0.01 (acres)
Seep C - W1 Total	**0.22 (acres)**	**0.01 (acres)**
Seep A - W1 Direct Fill	0.13 (acres)	0 (acres)
Seep A - W1 Impoundment	0.26 (acres)[1]	0 (acres)
Seep A – Filter Bed Overtopping Level Impoundment	0 (acres)	0.38 (acres)
Seep A - Total	**0.39 (acres)**	**0.38 (acres)**
Seep B - W1 Direct Fill	0.23 (acres)	0 (acres)
Seep B - W1 Impoundment	0.24 (acres)[1]	0 (acres)
Seep B – Filter Bed Overtopping Level Impoundment	0 (acres)	0.18 (acres)
Seep B - Total	**0.47 (acres)**	**0.18 (acres)**
Seep D - W1 Direct Fill	0.17 (acres)	0 (acres)
Seep D - W1 Impoundment	0.28 (acres)	0 (acres)
Seep D – Filter Bed Overtopping Level Impoundment	0 (acres)	0.08 (acres)
Seep D - Total	**0.45 (acres)**	**0.08 (acres)**

2. Mitigation must be provided for the proposed impacts as specified in the table below. The Division has received an acceptance letter from the North Carolina Division of Mitigation Services (DMS) dated September 29, 2020 and December 4, 2020 to meet this mitigation requirement. Until the DMS receives and clears your payment, and proof of payment has been provided to this Office, no impacts specified in this Authorization Certificate shall occur. For accounting purposes, this Authorization Certificate authorizes payment to the DMS to meet the following compensatory mitigation requirement [15A NCAC 02H .0506 (b)(6)]:

	Compensatory Mitigation Required	**River and Sub-basin Number**
Stream (Seep C Impacts)	70 (linear feet)[2,3]	Cape Fear (03030005)
Stream (Seeps A, B and D Impacts)	170 (linear feet)[2]	Cape Fear (03030005)

3. This approval is for the purpose and design described in your application and as described in the Public Notice and subsequent Exhibits received by the Division dated "September 2020" (Seep C, revised) and "November 2020" (Seeps A, B, and D, revised) and received by the Division on September 29, 2020 and November 18, 2020, respectively. All plans and specifications for this project are incorporated by reference and are an enforceable part of the Certification. Any modifications to the project require notification to DWR and may require an application submittal to DWR with the appropriate fee. [15A NCAC 02H .0501 and .0502]

4. If the project results in steam loss due to flow reduction or a reduction to wetland area (as defined by the 1987 U.S. Army Corps of Engineers Wetland Manual and confirmed by a Corps representative), the impacts shall be considered permanent and shall require a modification of this Certification. These impacts will be counted cumulatively and mitigation will be required for total project permanent impacts to perennial streams exceeding 300 linear feet, and/or total project permanent impacts to wetlands exceeding one acre [15A NCAC 02H .0506 (b)(6) and 15A NCAC 02B .0211 (1) and (2)]

5. All wetlands, streams, and surface waters located within 50 feet of the construction area on the project site shall be clearly marked (example- orange fabric fencing) prior to any land disturbing activities and must be maintained on the property until the project phase is completed. [15A NCAC 02H .0506 (b)(2) and (c)(2) and 15A NCAC 02H .0507 (c)]

6. Any final construction plans for this project must include or reference the application and plans approved by the Division under this authorization letter and certification. The applicant will also be required to evaluate all acquired permits to assure that they are consistent and all relative impacts are accounted for and shown on the construction plans. [15A NCAC 02H .0502 (b) and 15A NCAC 02H .0506 (4)]

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[2] *In accordance with documentation and information provided by the U.S. Army Corps of Engineers, the impacts authorized by General Certification number 4138 issued to Chemours – Fayetteville Works on October 16, 2019 (DWR # 2019-1146) are counted cumulatively with the impacts authorized by this certification for the purposes of determining mitigation thresholds per 15A NCAC 02H .0506(c) and Session Law 2017-10.*

[3] *Satisfied via receipt from the Division of Mitigation Services dated October 5, 2020 (DMS ID#MR-07618)*

7. No waste, spoil, solids, or fill of any kind shall occur in wetlands, waters, or riparian areas beyond the footprint of the impacts depicted in the Pre-Construction Notification for this project. All construction activities, including the design, installation, operation, and maintenance of sediment and erosion control Best Management Practices shall be performed so that no violations of state water quality standards, statutes, or rules occur. [15A NCAC 02H .0501 and .0502]

8. If activities must occur during periods of high biological activity (e. g. sea turtle nesting, fish spawning) then biological monitoring may be required at the request of other state or federal agencies and coordinated with these activities. [15A NCAC 02H 0506(b)(2) and15A NCAC 04B .0125]

   All moratoriums on construction activities established by the NC Wildlife Resources Commission (WRC), US Fish and Wildlife Service (USFWS), NC Division of Marine Fisheries (DMF), or National Marine Fisheries Service (NMFS) shall be implemented. Exceptions to this condition require written approval by the resource agency responsible for the given moratorium. A copy of the approval from the resource agency shall be forwarded to DWR.

9. All construction activities shall be performed and maintained in full compliance with G.S. Chapter 113A Article 4 (Sediment and Pollution Control Act of 1973). Sediment and erosion control measures shall not be installed in wetlands or waters with the exception of turbidity curtains. All sediment and erosion control devices shall be removed and the natural grade restored within two (2) months of the date that the Division of Energy, Mineral and Land Resources (DEMLR) has released the specific area within the project. [15A NCAC 02H .0501 and .0502]

10. An NPDES Construction Stormwater Permit (NCG010000) is required for construction projects that disturb one (1) or more acres of land. The NCG010000 Permit allows stormwater to be discharged during land disturbing construction activities as stipulated in the conditions of the permit. If the project is covered by this permit, full compliance with permit conditions including the erosion & sedimentation control plan, inspections and maintenance, self-monitoring, record keeping and reporting requirements is required. [15A NCAC 02H .0506(b)(5) and (c)(5)]

11. All work in or adjacent to streams shall be conducted so that the flowing stream does not come in contact with the disturbed area. Approved best management practices from the most current version of the *NC Sediment and Erosion Control Manual*, or the *NC DOT Construction and Maintenance Activities Manual*, such as sandbags, rock berms, cofferdams, and other diversion structures shall be used to minimize excavation in flowing water. [15A NCAC 02H .0506(b)(3) and (c)(3)]

12. If concrete is used during construction, then all necessary measures shall be taken to prevent direct contact between uncured or curing concrete and waters of the state. Water that inadvertently contacts uncured concrete shall not be discharged to waters of the state. [15A NCAC 02B .0200]

13. All temporary fill and culverts shall be removed and the impacted area returned to natural conditions, within 60 days of the determination that the temporary impact is no longer necessary. The impacted areas shall be restored to original grade, including the stream's original cross sectional dimensions, plan form pattern, and longitudinal bed and bed profile, and the site shall be stabilized with natural woody vegetation (except approved maintenance areas) and restored to prevent erosion. [15A NCAC 02H .0506(b)(2) and (c)(2)]

14. This Certification does not relieve the applicant of the responsibility to obtain all other required Federal, State, or Local approvals before proceeding with the project, including those required by, but not limited to Sediment and Erosion Control, Non-Discharge, Water Supply Watershed, and Trout Buffer regulations.

15. All mechanized equipment operated near surface waters shall be inspected and maintained regularly to prevent contamination of surface waters from fuels, lubricants, hydraulic fluids, or other toxic materials. Construction shall be staged in order to minimize the exposure of equipment to surface waters to the maximum extent practicable. Fueling, lubrication and general equipment maintenance shall not take place within 50 feet of a waterbody or wetlands to prevent contamination by fuels and oils. [15A NCAC 02H .0506(b)(3) and (c)(3) and 15A NCAC 02B .0211 (12)]

16. Heavy equipment working in wetlands shall be placed on mats or other measures shall be taken to minimize soil disturbance. [15ANCAC02H .0506(b)(3) and (c)(3)]

17. In accordance with 143-215.85(b), the applicant shall report any petroleum spill of 25 gallons or more; any spill regardless of amount that causes a sheen on surface waters; any petroleum spill regardless of amount occurring within 100 feet of surface waters; and any petroleum spill less than 25 gallons that cannot be cleaned up within 24 hours.

18. Chemours Company shall conduct activities in a manner consistent with State water quality standards (including any requirements resulting from compliance with section 303(d) of the Clean Water Act) and any other appropriate requirements of State and Federal law. [15A NCAC 02B .0200] If the Division determines that such standards or laws are not being met (including the failure to sustain a designated or achieved use) or that State or federal law is being violated, or that further conditions are necessary to assure compliance, the Division may reevaluate and modify this Certification. Before modifying the Certification, the Division shall notify Chemours Company and the U.S. Army Corps of Engineers, provide public notice in accordance with 15A NCAC 02H .0503 and provide opportunity for public hearing in accordance with 15A NCAC 02H .0504. Any new or revised conditions shall be provided to Chemours Company in writing, shall be provided to the U.S. Army Corps of Engineers for reference in any Permit issued pursuant to Section 404 of the Clean Water Act, and shall also become conditions of the 404 Permit for the project.

19. The permittee shall report to the Fayetteville Regional Office at 910-433-3300 (after hours and on weekends call 877-623-6748) any noncompliance with this certification, any violation of stream or wetland standards [15A NCAC 02B .0200] including but not limited to sediment impacts. [15A NCAC 02B .0200]. Information shall be provided orally within 24 hours (or the next business day if a

weekend or holiday) from the time the applicant became aware of the circumstances. A written submission shall also be provided within 5 business days of the time the applicant becomes aware of the circumstances. The written submission shall contain a description of the noncompliance, and its causes; the period of noncompliance, including exact dates and times, if the noncompliance has not been corrected, the anticipated time compliance is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. The Division may waive the written submission requirement on a case-by-case basis.

20. Upon completion of all permitted impacts included within the approval and any subsequent modifications, the applicant shall be required to return a certificate of completion (available on the DWR website https://edocs.deq.nc.gov/Forms/Certificate-of-Completion). [15A NCAC 02H .0502(f)]

21. If the property or project is sold or transferred, the new Permittee shall be given a copy of this Certification (and written authorization if applicable) and is responsible for complying with all conditions. [15A NCAC 02H .0501 and .0502]

22. This Certification neither grants nor affirms any property right, license, or privilege in any waters, or any right of use in any waters. This Certification does not authorize any person to interfere with the riparian rights, littoral rights, or water use rights of any other person and this Certification does not create any prescriptive right or any right of priority regarding any usage of water. This Certification shall not be interposed as a defense in any action respecting the determination of riparian or littoral rights or other rights to water use. No consumptive user is deemed by virtue of this Certification to possess any prescriptive or other right of priority with respect to any other consumptive user regardless of the quantity of the withdrawal or the date on which the withdrawal was initiated or expanded.

23. This Certification grants permission to the director, an authorized representative of the Director, or DENR staff, upon the presentation of proper credentials, to enter the property during normal business hours. [15A NCAC 02H .0502(e)]

24. Non-compliance with or violation of the conditions herein set forth by a specific project may result in revocation of this Certification for the project and may also result in criminal and/or civil penalties.

This approval to proceed with your proposed impacts or to conduct impacts to waters as depicted in your application shall expire upon expiration of the 404 or CAMA Permit. The conditions in effect on the date of issuance shall remain in effect for the life of the project, regardless of the expiration date of this Certification. [15A NCAC 02H .0507(d)(2) and 15A NCAC 02H .0506]

This the 16th day of December 2020

DocuSigned by:
Paul Wojoski
949D91BA53EF4E0...

Paul Wojoski, Supervisor
401 & Buffer Permitting Branch

PAW
WQC004235

APPENDIX B
Bladen County NCDEQ Stormwater Permit

Certificate of Coverage

STATE OF NORTH CAROLINA
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES

GENERAL PERMIT NO. NCG010000

NC Reference No. NCG01-2021-0207
Certificate of Coverage No. NCC210207

STORMWATER DISCHARGES

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provision of North Carolina General Statute 143-215.1, other lawful standards and regulations promulgated and adopted by the North Carolina Environmental Management Commission, and the Federal Water Pollution Control Act, as amended,

The Chemours Company

is hereby authorized to discharge stormwater associated with CONSTRUCTION ACTIVITIES to surface waters of North Carolina from a site located at:

Chemours Seep A Remediation System
22828 NC-87
Hollow
Bladen County

in accordance with the effluent limitations, monitoring requirements, and other conditions set forth in N.C. General Permit No. NCG010000.

This Certificate of Coverage is affiliated with **E&SC Plan Project No.** BLADE-2021-007

This Certificate of Coverage shall become effective 1/14/2021.

This Certificate of Coverage shall remain in effect until rescinded or expired.

This Certificate of Coverage will expire on the anniversary of its effective date unless it is renewed by payment of the annual administration and compliance fee.

for Brian Wrenn
Director, Division of Energy, Mineral, and Land Resources
By the Authority of the Environmental Management Commission

APPENDIX C
Civil As-Built Record Drawings

The Chemours Company

Fayetteville, North Carolina

Seep A Interim Remediation System

As-Built

DRAWING INDEX

GENERAL
G-1 COVER SHEET

CIVIL
C-1 CIVIL SITE PLAN
C-2 ACCESS PLAN
C-3 CROSS SECTIONS
C-4 SHEET PILE PLAN AND PROFILE
C-5 IMPOUNDMENT SECTIONS

TYPICAL DETAILS
D-1 TYPICAL DETAILS
D-2 TYPICAL DETAILS

GEOS
Geotechnical, Environmental and Materials Engineers

COVER SHEET

Chemours Interim Seep A Remediation Project
Fayetteville, North Carolina

DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH

SCALE: AS SHOWN

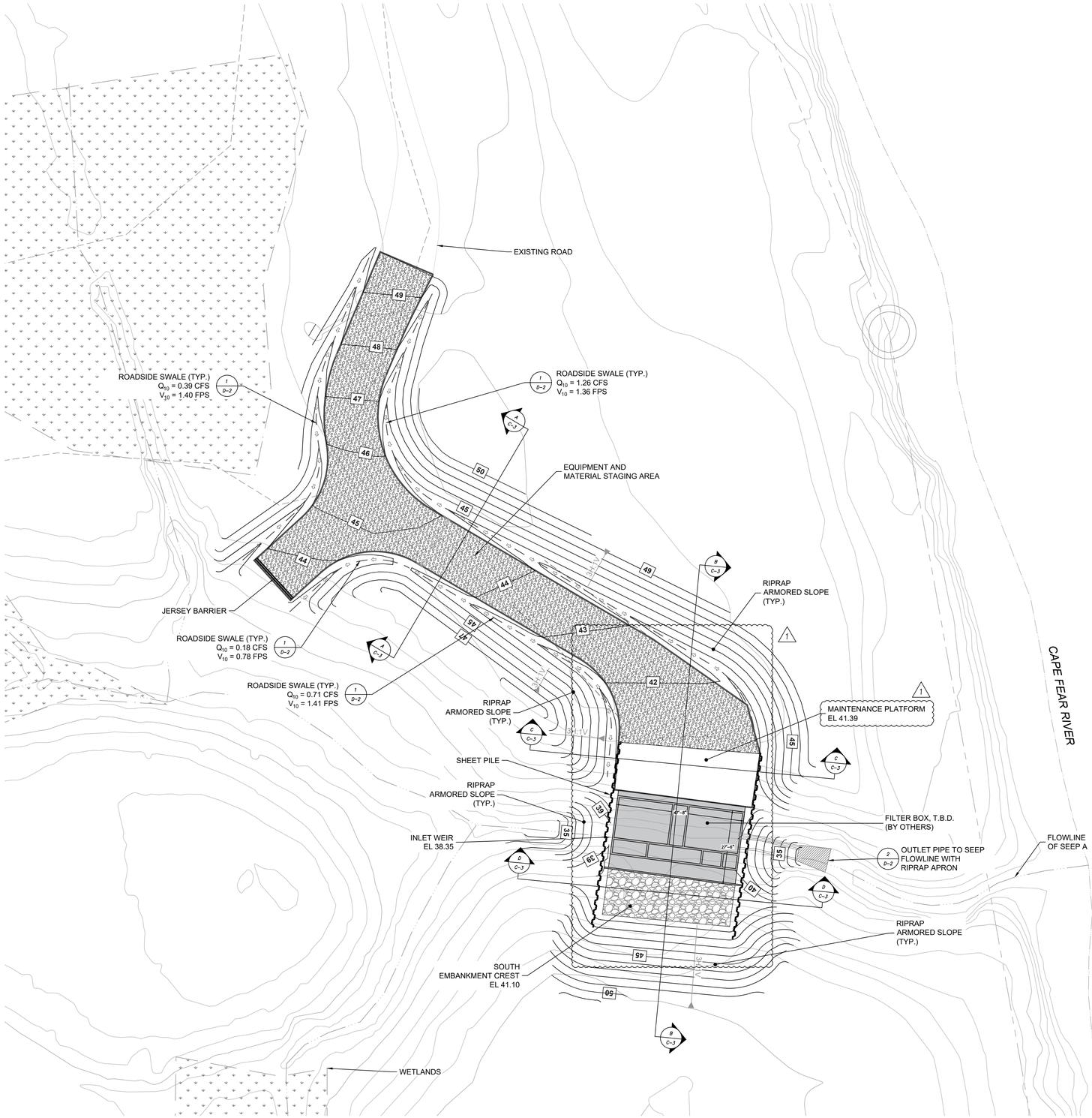
DATE: November 9, 2020

Revisions

No.	Date	Description	By:
1	8/25/2021	As-Built Revisions	NSS
2			
3			
4			
5			
6			

DRAWING: G-1

PROJECT NUMBER: 43-20631A



LEGEND:

—— ⇦ —— DRAINAGE SWALE

N

SCALE: 1" = 20'

0' 20' 40'

GEOS
Geotechnical, Environmental and Materials Engineers

CIVIL SITE PLAN

Chemours Interim Seep A Remediation Project
Fayetteville, North Carolina

DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH

SCALE: AS SHOWN

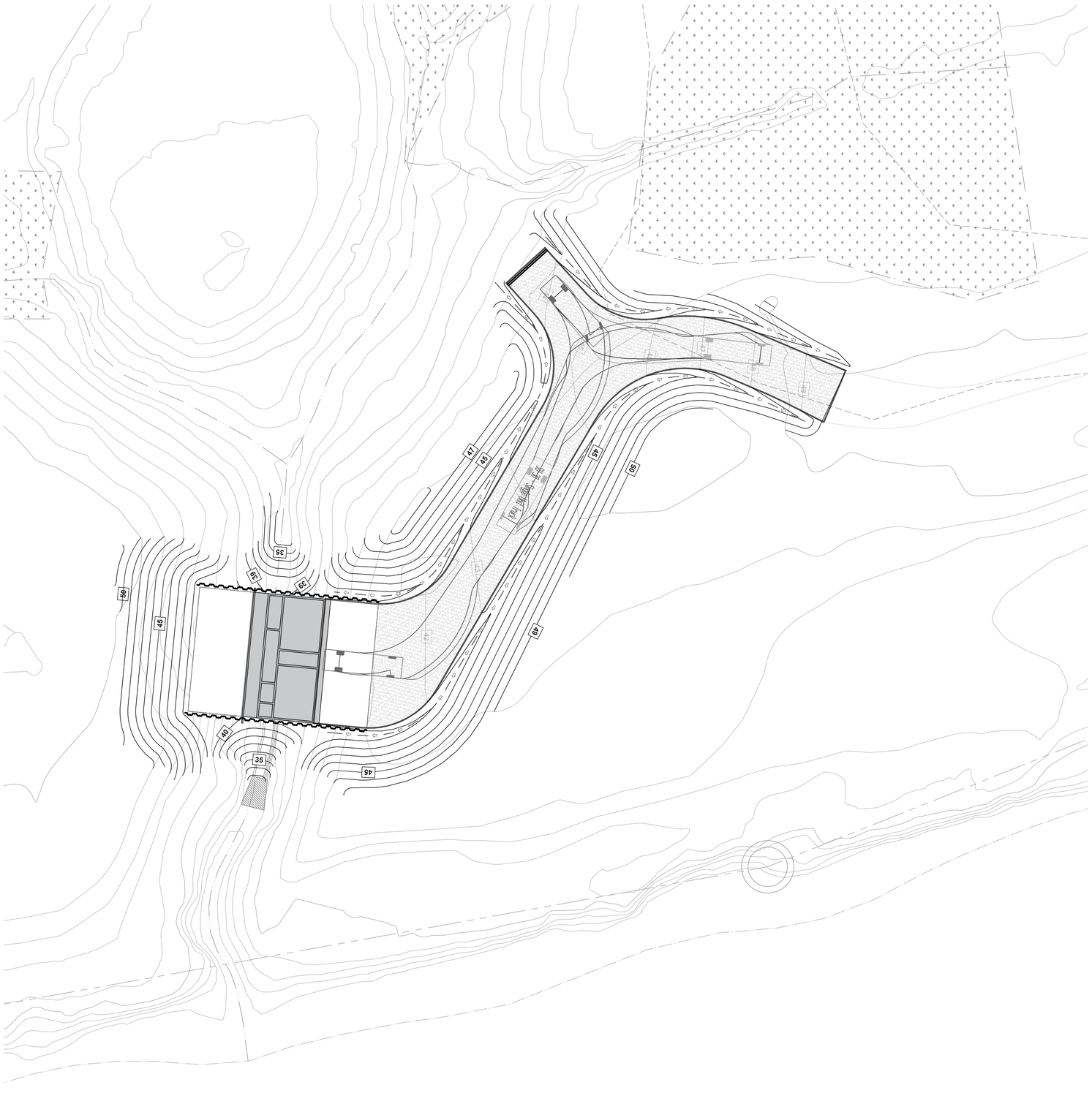
DATE: November 9, 2020

Revisions

No.	Date	Description	By:
1	8/25/2021	As-Built Revisions	NSS
2			
3			
4			
5			
6			

DRAWING: C-1

PROJECT NUMBER: 43-20631A



PROJECT NUMBER	DRAWING	Revisions				DRAWN BY	ACCESS PLAN
43-20631A	C-2	No.	Date	Description	By:	NSS	
		1	8/25/2021	As-Built Revisions	NSS		
		2				DESIGNED BY	
		3				TJD	
		4				APPROVED BY	
		5				DAH	
		6				REVIEWED BY	
						DKK	
						DATE	
						November 9, 2020	
						SCALE	
						AS SHOWN	

Chemours Interim Seep A Remediation Project
Fayetteville, North Carolina

GEOS
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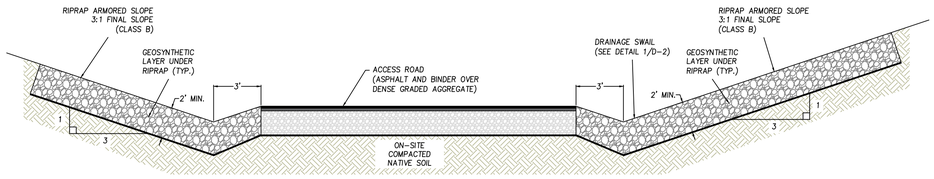
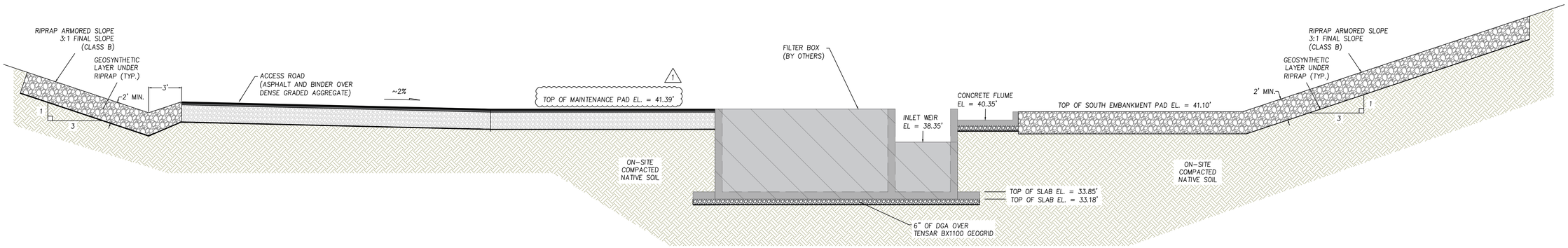
NOTES:
1. ALL ON-SITE COMPACTED NATIVE SOILS SHALL BE COMPACTED TO 98% MAX DRY DENSITY FROM PROCTOR TESTING.
2. ALL RIPRAP SHALL BE NCDOT CLASS B.
3. ALL GEOGRID SHALL BE TENSAR BX1100 OR APPROVED EQUIVALENT.
4. ALL GEOSYNTHETIC LAYERS SHALL BE NON-WOVEN WITH 5.0 OZ MINIMUM.



1 / C-3 SECTION A-A
SCALE: NTS



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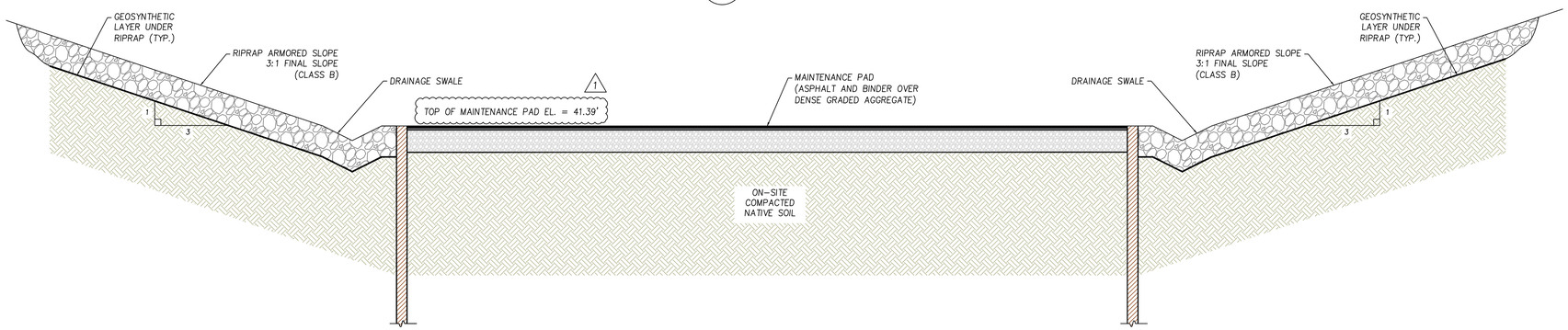
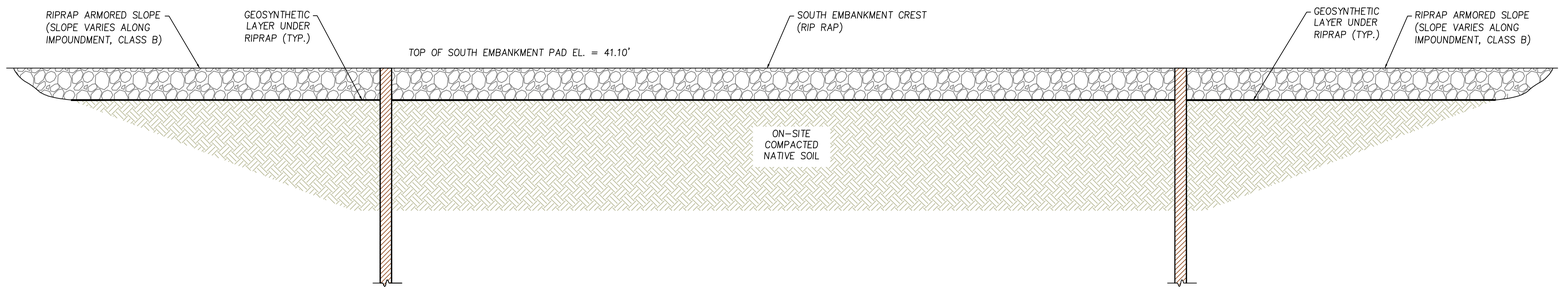


3 / C-3 SECTION C-C
SCALE: NTS



4 / C-3 SECTION D-D
SCALE: NTS

1

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CROSS-SECTIONS

Chemours Interim Seep A Remediation Project
Fayetteville, North Carolina

DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH

SCALE: AS SHOWN

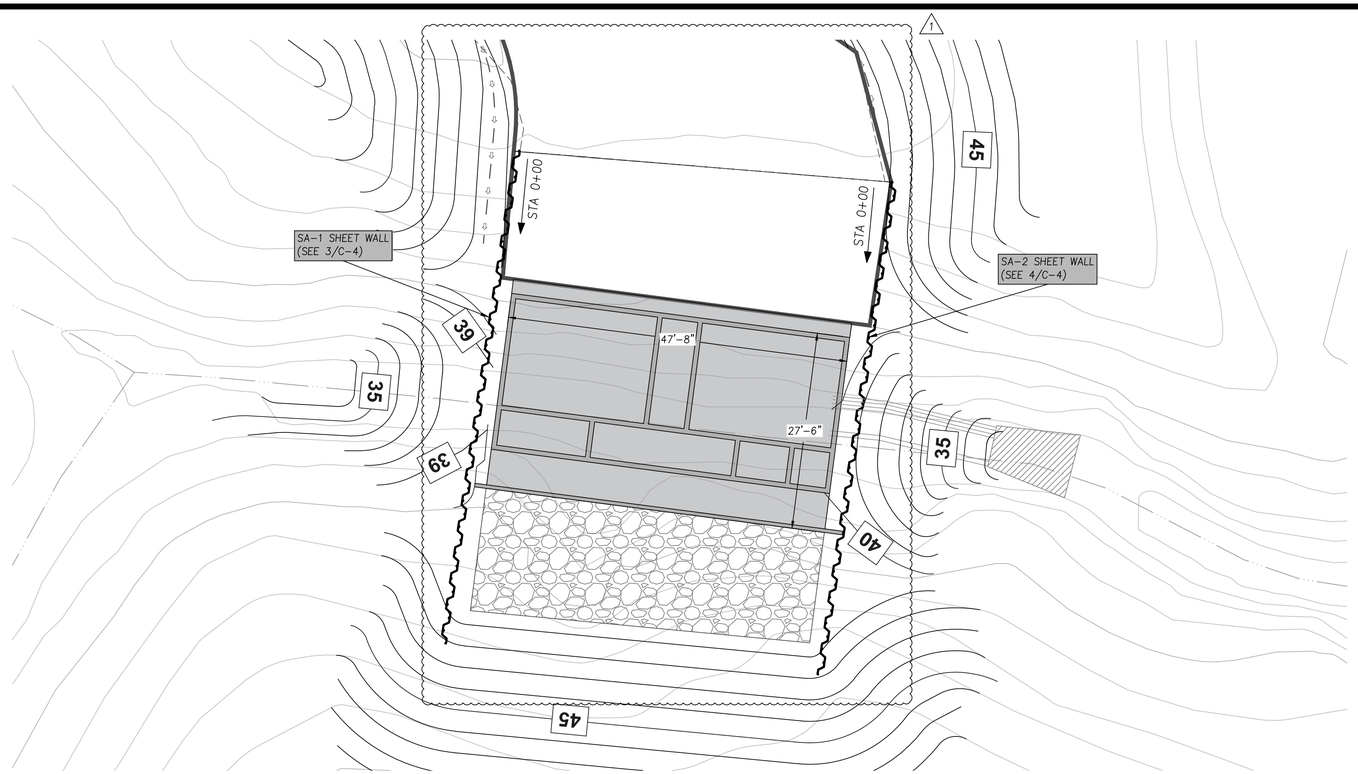
DATE: November 9, 2020

Revisions

No.	Date	Description	By:
1	8/25/2021	As-Built Revisions	NSS
2			
3			
4			
5			
6			

DRAWING: C-3

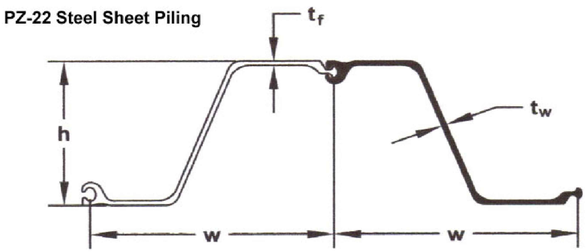
PROJECT NUMBER: 43-20631A



1 / C-4 IMPOUNDMENT PLAN VIEW
SCALE: 1" = 10'
0' 10' 20'

Reference:
PZ-22 dimensions from Piling and Equipment and Meever USA

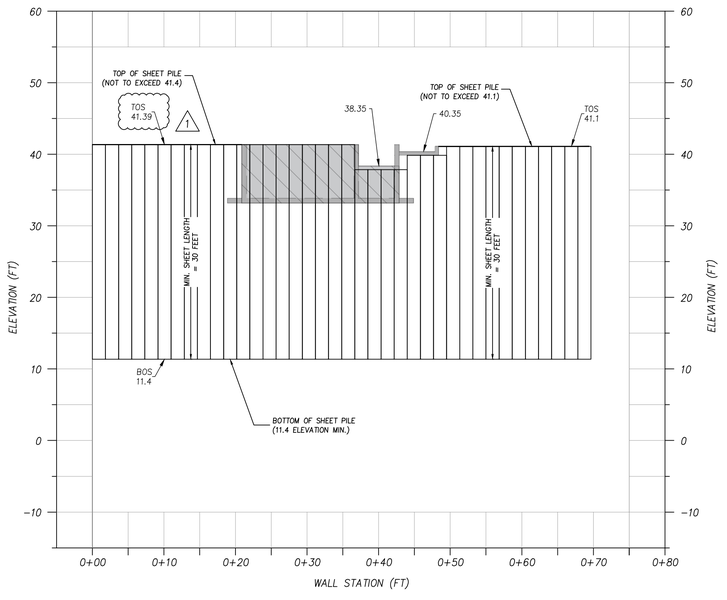
PZ-22 Steel Sheet Piling



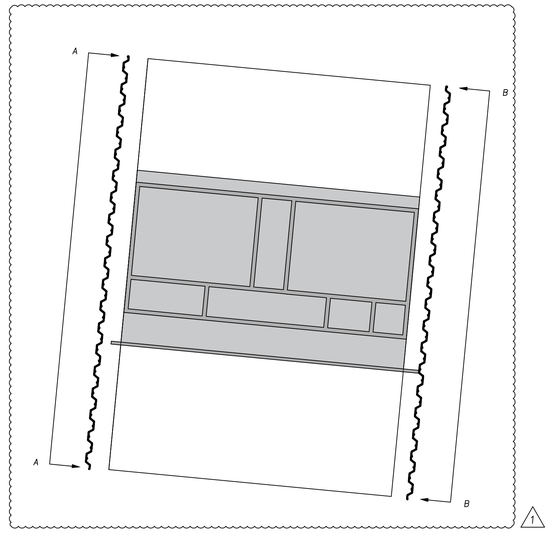
Specificalton: ASTM A572 Grade 50

Section	Width w in (mm)	Height h in (mm)	Thickness tf in (mm)	Cross Sectional Area in^2/ft (cm^2/m)	Weight Pile lb/ft (kg/m)	Weight Wall lb/ft^2 (kg/m^2)	Section Modulus in^3/ft (cm^3/m)	Moment of Inertia in^4/ft (cm^4/m)	Coating Area Both ft^2/ft (m^2/m)	Coating Area ft^2/ft^2 (m^2/m^2)
PZ-22	22.00 559	9.00 229	0.375 9.50	11.86	40.30 60.00	22.00 107.40	18.10 973	84.40 11500	4.48 1.37	1.22 1.22

2 / C-4 PZ-22 SHEET PILE DIMENSIONS
SCALE: NTS

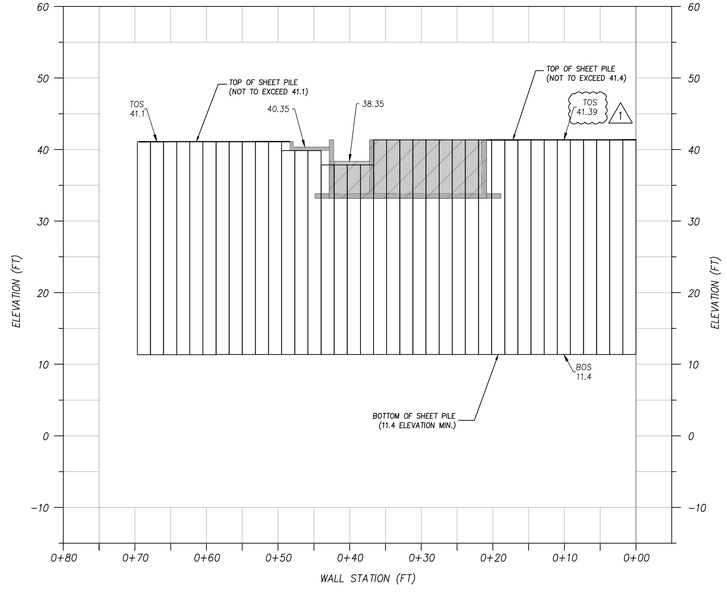


3 / C-4 SECTION A-A, SA-1 SHEET PILE PROFILE
SCALE: 1" = 10'
0' 10' 20'



SEEP A SHEET PILE QUANTITIES

Sheet Wall	No. of Piles	Pile Type	Min. Length (ft)	Approximate Total Length of Wall (ft)
SA-1	38	PZ-22	30	70
SA-2	38	PZ-22	30	70



4 / C-4 SECTION B-B, SA-2 SHEET PILE PROFILE
SCALE: 1" = 10'
0' 10' 20'

1

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SHEET PILE PLAN AND PROFILE

Chemours Interim Seep A Remediation Project
Fayetteville, North Carolina

DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH

SCALE: AS SHOWN

DATE: November 9, 2020

Revisions

No.	Date	Description	By:
1	8/25/2021	As-Built Revisions	NSS
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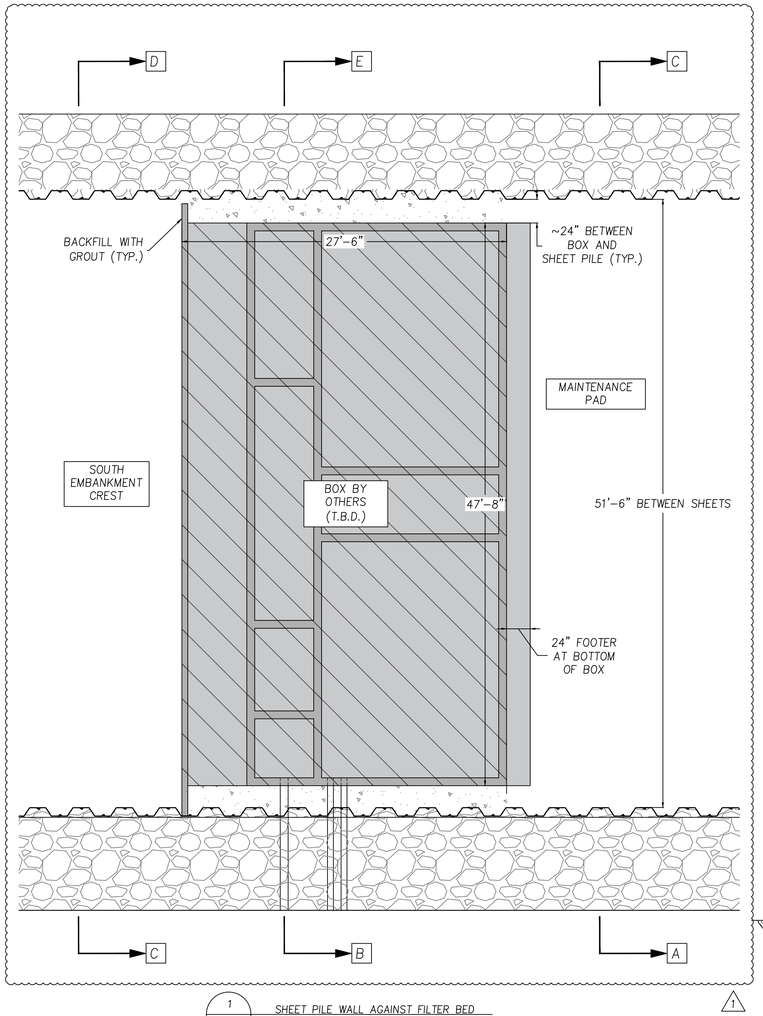
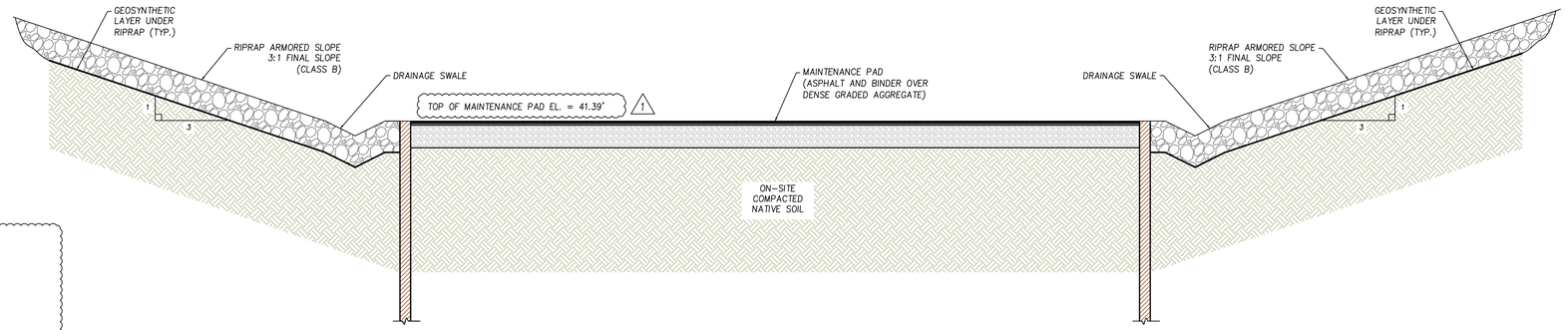
3			
4			
5			
6			

DRAWING: C-4

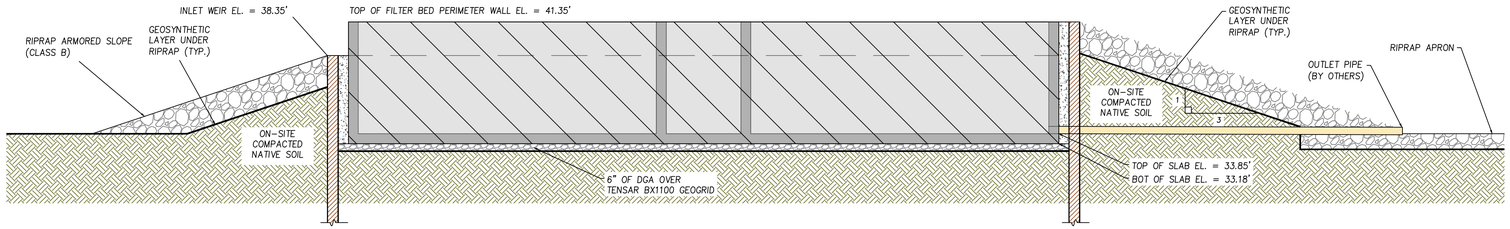
PROJECT NUMBER: 43-20631A



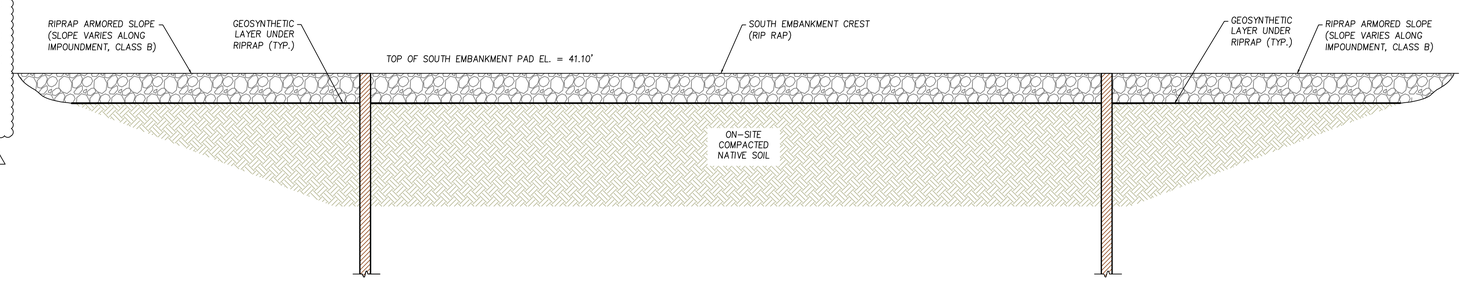
1 / C-5 SHEET PILE WALL AGAINST FILTER BED
SCALE: NTS



2 / C-5 SECTION C-C
SCALE: NTS



3 / C-5 SECTION E-E
SCALE: NTS



4 / C-5 SECTION D-D
SCALE: NTS

NOTES:
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1

GEOS
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IMPOUNDMENT SECTIONS

Chemours Interim Seep A Remediation Project
Fayetteville, North Carolina

DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH

SCALE: AS SHOWN

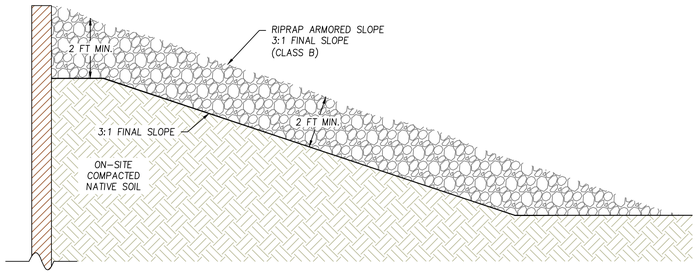
DATE: November 9, 2020

Revisions

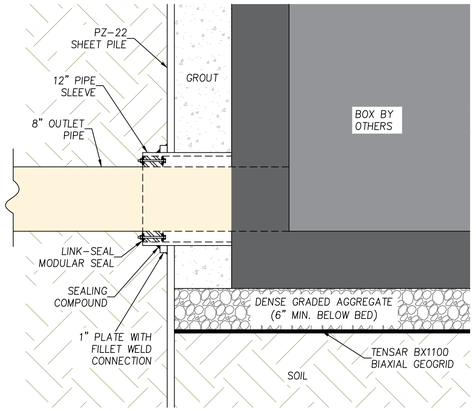
No.	Date	Description	By:
1	8/25/2021	As-Built Revisions	NSS
2			
3			
4			
5			
6			

DRAWING: C-5

PROJECT NUMBER: 43-20631A



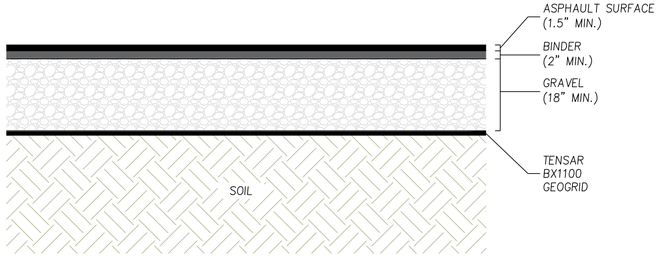
1 / D-1 RIPRAP ARMORED SLOPE
SCALE: NTS



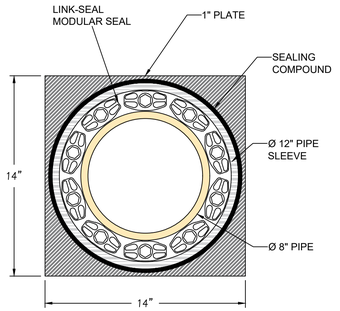
2 / D-1 LINK-SEAL PIPE THROUGH WALL CONNECTION
SCALE: NTS

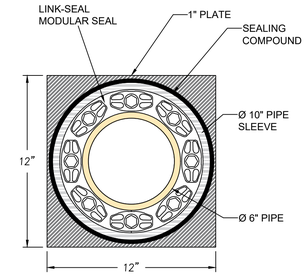
REFERENCE: DETAIL FROM PVC PIPE SUPPLIES, https://pvcpipesupplies.com/stainless-steel-ls-300-s.html

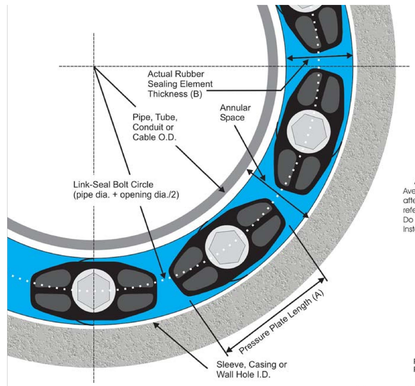
4 / D-1 SOUTH EMBANKMENT CREST DETAIL
SCALE: NTS



5 / D-1 ACCESS ROAD, STAGING AREA, & MAINTENANCE PAD SURFACING
SCALE: NTS

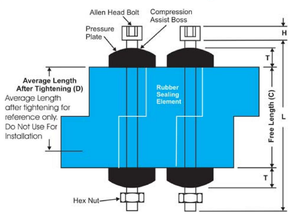




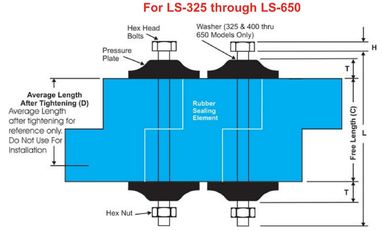


Drawings for Reference Only

For LS-200 through LS-315



For LS-325 through LS-650



Technical Data Submittal Sheet

Supplement 12/15/10

***Dimensional Data for Models C, L, O, S-316. LS-316 and OS-316**

	RUBBER SEALING ELEMENT			PRESSURE PLATE		BOLT				WEIGHT FOR 10 LINK SECTION (LBS)	MIN. REQUIRED SEATING WIDTH
LINK-SEAL MODEL NO.	ACTUAL THICKNESS (B)	FREE LENGTH (C)	AVG. LENGTH AFTER TIGHTENING (D)	(A)	(T)	ALLEN HEAD HEX ACROSS FLATS	(H)	THREAD SIZE	(L)		
LS-200-*	0.48"	1.75"	1.38"	1.06"	0.31"	4mm Allen (0.157")	4.95mm (0.195")	M5-0.8	70mm (2.755")	0.70	2.25"
LS-275-*	0.61"	1.75"	1.38"	0.97"	0.31"	4mm Allen (0.157")	4.95mm (0.195")	M5-0.8	70mm (2.755")	0.75	2.25"
LS-300-*	0.69"	2.37"	1.87"	1.56"	0.44"	6mm Allen (0.236")	7.87mm (0.310")	M8-1.25	90mm (3.543")	2.15	3.00"
LS-315-*	0.81"	2.37"	1.87"	1.44"	0.44"	6mm Allen (0.236")	7.87mm (0.310")	M8-1.25	90mm (3.543")	2.30	3.00"
LS-325-*	0.88"	2.63"	2.00"	3.13"	1.00"	13mm (0.511")	5.30mm (0.215")	M8-1.25	90mm (3.543")	5.50	4.00"
LS-340-*	1.00"	2.70"	2.25"	1.48"	0.66"	13mm (0.511")	5.30mm (0.215")	M8-1.25	120mm (4.720")	3.30	4.00"
LS-360-*	1.24"	2.70"	2.25"	2.05"	0.77"	13mm (0.511")	5.30mm (0.215")	M8-1.25	120mm (4.720")	5.10	4.00"
LS-400-*	1.38"	3.50"	2.75"	3.50"	1.06"	17mm (0.669")	6.40mm (0.250")	M10-1.5	130mm (5.118")	12.00	5.00"
LS-410-*	1.43"	3.37"	2.87"	2.52"	0.88"	17mm (0.669")	6.40mm (0.250")	M10-1.5	130mm (5.118")	8.20	5.00"
LS-425-*	1.06"	3.00"	2.25"	3.50"	1.19"	17mm (0.669")	6.40mm (0.250")	M10-1.5	130mm (5.118")	10.00	5.00"
LS-475-*	1.56"	3.38"	2.63"	2.63"	0.88"	17mm (0.669")	6.40mm (0.250")	M10-1.5	130mm (5.118")	10.00	5.00"
LS-500-*	2.25"	3.75"	2.75"	3.63"	1.06"	19mm (0.748")	7.50mm (0.300")	M12-1.75	140mm (5.511")	22.50	5.00"
LS-525-*	2.06"	3.75"	2.87"	3.63"	1.06"	19mm (0.748")	7.50mm (0.300")	M12-1.75	140mm (5.511")	21.00	5.00"
LS-575-*	1.81"	3.75"	3.00"	3.00"	1.00"	19mm (0.748")	7.50mm (0.300")	M12-1.75	140mm (5.511")	15.50	5.00"
LS-600-*	3.09"	4.00"	3.00"	6.00"	1.90"	30mm (0.748")	12.50mm (0.490")	M20-2.5	180mm (7.086")	60.60	6.00"
LS-650-*	2.71"	3.98"	3.00"	3.96"	1.19"	19mm (0.748")	7.50mm (0.300")	M12-1.75	140mm (5.511")	26.10	6.00"

VISIT WWW.LINKSEAL.COM FOR LITERATURE AND INSTALLATION INSTRUCTIONS

3 / D-1 LINK-SEAL PIPE THROUGH WALL CONNECTION
SCALE: NTS

REFERENCE: DETAIL FROM PVC PIPE SUPPLIES, https://pvcpipesupplies.com/stainless-steel-ls-300-s.html

GEOS
Geotechnical, Environmental and Materials Engineers

Typical Details

Chemours Interim Seep A Remediation Project
Fayetteville, North Carolina

DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH

SCALE: AS SHOWN

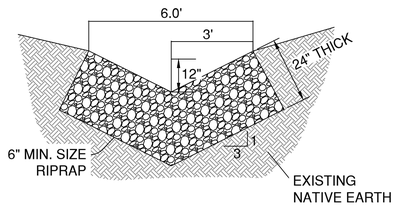
DATE: November 9, 2020

Revisions

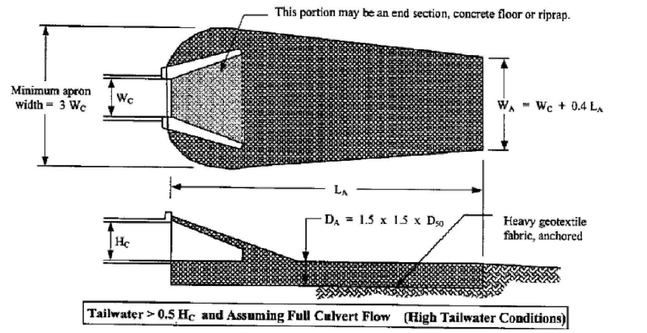
No.	Date	Description	By:
1	8/25/2021	As-Built Revisions	NSS
2			
3			
4			
5			
6			

DRAWING: D-1

PROJECT NUMBER: 43-20631A



1 / D-2 ROADSIDE SWAIL SECTION DETAIL
SCALE: NTS



Tailwater > 0.5 H_C and Assuming Full Culvert Flow (High Tailwater Conditions)

NOT TO SCALE

H_C = height of culvert
W_C = width of culvert
L_A = length of riprap apron
W_A = width of riprap apron at end
D_{50} = median riprap size
D_{MAX} = maximum size of riprap = 1.5 D_{50}
D_A = depth of riprap apron = 1.5 D_{MAX}

Riprap Aprons for High Tailwater (downstream flow depth > 0.5 x pipe diameter)

Culvert Diameter *	Lowest value			Intermediate values to interpolate from									Highest value		
	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}	Q	L_A	D_{50}
	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In	Cfs	Ft	In
12"	4	8	2	6	18	2.5	9	28	4.5	12	36	7	14	40	8
15"	7	8	2	10	20	2.5	15	34	5	20	42	7.5	25	50	10
18"	10	8	2	15	22	3	20	34	5	30	50	9	40	60	11
21"	15	8	2	25	32	4.5	35	48	7	45	58	11	60	72	14
24"	20	8	2	35	36	5	50	55	8.5	65	68	12	80	80	15
27"	27	10	2	50	41	6	70	58	10	90	70	14	110	82	17
30"	36	11	2	60	42	6	90	64	11	120	80	15	140	90	18
36"	56	13	2.5	100	60	7	140	85	13	180	104	18	220	120	23
42"	82	15	2.5	120	50	6	160	75	10	200	96	14	260	120	19
48"	120	20	2.5	170	58	7	220	85	12	270	105	16	320	120	20

Table 7.23-1 Riprap outlet protection design parameters for low tailwater and high tailwater conditions (Source: Knoxville Engineering Department)

**USE 12" Ø CULVERT VALUES IN TABLE FOR 8" Ø PIPE DOWNSTREAM OF FILTER BED (TYP) TO CONSTRUCT OUTLET PROTECTION.*

2 / D-2 RIPRAP APRON DETAIL
SCALE: NTS

GEOS
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Typical Details

Chemours Interim Seep A Remediation Project
Fayetteville, North Carolina

DRAWN BY:	REVIEWED BY:
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2			
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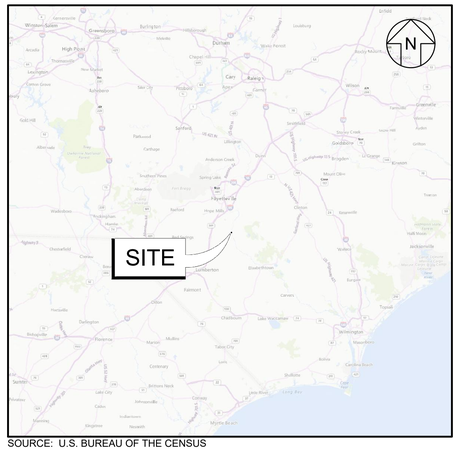
DRAWING: D-2

PROJECT NUMBER: 43-20631A

APPENDIX D
Mechanical As-Built Record Drawings

THE CHEMOURS COMPANY
FAYETTEVILLE WORKS PROJECT
SEEP A REMEDIATION SYSTEM
MECHANICAL RECORD DRAWINGS

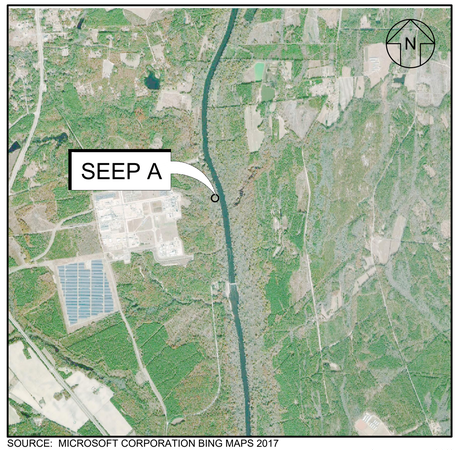
WILLIS CREEK AND CAPE FEAR RIVER CORRIDOR
FAYETTEVILLE, BLADEN AND CUMBERLAND COUNTIES
STATE OF NORTH CAROLINA
AUGUST 2021



SOURCE: U.S. BUREAU OF THE CENSUS

VICINITY MAP
SCALE: 1" = 30 MILES

LIST OF DRAWINGS	
DRAWING NO.	DRAWING TITLE
G-01	COVER SHEET
G-02	NOTES AND SYMBOLS
C-01	CONSTRUCTION DETAILS I
C-02	CONSTRUCTION DETAILS II
C-03	CONSTRUCTION DETAILS III
C-04	CONSTRUCTION DETAILS IV
C-05	PLATFORM DETAILS
D-01	PROCESS FLOW DIAGRAM



SOURCE: MICROSOFT CORPORATION BING MAPS 2017

LOCATION MAP
SCALE: 1" = 3,000'

0 3,000
SCALE IN FEET

PREPARED FOR:

Chemours™

22828 NC-87
FAYETTEVILLE, NC 28306
910.483.4681

PREPARED BY:

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295

ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

AS-BUILT CONSTRUCTION
RECORD DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP
0	08.13.21	AS-BUILT CONSTRUCTION RECORD DRAWING SUBMITTAL	JFH	CAS

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C-3500 and C-295

ATRIUM AT BLUE RIDGE
2501 BLUE RIDGE ROAD, SUITE 430
RALEIGH, NC 27607
919.870.0576

TITLE: COVER SHEET

PROJECT: THE CHEMOURS COMPANY
SEEP A INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.

SIGNATURE

DATE

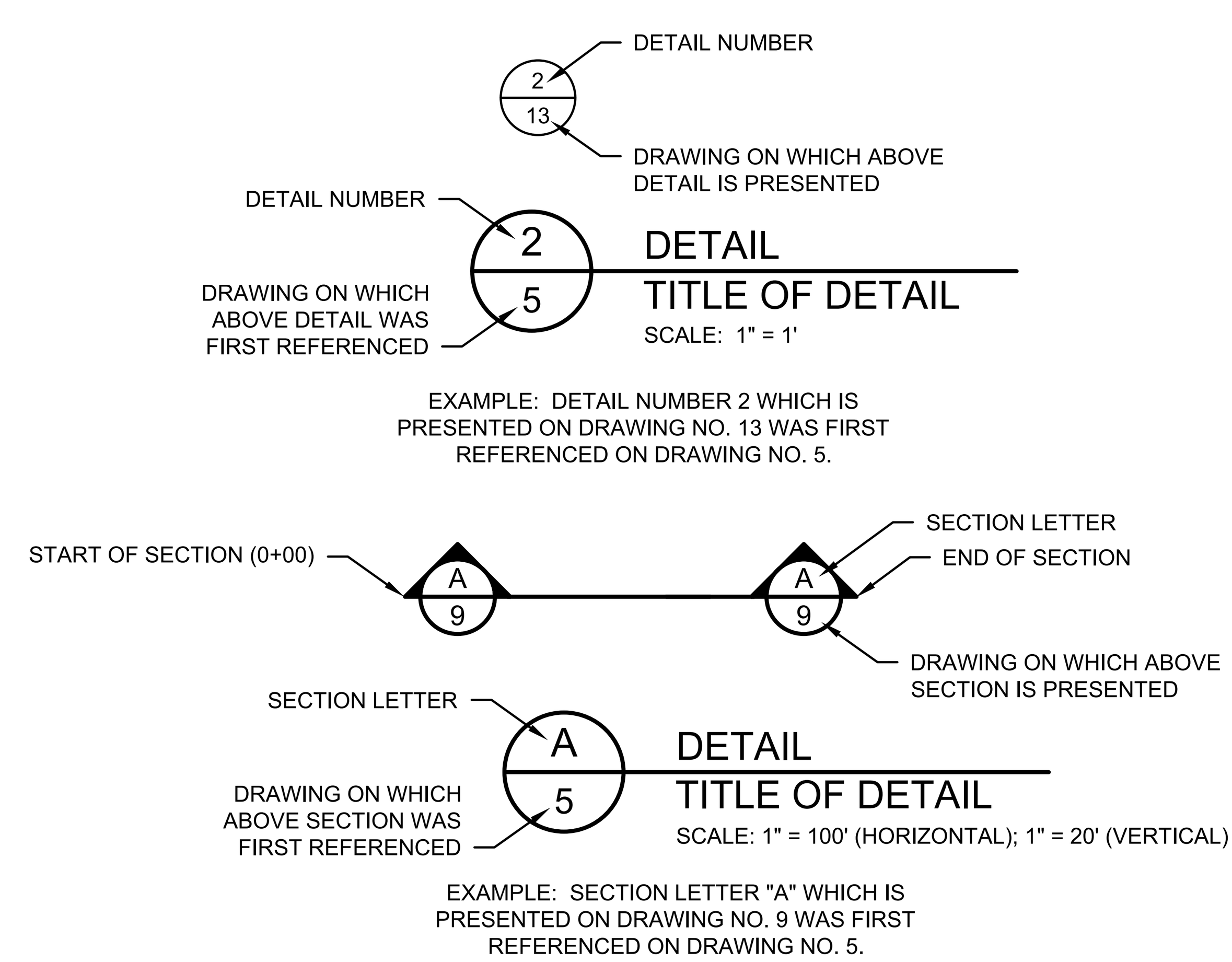
DESIGN BY:	CMDS	DATE:	AUGUST 2021
DRAWN BY:	JFH	PROJECT NO.:	TR0795
CHECKED BY:	JWE	FILE:	TR0795-G01.dwg
REVIEWED BY:	JJD	DRAWING NO.:	G-01
APPROVED BY:	CAS		

C:_GEOPHYSICS\1\DMS\3580\TR0795-G01

HATCH PATTERN LEGEND

- CONCRETE
- GRANULAR ACTIVATED CARBON
- GRAVEL
- PIPE EMBEDMENT FILL
- RIPRAP
- TRENCH BACKFILL/ EARTHEN FILL

DETAIL AND SECTION IDENTIFICATION LEGEND



ABBREVIATIONS

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
APP	APPROVED BY
℄	CENTER LINE
DRN	DRAWN BY
DWG	DRAWING
E	EAST OR EASTING
EL	ELEVATION
FT	FEET
HDPE	HIGH DENSITY POLYETHYLENE
H:V	HORIZONTAL TO VERTICAL LENGTH RATIO FOR A SLOPE
HWY	HIGHWAY
IN	INCH
INV	INVERT
MAX	MAXIMUM
MIN	MINIMUM
MSL	MEAN SEA LEVEL
N	NORTH OR NORTHING
NAD	NORTH AMERICAN DATUM
NAVD88	NORTH AMERICAN VERTICAL DATUM OF 1988
NCDEQ	NORTH CAROLINA DEPARTMENT OF ENVIRONMENTAL QUALITY
NO.	NUMBER
NPDES	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
N.S.A.	NATIONAL STONE ASSOCIATION
NTS	NOT TO SCALE
OC	ON CENTER
OZ	OUNCE
PFAS	PER- AND POLYFLUOROALKYL SUBSTANCES
PROJ	PROJECT
RCP	REINFORCED CONCRETE PIPE
RD	ROAD
REV	REVISION
S	SOUTH
SWP	STORMWATER PIPE
TYP	TYPICAL
U.S.	UNITED STATES
USEPA	UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
W	WEST
W.S.	WATER SURFACE
%	PERCENT OR PERCENTILE

AS-BUILT CONSTRUCTION RECORD DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP
0	08.13.21	AS-BUILT CONSTRUCTION RECORD DRAWING SUBMITTAL	JFH	CAS

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TITLE: NOTES AND SYMBOLS

PROJECT: THE CHEMOURS COMPANY
SEEP A INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

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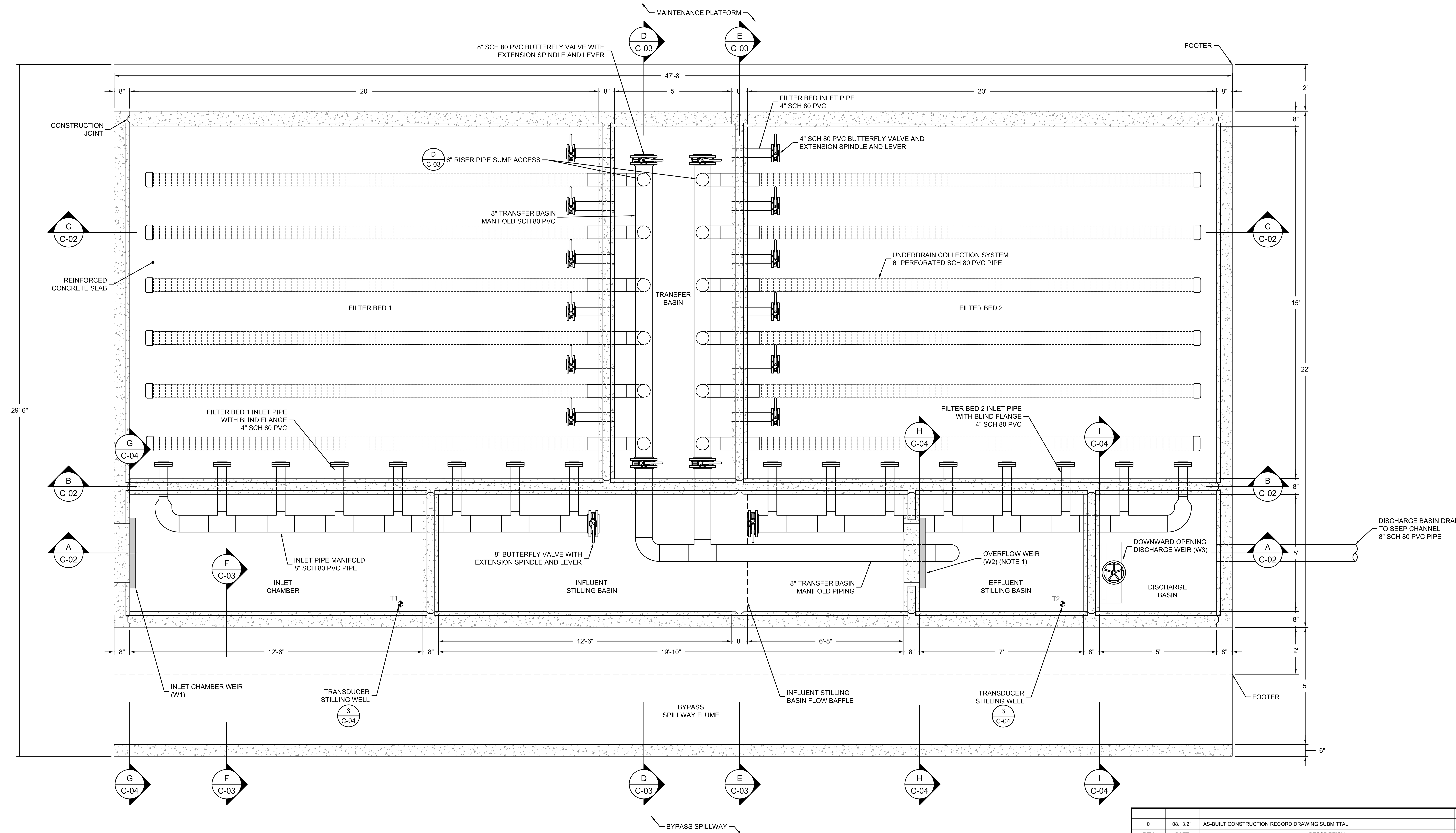
REVIEWED BY:	JJD	DRAWING NO.:	
APPROVED BY:	CAS		G-02



1 C-01 PLAN
FLOW THROUGH CELL
SCALE: 1" = 2'

NOTES:

1. WEIR 2 WALL OPENING WAS FILLED WITH REINFORCED CONCRETE AND WEIR 2 WAS SEALED IN PLACE AFTER WEIR INSTALLATION.

AS-BUILT CONSTRUCTION RECORD DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP
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TITLE: CONSTRUCTION DETAILS I

PROJECT: THE CHEMOURS COMPANY
SEEP A INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

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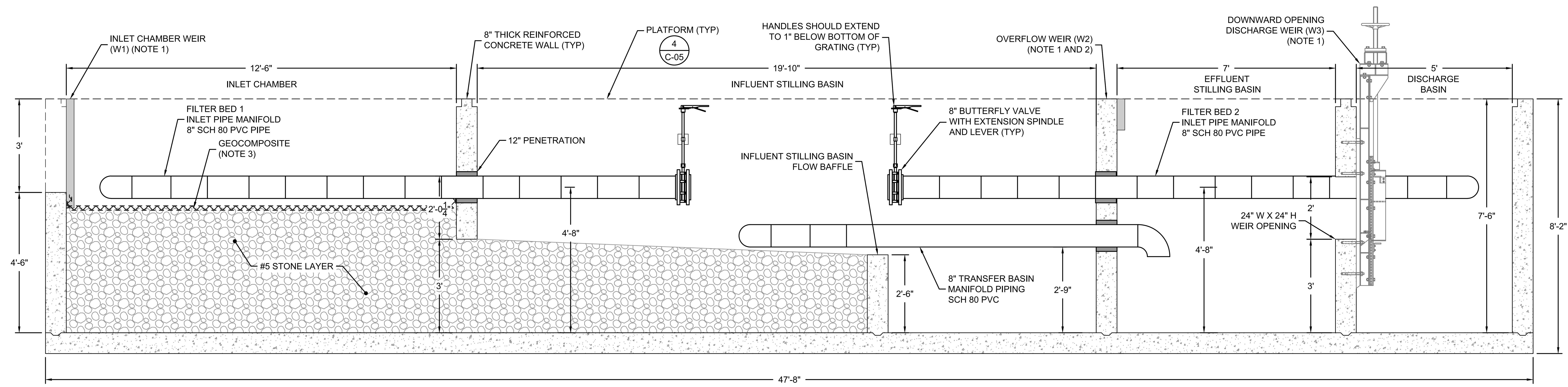
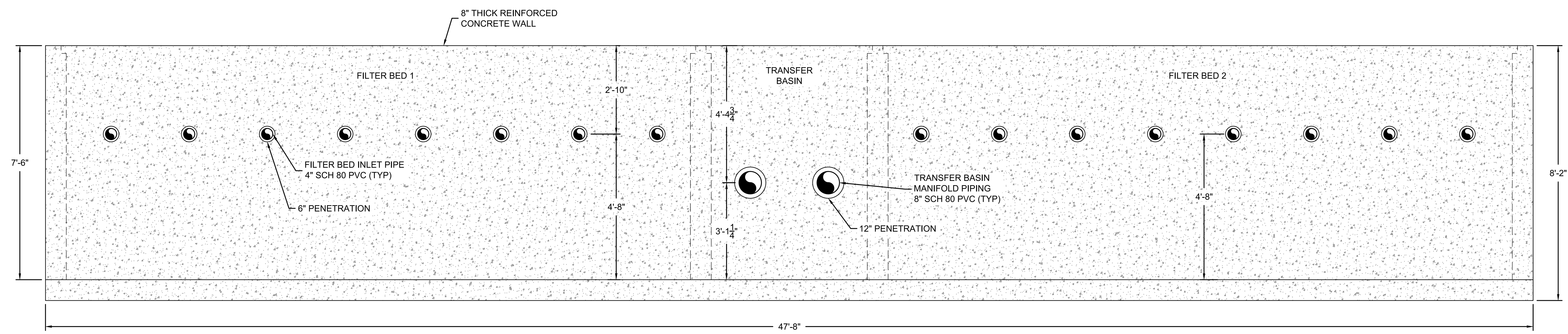
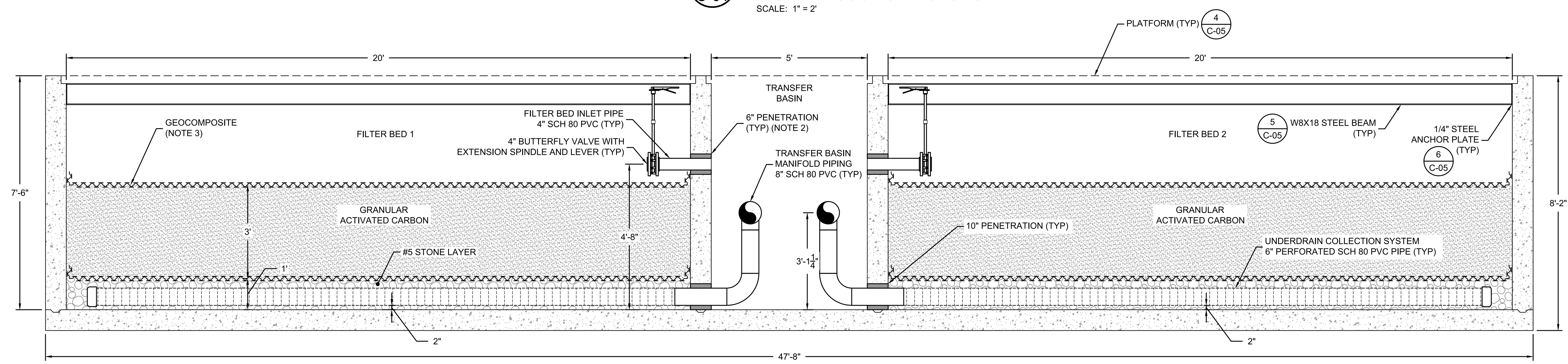
REVIEWED BY:	JJD	DRAWING NO.:	
APPROVED BY:	CAS		C-01



A C-01 SECTION
FLOW THROUGH CELL SECTION A
SCALE: 1" = 2'



B C-01 SECTION
FLOW THROUGH CELL SECTION B
SCALE: 1" = 2'



C C-01 SECTION
FLOW THROUGH CELL SECTION C
SCALE: 1" = 2'

NOTES:

1. THE WEIRS WERE PURCHASED FROM GOLDEN HARVEST INC., AS FOLLOWS:

   THE INLET CHAMBER WEIR (W1) IS A 30.5" X 36" STAINLESSS STEEL WEIR GATE, HANDLE LIFT, MANUFACTURER DRAWING NUMBER MD GH-42.

   THE OVERFLOW WEIR (W2) IS A 30.5"X12" STAINLESS STEEL WEIR GATE, HANDLE LIFT, MANUFACTURER DRAWING NUMBER MD GH-42.

   THE DOWNWARD OPENING DISCHARGE WEIR (W3) IS A 24"X24" STAINLESS STEEL WEIR GATE, GEAR OPERATED, MANUFACTURER DRAWING NUMBER MD GH-66.

2. WEIR 2 WALL OPENING WAS FILLED WITH REINFORCED CONCRETE AND WEIR 2 WAS SEALED IN PLACE AFTER WEIR INSTALLATION.

3. THE GEOCOMPOSITE INSTALLED ABOVE THE STONE LAYERS (INLET CHAMBER AND EACH FILTER BED) AND ABOVE THE GAC LAYERS (FILTER BEDS) WAS 200 MIL GEONET FROM AGRU AMERICA, INC. THE GEOTEXTILE (DOUBLE SIDED) WAS APPARENT OPENING SIZE 0.180 MM AND 8 OZ/SQUARE YARD MASS PER UNIT AREA.

0 2 4
SCALE IN FEET

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RALEIGH, NC 27607
919.870.0576

TITLE: CONSTRUCTION DETAILS II

PROJECT: THE CHEMOURS COMPANY
SEEP A INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

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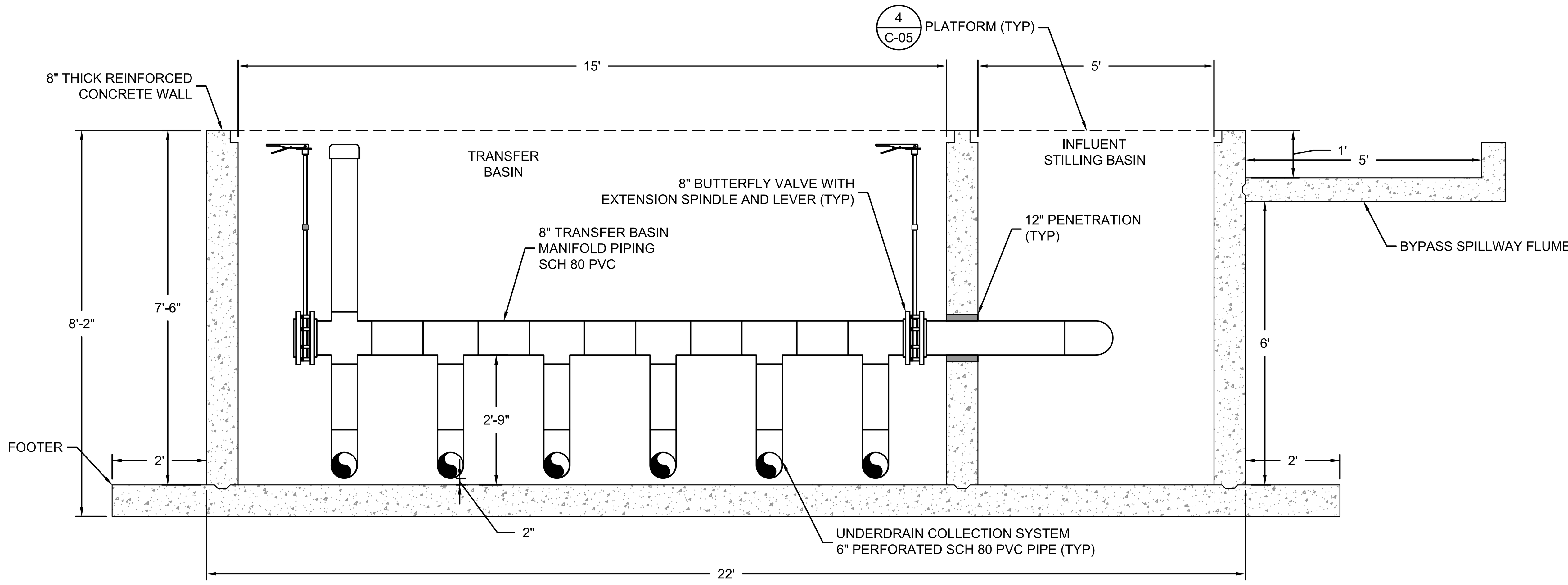
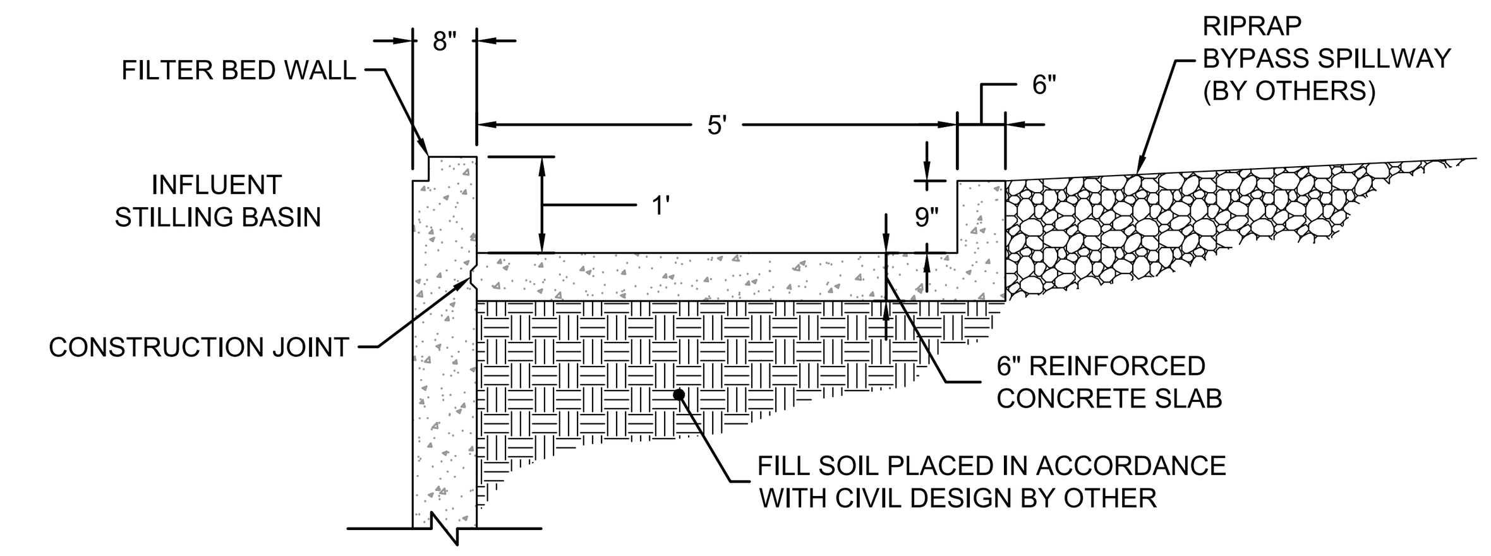
CHECKED BY:	JWE	FILE:	TR0795-C02.dwg
REVIEWED BY:	JJD	DRAWING NO.:	
APPROVED BY:	CAS		C-02

AS-BUILT CONSTRUCTION RECORD DRAWINGS

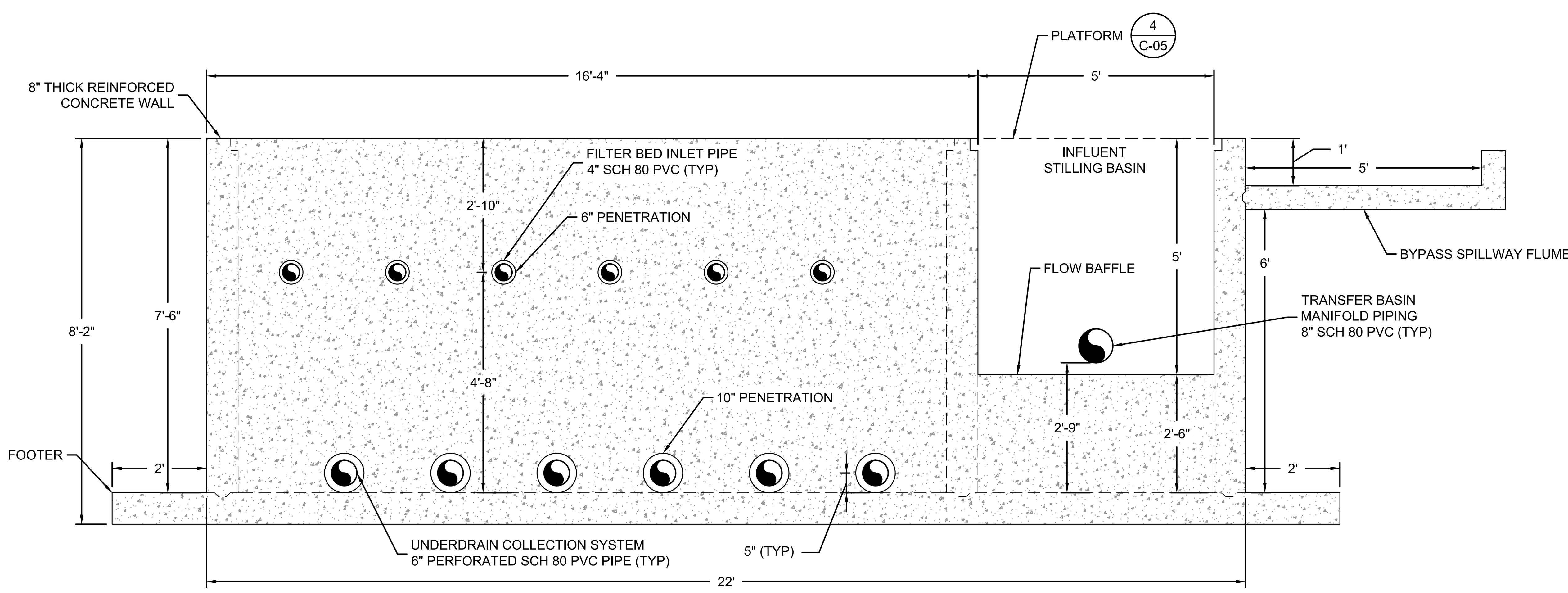
C:_GEOPW\D0512\M5035\TR0795-C02



D
C-01
SECTION
FLOW THROUGH CELL SECTION D
SCALE: 1" = 2'



F
C-01
SECTION
BYPASS SPILLWAY FLOW MEASUREMENT FLUME
SCALE: 1" = 2'



E
C-01
SECTION
FLOW THROUGH CELL SECTION E
SCALE: 1" = 2'

0 2 4
SCALE IN FEET

REV	DATE	DESCRIPTION	DRN	APP
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TITLE: CONSTRUCTION DETAILS III

PROJECT: THE CHEMOURS COMPANY
SEEP A INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

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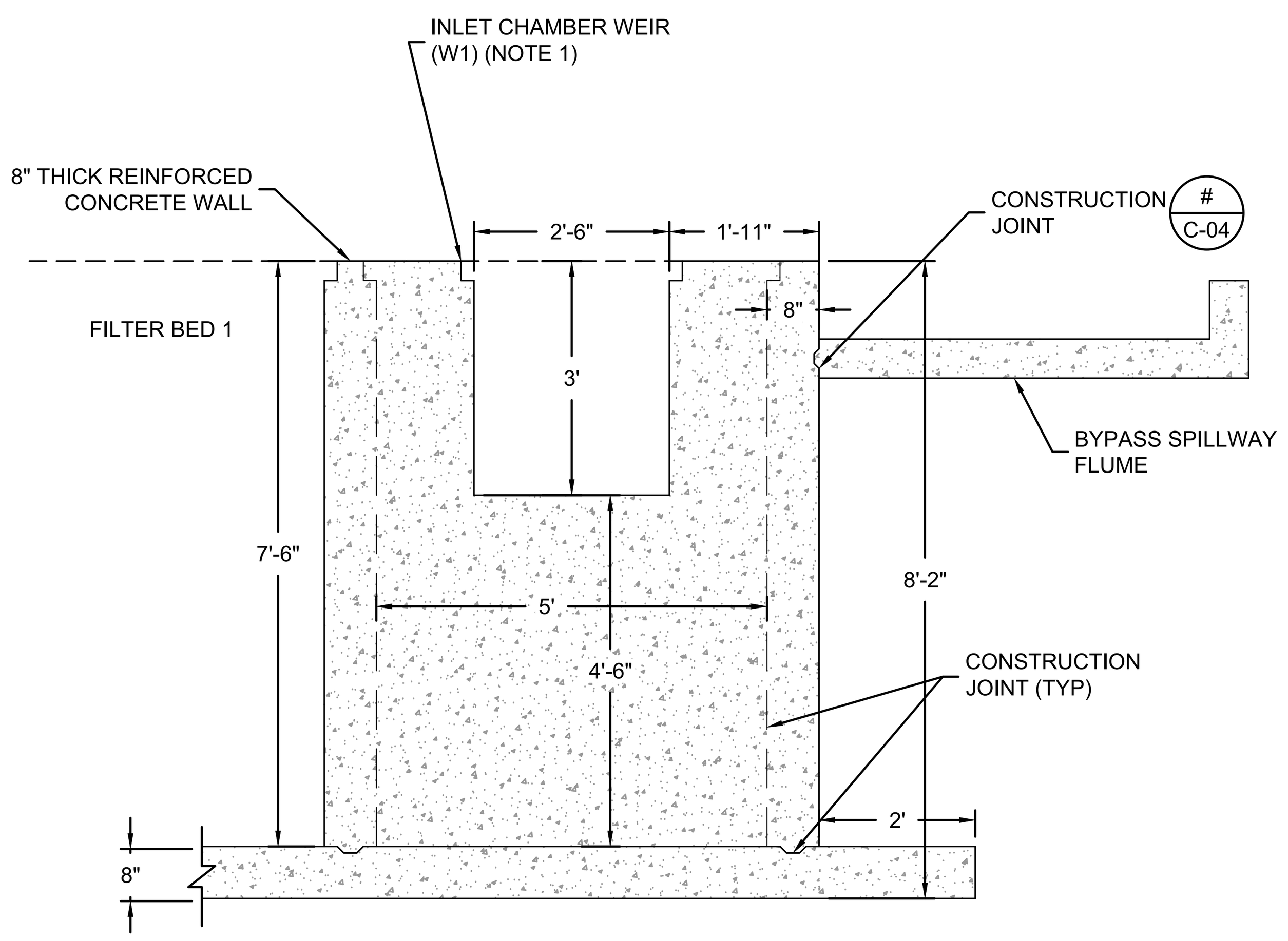
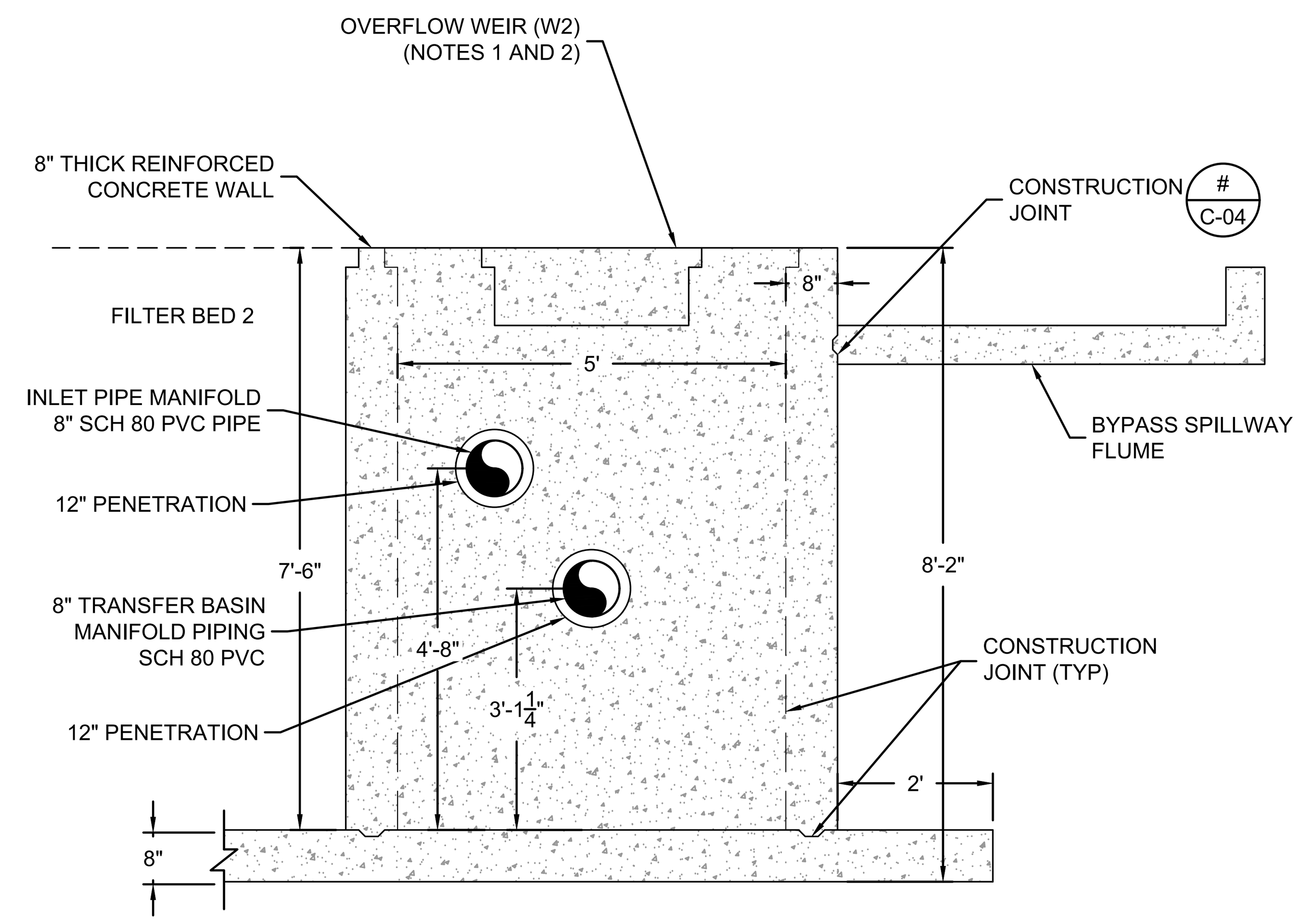
CHECKED BY:	JWE	FILE:	TR0795-C03.dwg
REVIEWED BY:	JJD	DRAWING NO.:	
APPROVED BY:	CAS		C-03

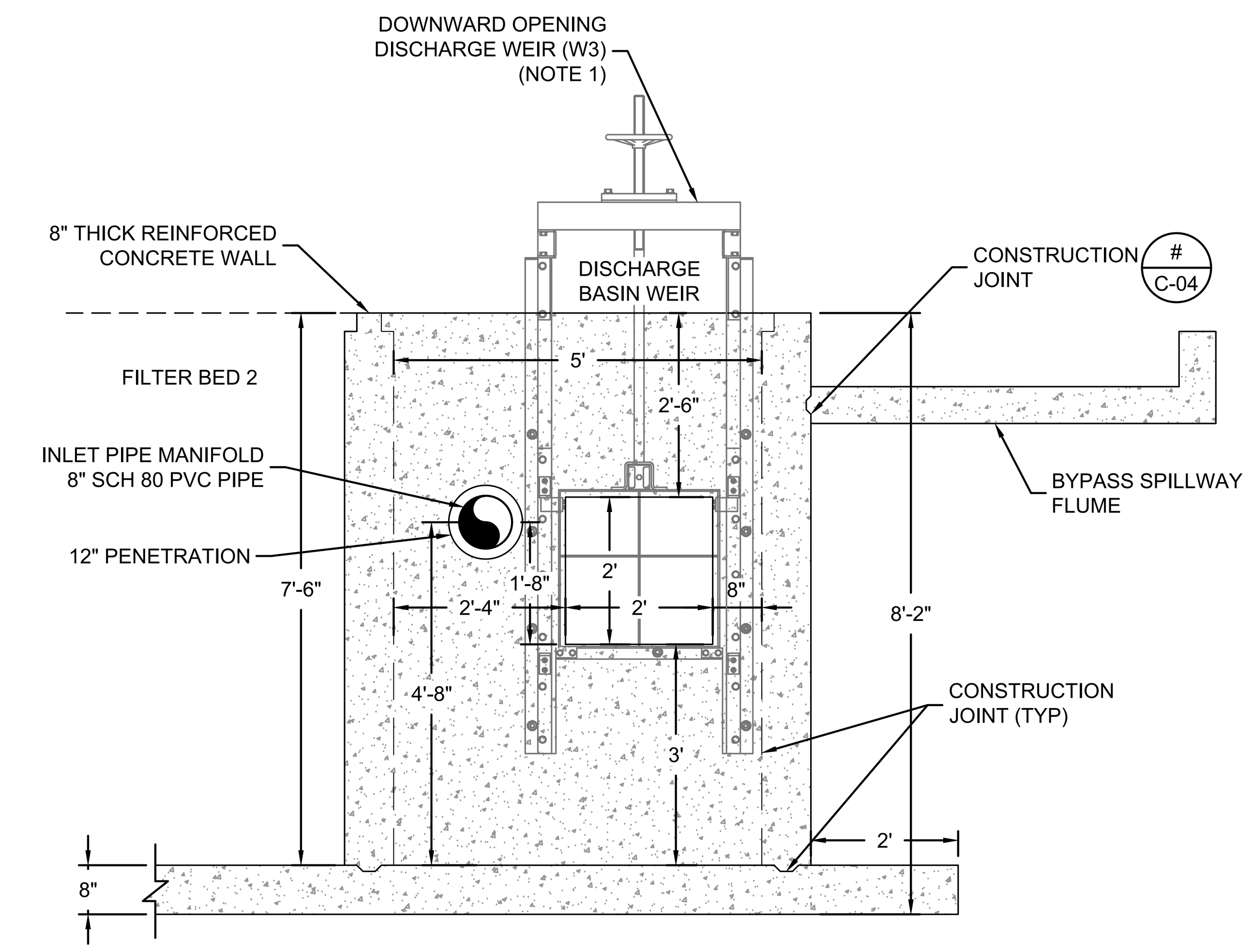
AS-BUILT CONSTRUCTION
RECORD DRAWINGS



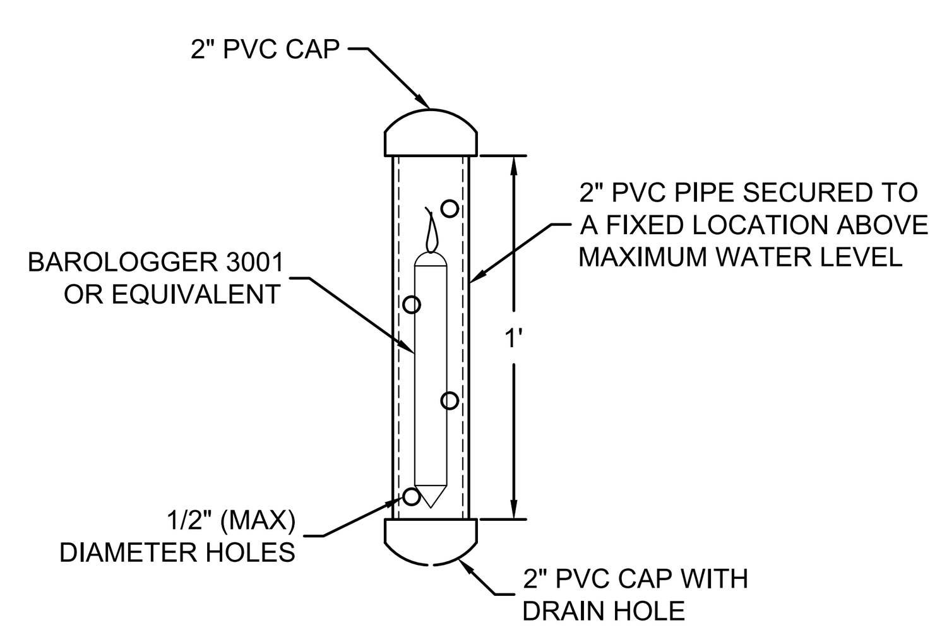
G / C-01 SECTION
INLET CHAMBER WEIR (W1)
SCALE: 1" = 2'



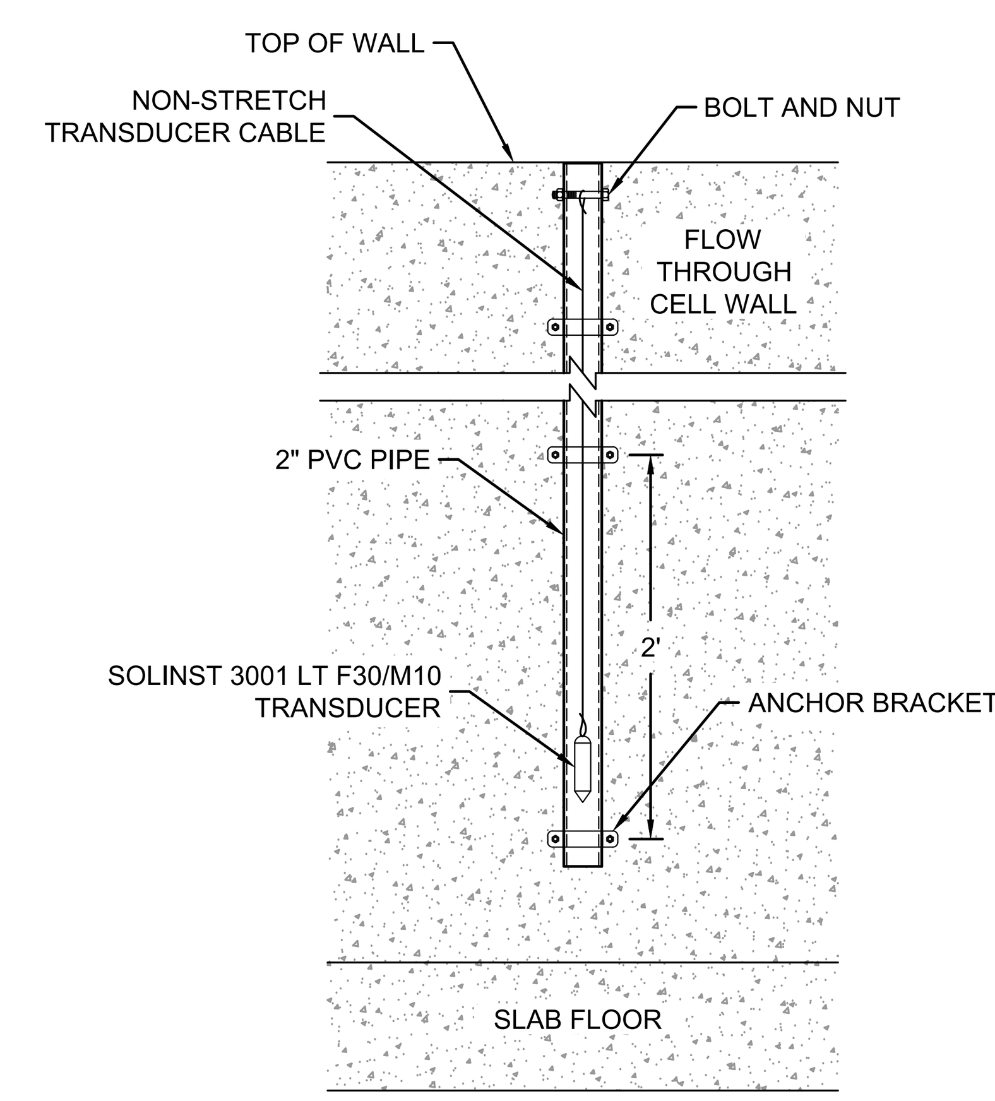
H / C-01 SECTION
OVERFLOW WEIR (W2)
SCALE: 1" = 2'



I / C-01 SECTION
DOWNWARD OPENING DISCHARGE WEIR (W3)
SCALE: 1" = 2'



2 / C-04 DETAIL
BAROMETRIC PRESSURE TRANSDUCER ENCLOSURE
SCALE: 1" = 6"



3 / C-01 DETAIL
TRANSDUCER STILLING WELL
SCALE: 1" = 1'

NOTES:

1. THE WEIRS WERE PURCHASED FROM GOLDEN HARVEST INC., AS FOLLOWS:

   THE INLET CHAMBER WEIR (W1) IS A 30.5" X 36" STAINLESSS STEEL WEIR GATE, HANDLE LIFT, MANUFACTURER DRAWING NUMBER MD GH-42.

   THE OVERFLOW WEIR (W2) IS A 30.5"X12" STAINLESS STEEL WEIR GATE, HANDLE LIFT, MANUFACTURER DRAWING NUMBER MD GH-42.

   THE DOWNWARD OPENING DISCHARGE WEIR (W3) IS A 24"X24" STAINLESS STEEL WEIR GATE, GEAR OPERATED, MANUFACTURER DRAWING NUMBER MD GH-66.

2. WEIR 2 WALL OPENING WAS FILLED WITH REINFORCED CONCRETE AND WEIR 2 WAS SEALED IN PLACE AFTER WEIR INSTALLATION.

REV	DATE	DESCRIPTION	DRN	APP
0	08.13.21	AS-BUILT CONSTRUCTION RECORD DRAWING SUBMITTAL	JFH	CAS

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RALEIGH, NC 27607
919.870.0576

TITLE: CONSTRUCTION DETAILS IV

PROJECT: THE CHEMOURS COMPANY
SEEP A INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

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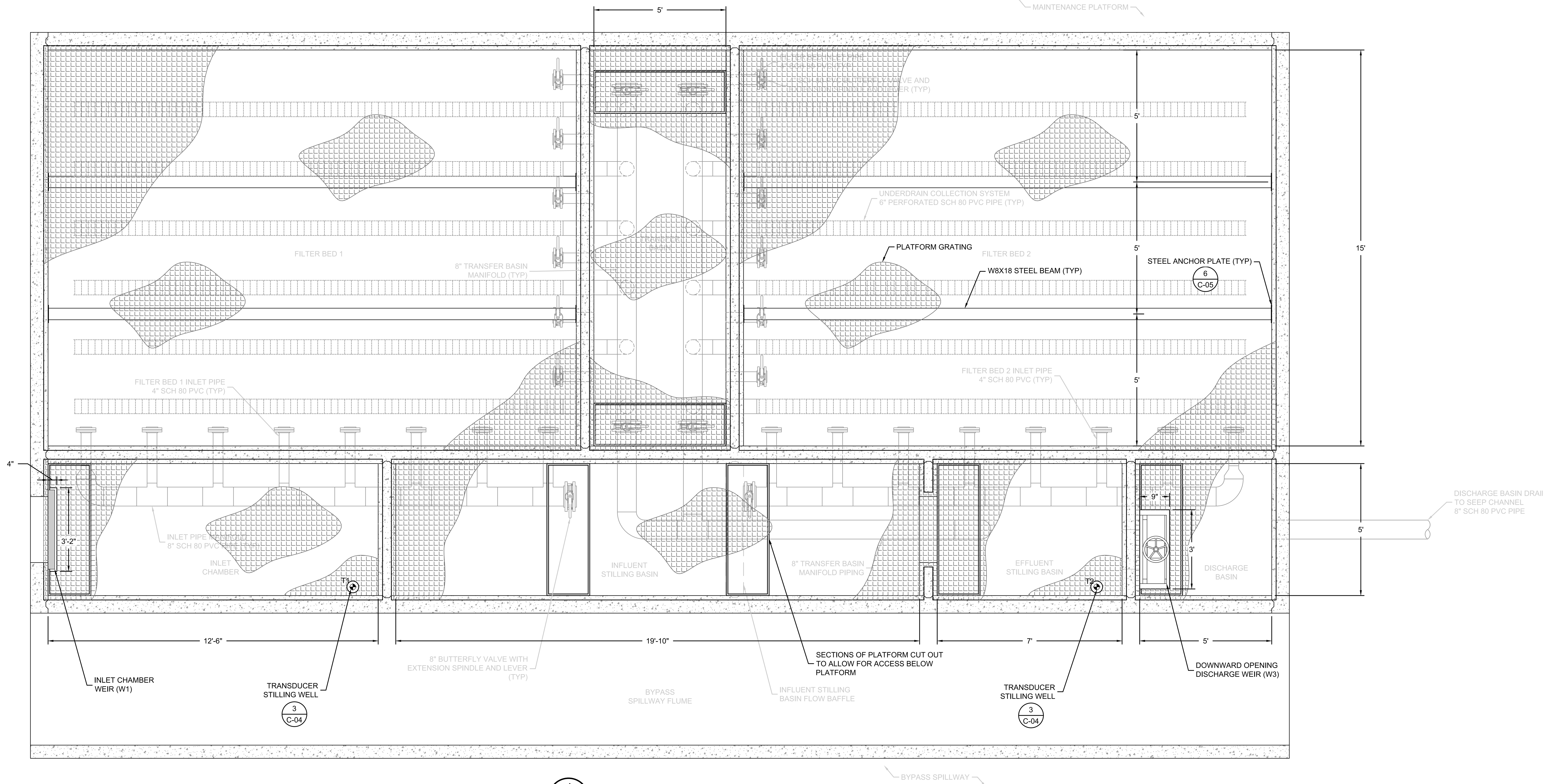
APPROVED BY:	CAS		C-04

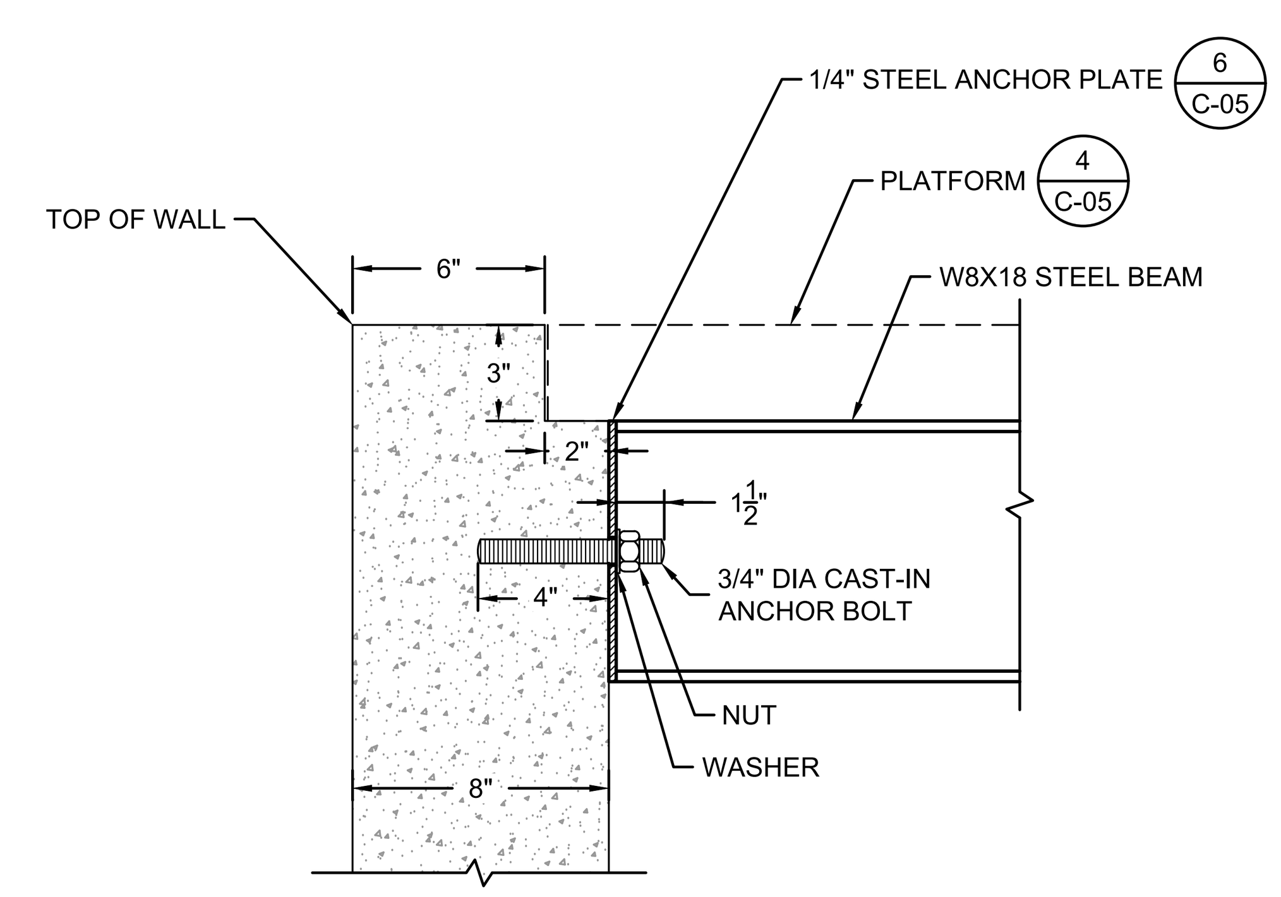
AS-BUILT CONSTRUCTION RECORD DRAWINGS

C:_GEOPW\D0501\DMS03580\TR0795-C04

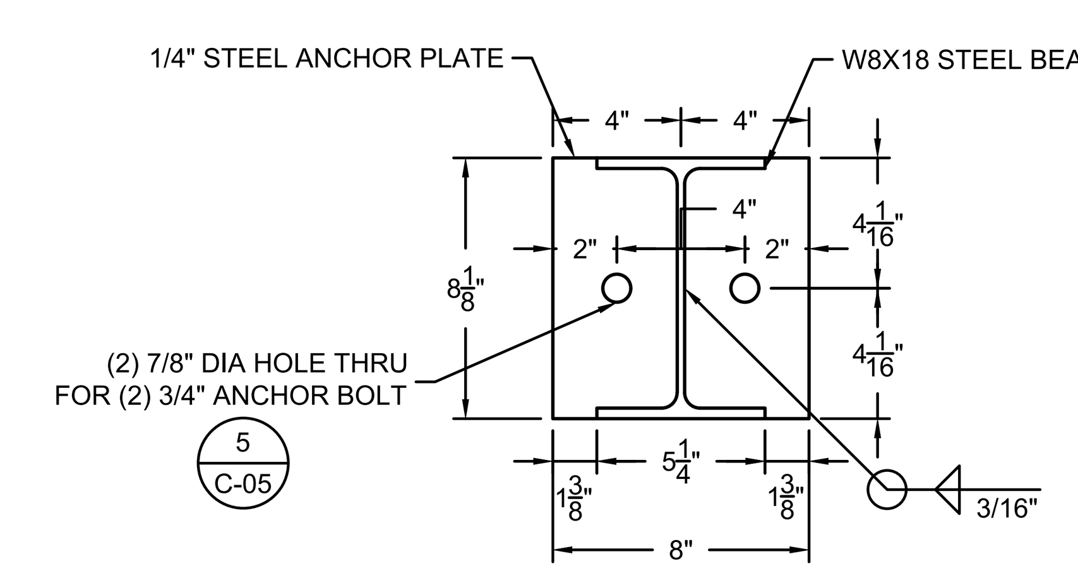


4 / C-02 PLAN
PLATFORM INSTALLATION
SCALE: 1" = 2'

0 3 6
SCALE IN FEET



5 / C-05 DETAIL
ANCHOR BOLT DETAIL
SCALE: 1" = 6"



6 / C-05 DETAIL
STEEL ANCHOR PLATE
SCALE: 1" = 6"

AS-BUILT CONSTRUCTION RECORD DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP
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TITLE: PLATFORM DETAILS

PROJECT: THE CHEMOURS COMPANY
SEEP A INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

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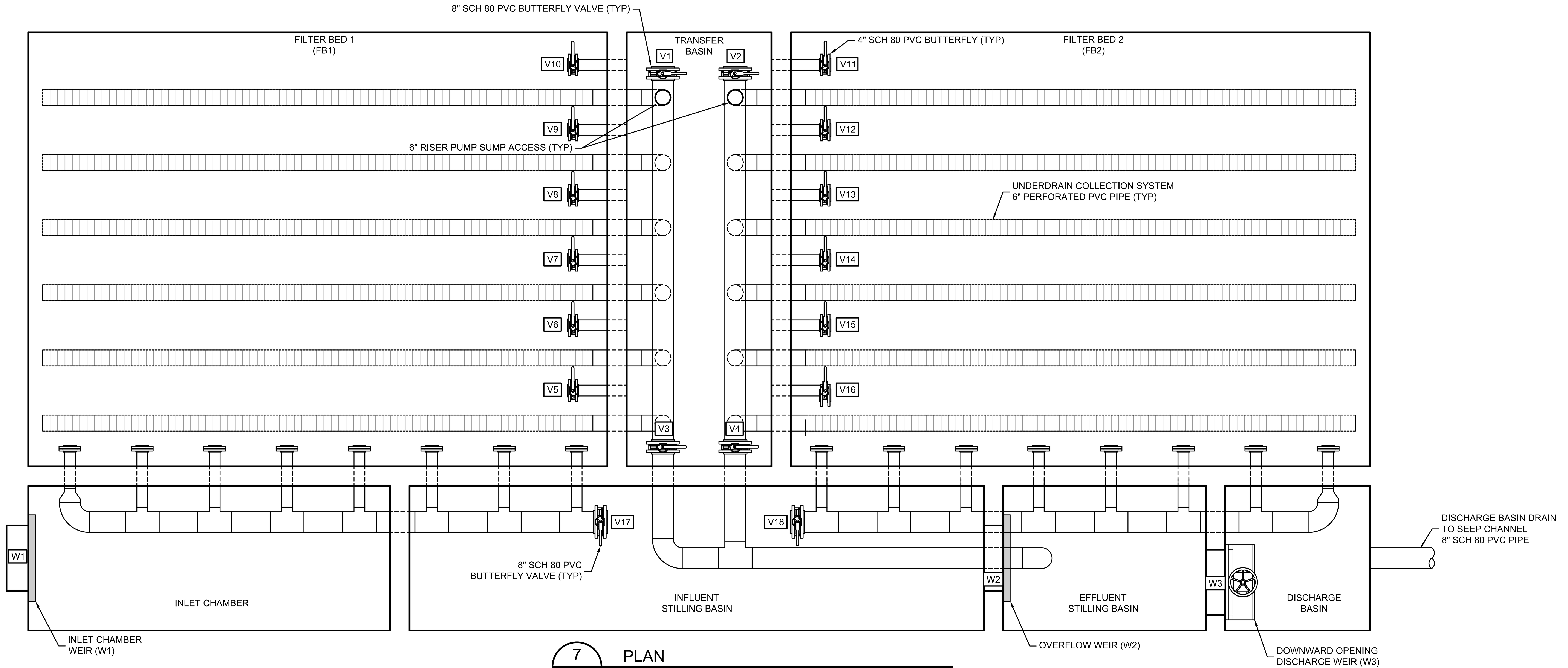
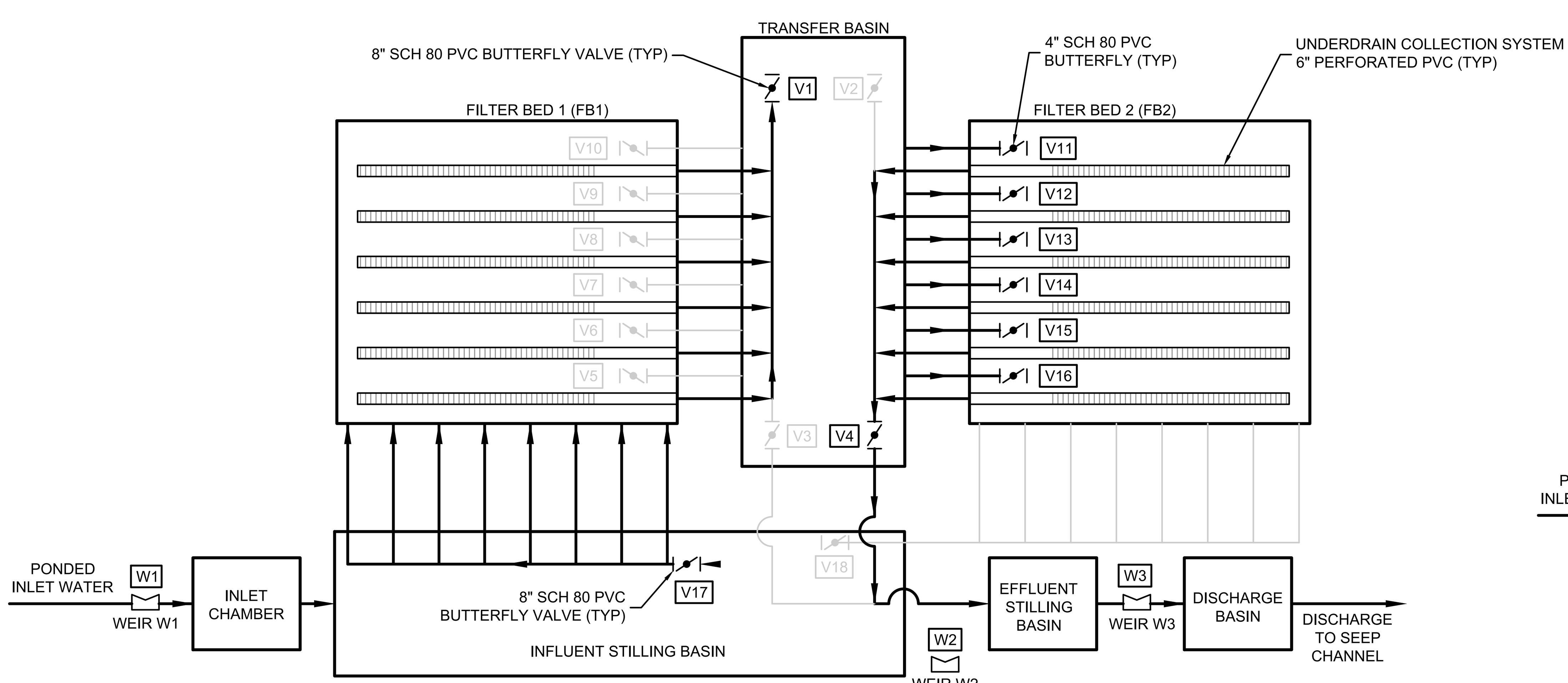
APPROVED BY:	CAS		C-05



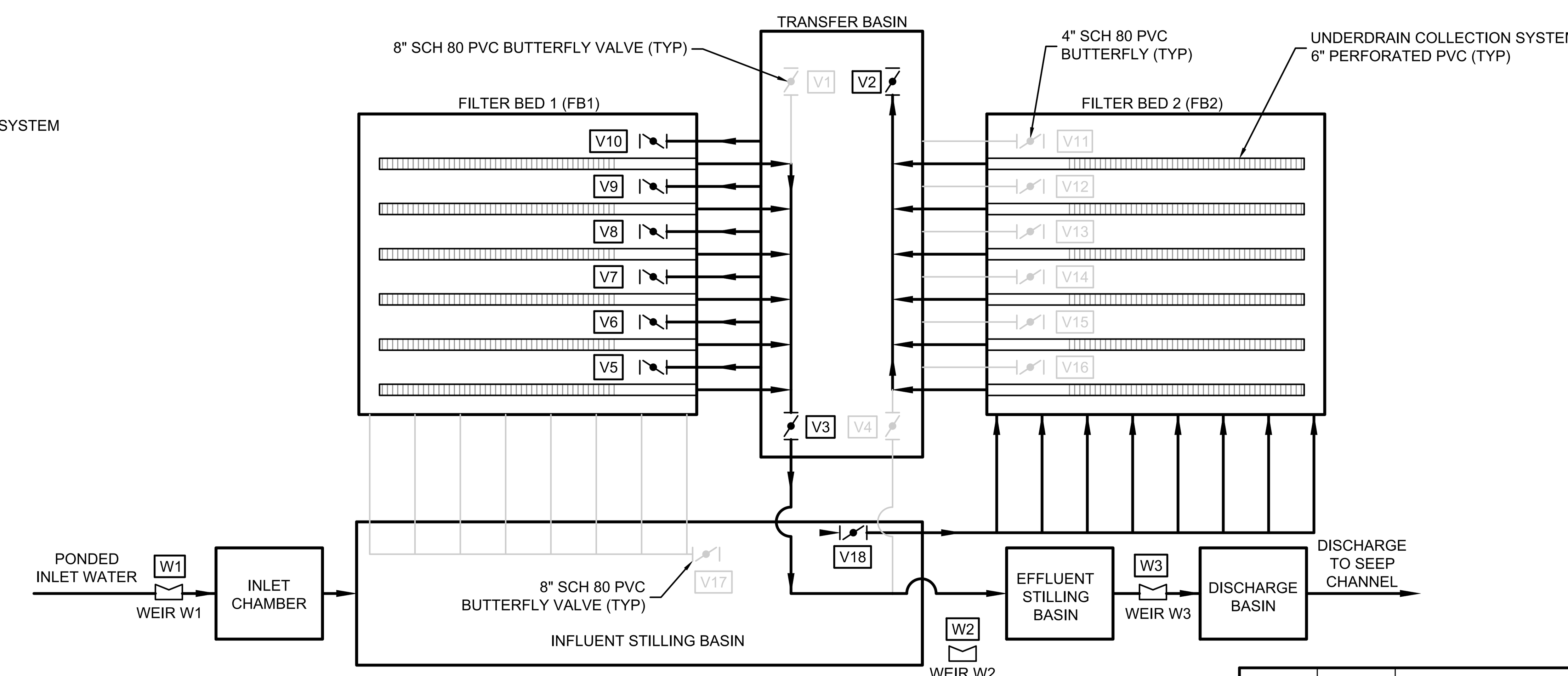
7 / D-01 PLAN
FLOW THROUGH CELL VALVE SCHEMATIC

OPERATIONAL MODE				
FLOW CONTROL DEVICE	FB1 LEAD/FB2 LAG	FB1 LAG/FB2 LEAD	FB1 CHANGEOUT (FB2 OPEN)	FB2 CHANGEOUT (FB1 OPEN)
VALVE V1	OPEN	CLOSED	CLOSED	CLOSED
VALVE V2	CLOSED	OPEN	CLOSED	CLOSED
VALVE V3	CLOSED	OPEN	CLOSED	OPEN
VALVE V4	OPEN	CLOSED	OPEN	CLOSED
VALVE V5	CLOSED	OPEN	CLOSED	CLOSED
VALVE V6	CLOSED	OPEN	CLOSED	CLOSED
VALVE V7	CLOSED	OPEN	CLOSED	CLOSED
VALVE V8	CLOSED	OPEN	CLOSED	CLOSED
VALVE V9	CLOSED	OPEN	CLOSED	CLOSED
VALVE V10	CLOSED	OPEN	CLOSED	CLOSED
VALVE V11	OPEN	CLOSED	CLOSED	CLOSED
VALVE V12	OPEN	CLOSED	CLOSED	CLOSED
VALVE V13	OPEN	CLOSED	CLOSED	CLOSED
VALVE V14	OPEN	CLOSED	CLOSED	CLOSED
VALVE V15	OPEN	CLOSED	CLOSED	CLOSED
VALVE V16	OPEN	CLOSED	CLOSED	CLOSED
VALVE V17	OPEN	CLOSED	CLOSED	OPEN
VALVE V18	CLOSED	OPEN	OPEN	CLOSED
WEIR W1	OPEN	OPEN	OPEN	OPEN
WEIR W2	PERMANENTLY CLOSED: CANNOT BE OPENED			
WEIR W3	OPEN	OPEN	OPEN	OPEN

8 / D-01 TABLE
OPERATIONAL MODE



9 / D-01 SCHEMATIC
FLOW THROUGH CELL SYSTEM FLOW WITH
CARBON BED 1 IN LEAD POSITION
AND CARBON BED 2 IN LAG POSITION



10 / D-01 SCHEMATIC
FLOW THROUGH CELL SYSTEM FLOW
WITH CARBON BED 2 IN LEAD POSITION
AND CARBON BED 1 IN LAG POSITION

NOTES:

1. CONTRACTOR TO PROVIDE VALVE TAGS THAT MATCH IDENTIFICATIONS ABOVE.
2. VALVE HANDLES SHALL BE POSITIONED SUCH THAT THEY ARE PERPENDICULAR TO DIRECTION OF PIPE WHEN CLOSED, AND PARALLEL TO DIRECTION OF PIPE WHEN OPENED.

AS-BUILT CONSTRUCTION
RECORD DRAWINGS

REV	DATE	DESCRIPTION	DRN	APP
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RALEIGH, NC 27607
919.870.0576

TITLE: PROCESS FLOW DIAGRAM

PROJECT: THE CHEMOURS COMPANY
SEEP A INTERIM REMEDIATION SYSTEM

SITE: FAYETTEVILLE WORKS SITE

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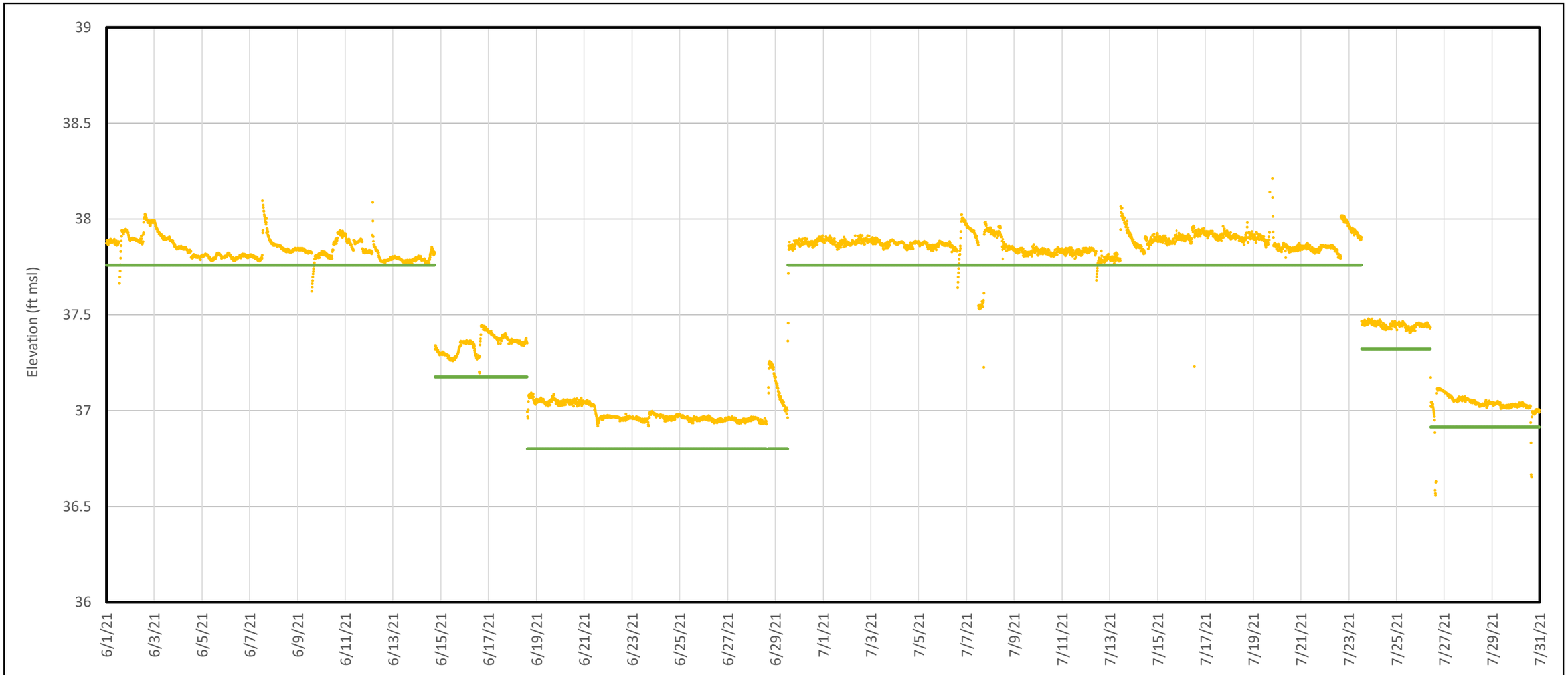
REVIEWED BY:	JJD	DRAWING NO.:	D-01
APPROVED BY:	CAS		

APPENDIX E
Transducer Data Reduction



Legend

- Discharge Basin Elevation
- Weir 3 Elevation

Note:

Figure E1 shows the discharge basin transducer data that was collected during the reporting period.

Discharge Basin Water Elevation

Chemours Fayetteville Works
Fayetteville, North Carolina

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Geosyntec Consultants of NC, P.C.
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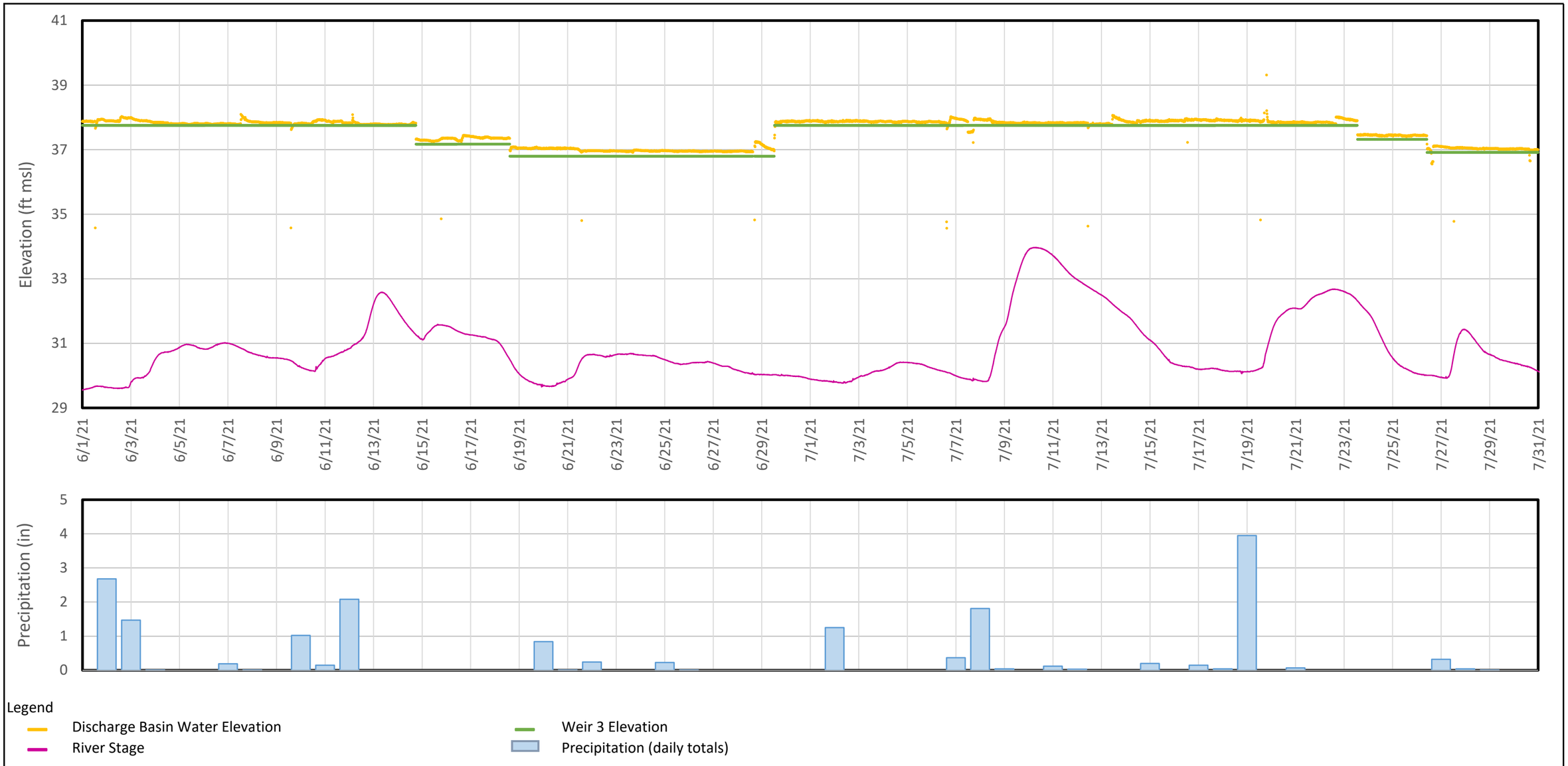
Figure E1



Notes:

As water can flow through the flow-through cell both as a result of wet weather inflow and elevated river levels from flooding, Figure E2 compares the available transducer data to precipitation and river stage elevation data available from the USGS Huske Lock and Dam.

Discharge Basin Water Elevation and External Forcings

Chemours Fayetteville Works
Fayetteville, North Carolina

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NC License No.: C-3500 and C-295

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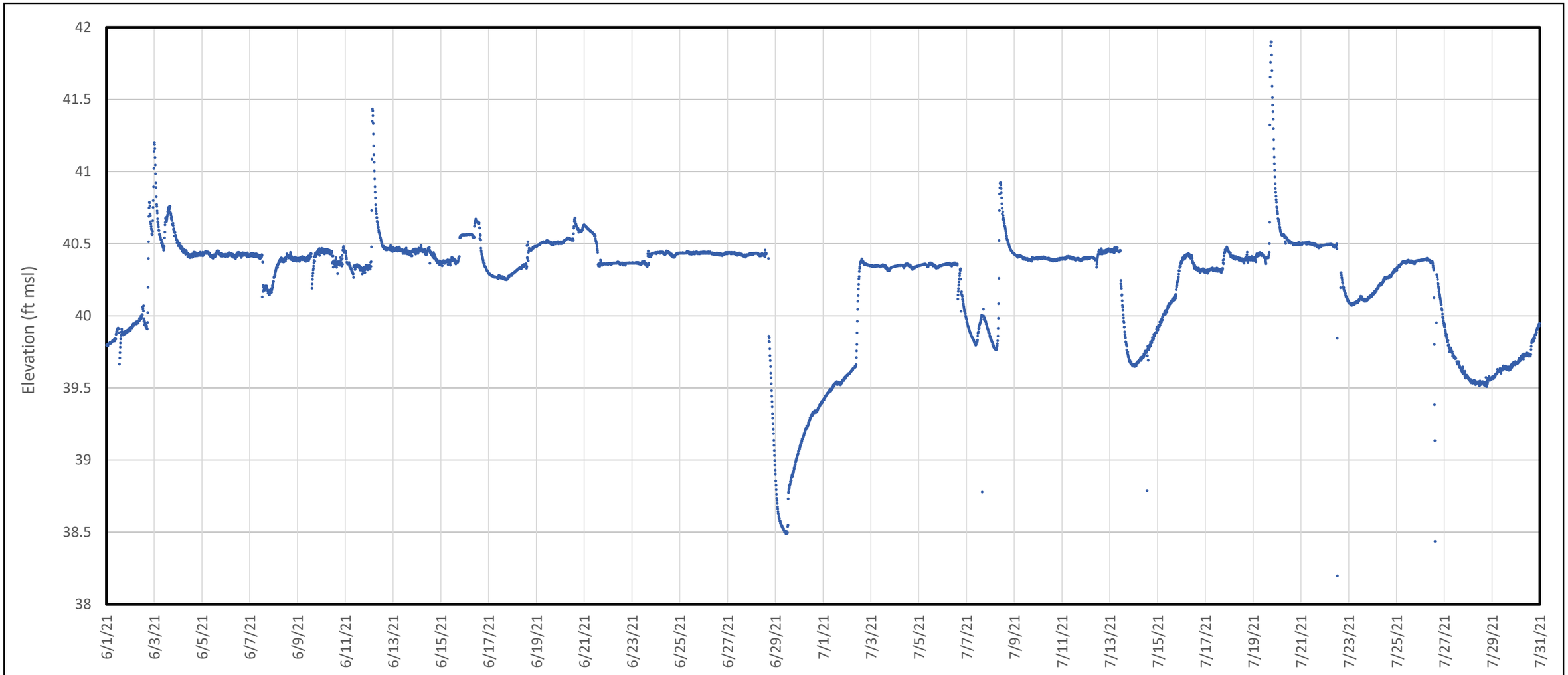
Figure E2



Legend

Influent Chamber/Impoundment Elevation

Note:

Figure E3 shows the influent transducer data that was collected during the reporting period.

Inlet Chamber Water Elevation

Chemours Fayetteville Works
Fayetteville, North Carolina

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NC License No.: C 3500 and C 295

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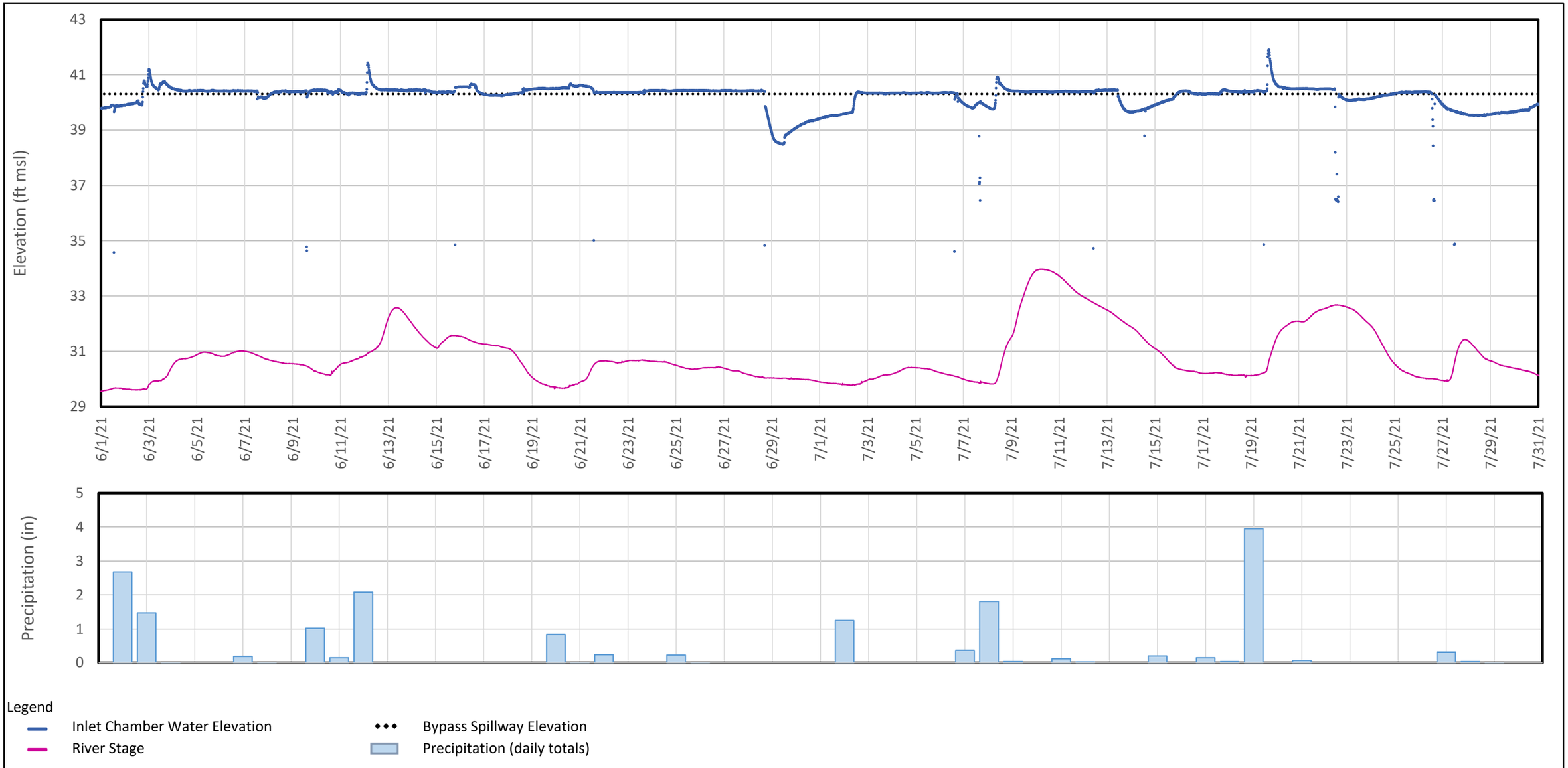
Figure E3



Legend

- Inlet Chamber Water Elevation
- River Stage
- Bypass Spillway Elevation
- Precipitation (daily totals)

Notes:

As water can flow through the Bypass Spillway both as a result of wet weather inflow and elevated river levels from flooding, Figure E4 compares the available transducer data to precipitation and river stage elevation data available from the USGS Huske Lock and Dam.

Inlet Chamber Water Elevation and External Forcings

Chemours Fayetteville Works
Fayetteville, North Carolina

Geosyntec consultants

Geosyntec Consultants of NC, P.C.
NC License No.: C 3500 and C 295

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Figure E4

APPENDIX F
Laboratory Analytical Data Review Narratives
(Full lab reports to be uploaded to OneDrive and EQuIS)

ADQM Data Review

Site: Chemours Fayetteville

Project: Seep Flow Through Cell Sampling 2021 (select lots)

Project Reviewer: Michael Aucoin

Sample Summary

Field Sample ID	Lab Sample ID	Sample Matrix	Filtered	Sample Date	Sample Time	Sample Purpose
SEEP-A-INFLUENT-336-061421	320-75082-1	Other liquid	N	06/14/2021	05:00	FS
SEEP-A-EFFLUENT-336-061421	320-75082-2	Other liquid	N	06/14/2021	05:00	FS
SEEP-B-INFLUENT-24-061221	320-75082-3	Other liquid	N	06/12/2021	13:00	FS
SEEP-B-EFFLUENT-24-061221	320-75082-4	Other liquid	N	06/12/2021	13:00	FS
SEEP-A-INFLUENT-336-062921	320-75723-1	Other liquid	N	06/29/2021	13:00	FS
SEEP-A-EFFLUENT-336-062921	320-75723-2	Other liquid	N	06/29/2021	13:00	FS
SEEP-C-INFLUENT-336-062921	320-75723-3	Other liquid	N	06/29/2021	09:00	FS
SEEP-C-EFFLUENT-336-062921	320-75723-4	Other liquid	N	06/29/2021	09:00	FS
SEEP-A-Effluent-336-140721	320-76386-1	Other liquid	N	07/14/2021	21:00	FS
SEEP-B-Effluent-312-140721	320-76386-2	Other liquid	N	07/14/2021	18:00	FS
SEEP-C-Effluent-336-140721	320-76386-3	Other liquid	N	07/14/2021	19:00	FS
SEEP-D-Effluent-336-140721	320-76386-4	Other liquid	N	07/14/2021	20:00	FS
SEEP-A-Influent-300-140721	320-76388-1	Other liquid	N	07/14/2021	21:00	FS
SEEP-B-Influent-312-140721	320-76388-2	Other liquid	N	07/14/2021	18:00	FS
SEEP-C-Influent-336-140721	320-76388-3	Other liquid	N	07/14/2021	19:00	FS
SEEP-D-Influent-24-140721	320-76388-4	Other liquid	N	07/14/2021	20:00	FS
SEEP-A-INFLUENT-24-072321	320-77003-1	Other liquid	N	07/23/2021	19:00	FS

SEEP-A-EFFLUENT-24-072321	320-77003-2	Other liquid	N	07/23/2021	19:00	FS
SEEP-B-Influent-282-310721	320-77239-1	Other liquid	N	07/31/2021	02:00	FS
SEEP-C-Influent-336-310721	320-77239-2	Other liquid	N	07/31/2021	02:00	FS
SEEP-D-Influent-330-310721	320-77239-3	Other liquid	N	07/31/2021	02:00	FS
SEEP-A-Influent-24-300721	320-77239-4	Other liquid	N	07/30/2021	15:00	FS
SEEP-B-Effluent-336-310721	320-77242-1	Other liquid	N	07/31/2021	02:00	FS
SEEP-C-Effluent-336-310721	320-77242-2	Other liquid	N	07/31/2021	02:00	FS
SEEP-D-Effluent-336-310721	320-77242-3	Other liquid	N	07/31/2021	02:00	FS
SEEP-A-Effluent-24-300721	320-77242-4	Other liquid	N	07/30/2021	15:00	FS

* FS=Field Sample
DUP=Field Duplicate
FB=Field Blank
EB=Equipment Blank
TB=Trip Blank

Analytical Protocol

Lab Name	Lab Method	Parameter Category	Sampling Program
Eurofins TestAmerica, Sacramento	Cl. Spec. Table 3 Compound SOP	Per- and Polyfluorinated Alkyl Substances (PFAS)	Seep Flow Through Cell Sampling 2021

ADQM Data Review Checklist

Item	Description	Yes	No*	DVM Narrative Report	Laboratory Report	Exception Report (ER) #
A	Did samples meet laboratory acceptability requirements upon receipt (i.e., intact, within temperature, properly preserved, and no headspace where applicable)?	X				
B	Were samples received by the laboratory in agreement with the associated chain of custody?	X				
C	Was the chain of custody properly completed by the laboratory and/or field team?	X				
D	Were samples prepped/analyzed by the laboratory within method holding times?	X				
E	Were QA/QC criteria met by the laboratory (method blanks, LCSs/LCSDs, MSs/MSDs, PDSs, SDs, duplicates/replicates, surrogates, total/dissolved differences/RPDs, sample results within calibration range)?	X				
F	Were field/equipment/trip blanks (if collected) detected at levels not requiring sample data qualification?	X				
G	Were all data usable and not R qualified?	X				
ER#	**Description:**					
Other QA/QC Items to Note:						

* See DVM Narrative Report, Lab Report, or ER # for further details as indicated.

The electronic data submitted for this project was reviewed via the Data Verification Module (DVM) process. The data is acceptable for use without qualification.

The lab reports due to a large page count are stored on a network shared drive and are available to be posted on external shared drives, or on a flash drive.

Data Verification Module (DVM)

The DVM is an internal review process used by the ADQM group to assist with the determination of data usability. The electronic data deliverables received from the laboratory are loaded into the Locus EIM™ database and processed through a series of data quality checks, which are a combination of software (Locus EIM™ database Data Verification Module (DVM)) and manual reviewer evaluations. The data is evaluated against the following data usability checks:

- Field and laboratory blank contamination
- US EPA hold time criteria
- Missing Quality Control (QC) samples
- Matrix spike (MS)/matrix spike duplicate (MSD) recoveries and the relative percent differences (RPDs) between these spikes
- Laboratory control sample (LCS)/laboratory control sample duplicate (LCSD) recoveries and the RPD between these spikes
- Surrogate spike recoveries for organic analyses
- Difference/RPD between field duplicate sample pairs
- RPD between laboratory replicates for inorganic analyses
- Difference/percent difference between total and dissolved sample pairs

There are two qualifier fields in EIM:

Lab Qualifier is the qualifier assigned by the lab and may not reflect the usability of the data. This qualifier may have many different meanings and can vary between labs and over time within the same lab. Please refer to the laboratory report for a description of the lab qualifiers. As they are lab descriptors they are not to be used when evaluating the data.

Validation Qualifier is the 3rd party formal validation qualifier if this was performed. Otherwise this field contains the qualifier resulting from the ADQM DVM review process. This qualifier assesses the usability of the data and may not equal the lab qualifier. The DVM applies the following data evaluation qualifiers to analysis results, as warranted:

Qualifier	Definition
B	Not detected substantially above the level reported in the laboratory or field blanks.
R	Unusable result. Analyte may or may not be present in the sample.
J	Analyte present. Reported value may not be accurate or precise.
UJ	Not detected. Reporting limit may not be accurate or precise.

The **Validation Status Code** field is set to “DVM” if the ADQM DVM process has been performed. If the DVM has not been run, the field will be blank.

If the DVM has been run (**Validation Status Code** equals “DVM”), use the **Validation Qualifier.**

If the data has been validated by a third party, the field **“Validated By”** will be set to the validator (e.g., ESI for Environmental Standards, Inc.).

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DVM Narrative Report

Site: Fayetteville **Sampling Program:** Seep Flow Through Cell Sampling 2021 (select lots) **Validation Options:** LABSTATS

The electronic data submitted for this project was reviewed via the DVM process. The data is acceptable for use without qualification.