



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

INTERIM SEEP REMEDIATION SEEP B EFFECTIVENESS DEMONSTRATION REPORT Chemours Fayetteville Works

Prepared for

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Prepared by

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Geosyntec Project Number TR0795A

November 3, 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
NC DPS	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-methoxyacetic acid
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 B 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 B 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-methoxyacetic acid (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 B on June 8, 2021, and startup commenced thereafter. Therefore, this Effectiveness Report details the performance record of August and September 2021 (the second and third full calendar months of operation, respectively).

Note that the fourth Operations and Maintenance (O&M) Report was submitted on September 30, 2021 (O&M Report #4, Geosyntec, 2021) for the reporting period of July 1, 2021 through August 31, 2021; therefore, some overlap in data presentation (August 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 B CONSTRUCTION

This section describes the regulatory permits that were obtained for the Seep B 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, was provided in Appendix A of the Seep A Effectiveness Report (Geosyntec 2021). 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 was included in the Seep D Effectiveness Report submitted on October 21, 2021.
- January 14, 2021: Stormwater discharge (i.e., land disturbance) permit from Bladen County, North Carolina Department of Environmental Quality (NCDEQ), project ID BLADE-2021-008 (for Seep B), provided herein as Appendix A.

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 March 12, 2021.

The in-stream earthwork was completed on March 22, with sheet pile installation beginning immediately after. As shown in the civil as-built record drawings (Appendix B), two rows of sheet pile were installed (the upgradient and downgradient faces the FTC). Concrete formwork began on April 12, with the slab and walls poured on May 4. Mechanical work (piping and valving) began on May 12. The mechanical as-built record drawings are provided in Appendix C. Hydrostatic testing to evaluate the water tightness of each FTC chamber was performed May 26. The FTC was put into service on June 8. The elevation of the Cape Fear River relative to key elevation of the FTC for the August – September reporting period is shown in Figure 1.

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

- Regrading of seep channel; and
- Installation of riprap; and
- Surface restoration.

3 SEEP B 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 August – September 2021, is provided in Appendix D.

Figure 2 shows the measurable discharge flowrates through the FTC over the reporting period. Effluent transducer data was inadvertently overwritten during retrieval on the August 30 O&M field event. Data was lost for August 27 through 30, 2021 and flowrates were imputed for the effluent data gap duration. The imputed flowrates were calculated as the median of measured flowrates three days before and after the data gap.

The median of the measured flowrate through the FTC during the reporting period was 79 gallons per minute (gpm), as compared to the pre-design median value of 149 gpm (from flumes prior to construction). The calculated 95th percentile value of treated flow over the reporting period was 184 gpm, as compared to the 95th percentile value of pre-design dry weather base flow (the design basis treatment flow) of 226 gpm. The lower values of the calculated flows, as compared to the design basis flows, is attributed to low rainfall during a hot summer reporting period of high evapotranspiration rates. In August, approximately 2.73 inches of rain fell, which is approximately half the historical average of 5.24 inches. In September, approximately 2.68 inches of rain fell, which is approximately two-thirds the historical average of 4.30 inches. Overall, the total rainfall in the reporting period (5.41 inches) was approximately half the historical average (9.53 inches).

As noted in the next subsection, there was very limited bypass in the reporting period, primarily one instance in early August after a 1.1-inch rainstorm. Hence, although the calculated statistical values for this Seep B reporting period are less than the pre-design set, they are the result of nearly complete capture of both dry and wet weather flow. It is also noted that since startup, the 95th percentile value of treated flow is 244 gpm, which is higher than the 95th percentile value of pre-design dry weather base flow, and 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 8,000,000 gallons of water was treated by the FTC from August 1 through September 30, 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 August - September 2021, is provided in Appendix E. Influent transducer data was inadvertently overwritten during retrieval on the August 30 O&M field event. Influent data was lost for August 27 through 30, 2021.

The resulting figure for influent water level elevation, and occurrences of bypass flow, is provided in Figure 3. As shown, bypass flow was only observed in August, primarily due to a 1.1-inch rain event around August 6. The other rain events were captured by the system, including a 0.6-inch rain event around September 8, and a 1.6-inch rain event around September 21.

Overall, three separate rain events with at least 0.5 inches of rainfall occurred in August and September. Figure 4 presents the relationship observed between precipitation and turbidity. Maintenance events were conducted following each rain event to either return the system to a condition of no bypass or maintain the condition of no bypass. A total of nine 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

Six 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 six composite performance monitoring samples are provided in Table 2 and described below.

Total Table 3+ PFAS compounds (17 compounds) in the influent ranged from 200,000 to 440,000 nanograms per liter (ng/L). The average and median total Table 3+ (17 compounds) concentrations were approximately 280,000 and 220,000 ng/L, respectively. Within each influent sample, the constituents of highest concentration were PFMOAA, PMPA, and HFPO-DA.

Total Table 3+ PFAS compounds (17 compounds) in the effluent ranged from non-detect in all samples, to 502 ng/L, representing a minimum removal efficiency of 99.88% in the six 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 >99.99% in August and 99.91% in September. 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 B FTC's effectiveness at capturing total baseflow and removing PFAS for the second and third full calendar months of operation (August and September 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 since startup was 244 gpm as compared to the pre-construction estimated 95th percentile of dry weather flow value of 226 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 99.88% and on average was 99.97%. The System Effectiveness flow-weighted calculation yielded a similar result (>99.99% in August and 99.91% in September). The system prevented an estimated 23.27 lbs of PFAS from being discharged to the Cape Fear River during the reporting period.

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.
- Geosyntec, 2021. Interim Seep Remediation Seep A Effectiveness Demonstration Report. Chemours Fayetteville Works. 26 August 2021.
- Geosyntec, 2021. Interim Seep Remediation System Plan Operations and Maintenance Report #4. Chemours Fayetteville Works. 30 September 2021.
- Geosyntec, 2021. Interim Seep Remediation Seep D Effectiveness Demonstration Report. Chemours Fayetteville Works. 21 October 2021.

TABLES

Table 1
Sampling Summary - Seep B
(August - September 2021)
 Chemours Fayetteville Works
 Fayetteville, North Carolina

Performance Monitoring Composite Samples

Sample ID	Composite Period	Sample Date
SEEP-B-INFLUENT-336-081721 SEEP-B-EFFLUENT-336-081721	August 3 - August 17, 2021	August 17, 2021
SEEP-B-INFLUENT-24-082021 SEEP-B-EFFLUENT-24-082021	August 19 - August 20, 2021	August 20, 2021
SEEP-B-INFLUENT-24-082821 SEEP-B-EFFLUENT-24-082821	August 27 - August 28, 2021	August 28, 2021
SEEP-B-INFLUENT-210-090921 SEEP-B-EFFLUENT-210-090921	September 1 - September 9, 2021	September 9, 2021
SEEP-B-INFLUENT-330-092321 SEEP-B-EFFLUENT-330-092321	September 9 - September 23, 2021	September 23, 2021
SEEP-B-INFLUENT-168-100121 SEEP-B-EFFLUENT-168-100121	September 24 - October 1, 2021	October 1, 2021

Wet Weather Composite Sample

Sample ID	Sample Date	Sample Time	Cumulative Rainfall (inches)
SEEP-B-INFLUENT-RAIN-24-081821 SEEP-B-EFFLUENT-RAIN-24-081821	August 18, 2021	19:00	0.43
SEEP-B-INFLUENT-RAIN-24-092221 SEEP-B-EFFLUENT-RAIN-24-092221	September 22, 2021	10:05	1.69

Notes

- 1 The Seep A autosamplers malfunctioned from August 17-19, interrupting the collection of aliquots early in the 14-day composite cycle. O&M staff re-programmed the Seep B samplers to be consistent with Seep A and collect two, 24-hour composites on August 20 and 28 to complete the monthly sampling program.
- 2 A GAC changeout was completed on September 9, interrupting the two-week composite sample that began on September 1. A second composite sample was collected from September 9 through 23, following the GAC changeout. A third composite sample for the month of September was collected from September 24 through October 1 to cover the remainder of the month.
- 3 Sample Identification Label Key: "Seep - [A, B, C, or D] - [Sample Location Inside FTC] - [# of Aliquots in Composite Sample] - [MMDDYY]"
- 4 Precipitation data obtained from the USGS gauge #02105500 at the William O. Huske Lock and Dam

Table 2
Summary of Performance Monitoring Analytical Results - Seep B
(August - September 2021)
 Chemours Fayetteville Works
 Fayetteville, NC

	SEEP-B-INFLUENT- 336-081721 Sample Date: 17-Aug-21	SEEP-B-EFFLUENT- 336-081721 Sample Date: 17-Aug-21	Percent Removal	SEEP-B-INFLUENT- 24-082021 Sample Date: 20-Aug-21	SEEP-B-EFFLUENT- 24-082021 Sample Date: 20-Aug-21	Percent Removal	SEEP-B-INFLUENT- 24-082821 Sample Date: 28-Aug-21	SEEP-B-EFFLUENT- 24-082821 Sample Date: 28-Aug-21	Percent Removal
<i>Table 3 + SOP (ng/L)</i>									
Hfpo Dimer Acid	34,000	<2.0	100.0%	41,000	<2.0	100.0%	32,000	<2.0	100.0%
PFMOAA	71,000	<2.0	100.0%	79,000	<2.0	100.0%	70,000	<2.0	100.0%
PFO2HxA	24,000	<2.0	100.0%	26,000	<2.0	100.0%	28,000	<2.0	100.0%
PFO3OA	6,300	<2.0	100.0%	6,500	<2.0	100.0%	7,200	<2.0	100.0%
PFO4DA	1,400	<2.0	100.0%	2,200	<2.0	100.0%	1,500	<2.0	100.0%
PFO5DA	340	<2.0	100.0%	660	<2.0	100.0%	300	<2.0	100.0%
PMPA	42,000	<10	100.0%	49,000	<10	100.0%	32,000	<10	100.0%
PEPA	18,000	<20	100.0%	20,000	<20	100.0%	17,000	<20	100.0%
PS Acid	2,800	<2.0	100.0%	3,100	<2.0	100.0%	1,300	<2.0	100.0%
Hydro-PS Acid	1,100	<2.0	100.0%	1,500	<2.0	100.0%	1,000	<2.0	100.0%
R-PSDA	4,800 J	<2.0	100.0%	4,000 J	<2.0	100.0%	3,600 J	<2.0	100.0%
Hydrolyzed PSDA	32,000	<2.0	100.0%	29,000 J	<2.0	100.0%	23,000 J	<2.0	100.0%
R-PSDCA	68	<2.0	100.0%	91	<2.0	100.0%	63	<2.0	100.0%
NVHOS, Acid Form	2,400	<2.0	100.0%	2,600	<2.0	100.0%	2,100	<2.0	100.0%
EVE Acid	3400	<2.0	100.0%	3700	<2.0	100.0%	860	<2.0	100.0%
Hydro-EVE Acid	2,200	<2.0	100.0%	3,000	<2.0	100.0%	2,000	<2.0	100.0%
R-EVE	2,800	<2.0	100.0%	3,200 J	<2.0	100.0%	2,200 J	<2.0	100.0%
PES	<6.7	<2.0	100.0%	<6.7	<2.0	100.0%	<6.7	<2.0	100.0%
PFECA B	<27	<2.0	100.0%	<27	<2.0	100.0%	<27	<2.0	100.0%
PFECA-G	<48	<2.0	100.0%	<48	<2.0	100.0%	<48	<2.0	100.0%
Total Table 3+ (17 compounds)^{1,2}	210,000	ND	100.0%	240,000	ND	100.0%	200,000	ND	100.0%
Total Table 3+ (20 compounds)¹	250,000	ND	100.0%	270,000	ND	100.0%	220,000	ND	100.0%

Notes

1 - Total Table 3+ was calculated including J qualified data but not non-detect data. The total Table 3+ sum is rounded to two significant figures.

2 - Total Table 3+ (17 Compounds) does not include R-PSDA, Hydrolyzed PSDA and R-EVE.

Bold - Analyte detected above associated reporting limit.

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

< - Analyte not detected above associated reporting limit.

ND - No Table 3+ compounds were detected above their associated reporting limits.

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

Table 2
Summary of Performance Monitoring Analytical Results - Seep B
(August - September 2021)
 Chemours Fayetteville Works
 Fayetteville, NC

	SEEP-B-INFLUENT- 210-090921 Sample Date: 09-Sept-21	SEEP-B-EFFLUENT- 210-090921 Sample Date: 09-Sept-21	Percent Removal	SEEP-B-INFLUENT- 330-092321 Sample Date: 23-Sept-21	SEEP-B-EFFLUENT- 330-092321 Sample Date: 23-Sept-21	Percent Removal	SEEP-B-INFLUENT- 168-100121 Sample Date: 01-Oct-21	SEEP-B-EFFLUENT- 168-100121 Sample Date: 01-Oct-21	Percent Removal
<i>Table 3 + SOP (ng/L)</i>									
Hfpo Dimer Acid	21,000	2.6	> 99.9%	50,000	30	99.9%	66,000	17	> 99.9%
PFMOAA	92,000	2.3	> 99.9%	180,000	260	99.9%	170,000	100	99.9%
PFO2HxA	34,000	<2.0	100.0%	68,000	39	99.9%	66,000	14	> 99.9%
PFO3OA	8,600	<2.0	100.0%	16,000	5.3	> 99.9%	16,000	2	> 99.9%
PFO4DA	1,400	<2.0	100.0%	2,700	<2.0	100.0%	2,900	<2.0	100.0%
PFO5DA	150	<2.0	100.0%	340	<2.0	100.0%	480	<2.0	100.0%
PMPA	25,000	<10	100.0%	52,000	130	99.8%	71,000	61	99.9%
PEPA	9,900	<20	100.0%	24,000	35	99.9%	34,000	<20	100.0%
PS Acid	560	<2.0	100.0%	1,800	<2.0	100.0%	2,200	<2.0	100.0%
Hydro-PS Acid	620	<2.0	100.0%	1,500	<2.0	100.0%	1,900	<2.0	100.0%
R-PSDA	3,900 J	<2.0	100.0%	5,100 J	4.3 J	99.9%	7,100 J	<2.0	100.0%
Hydrolyzed PSDA	32,000 J	<2.0	100.0%	42,000 J	23 J	99.9%	54,000 J	6.2 J	> 99.9%
R-PSDCA	40	<2.0	100.0%	86	<2.0	100.0%	110	<2.0	100.0%
NVHOS, Acid Form	1,900	<2.0	100.0%	3,900	2.7	99.9%	4,500	<2.0	100.0%
EVE Acid	340	<2.0	100.0%	1,500	<2.0	100.0%	1,900	<2.0	100.0%
Hydro-EVE Acid	1,300	<2.0	100.0%	3,000	<2.0	100.0%	3,800	<2.0	100.0%
R-EVE	1,900 J	<2.0	100.0%	3,100 J	3.7 J	99.9%	4,400 J	<2.0	100.0%
PES	<6.7	<2.0	100.0%	<6.7	<2.0	100.0%	<6.7	<2.0	100.0%
PFECA B	<27	<2.0	100.0%	<27	<2.0	100.0%	<27	<2.0	100.0%
PFECA-G	<48	<2.0	100.0%	<48	<2.0	100.0%	<48	<2.0	100.0%
Total Table 3+ (17 compounds)^{1,2}	200,000	4.9	> 99.9%	400,000	500	99.9%	440,000	190	100.0%
Total Table 3+ (20 compounds)¹	230,000	4.9	> 99.9%	460,000	530	99.9%	510,000	200	100.0%

Notes

1 - Total Table 3+ was calculated including J qualified data but not non-detect data. The total Table 3+ sum is rounded to two significant figures.

2 - Total Table 3+ (17 Compounds) does not include R-PSDA, Hydrolyzed PSDA and R-EVE.

Bold - Analyte detected above associated reporting limit.

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

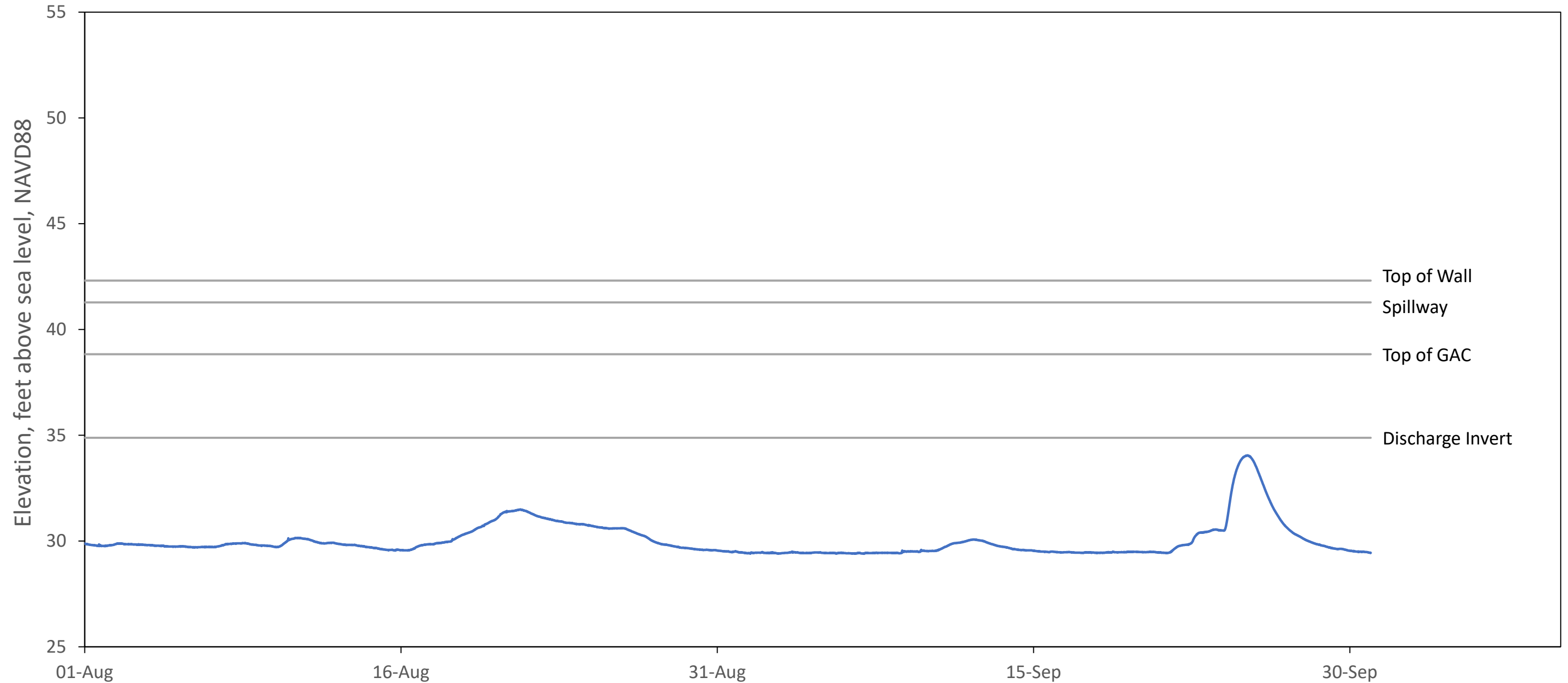
< - Analyte not detected above associated reporting limit.

ND - No Table 3+ compounds were detected above their associated reporting limits.

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

FIGURES

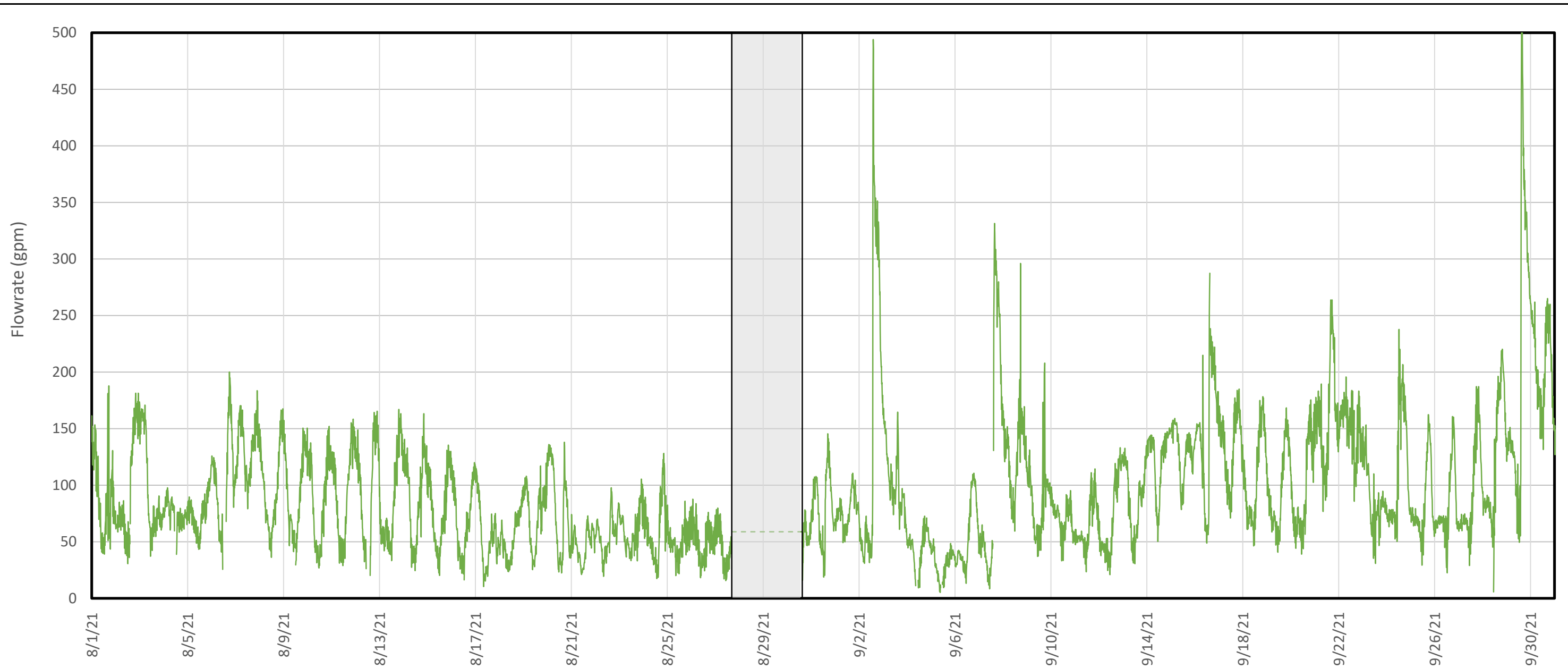
River Elevation During Seep B Flow Through Cell Operation (8/01/2021 through 09/30/2021)



Legend
— River

Notes:
 As-built survey information from RMA Surveying October 2020 and Donaldson Garrett & Associates August 2021.
 River elevation from USGS W.O. Huske Lock and Dam site 02105500, converted to NAVD88.
 GAC = Granular Activated Carbon

River Level & FTC As-Built Elevations - Seep B		
Chemours Fayetteville Works Fayetteville, North Carolina		
Geosyntec <small>consultants</small>	Geosyntec Consultants of NC, P.C. NC License No.: C. 3500 and C. 295	Figure
Raleigh, NC	November 2021	1



Legend

- Measured Discharge Flowrate
- - - Imputed Discharge Flowrate
- Transducer Data Gap

Flowrate Statistics (gpm)

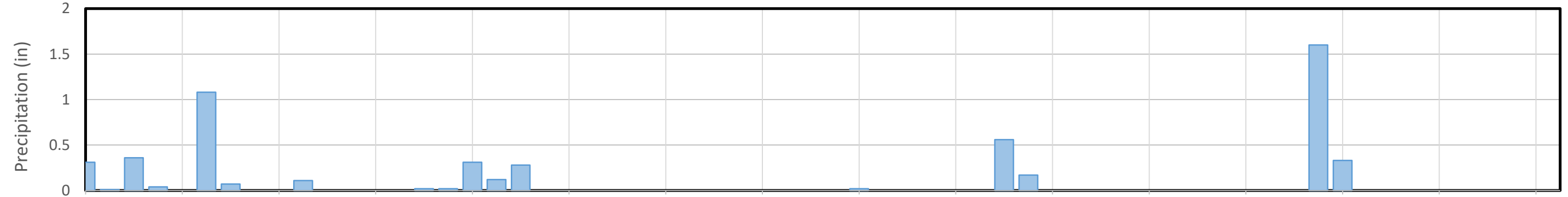
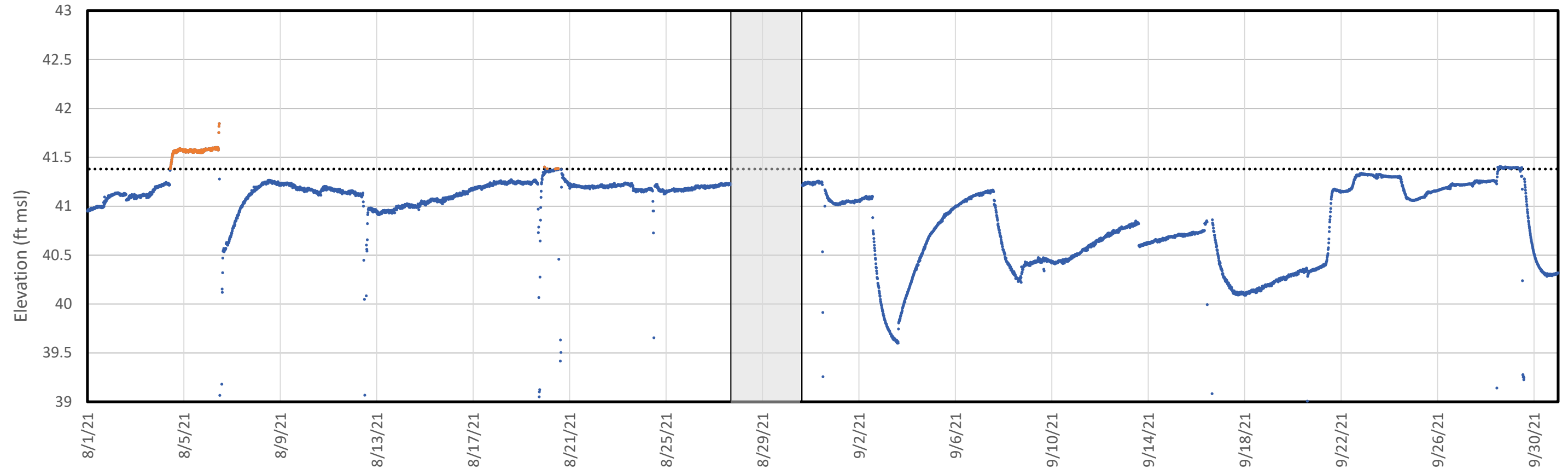
	(08/01 - 09/30)	Since Startup
Median	79	98
95 th percentile	184	244
Max	535	1,153

Notes:

gpm - gallons per minute

Figure 2 depicts the measured discharge flowrate (solid green) of water processed through the filter beds calculated using the Effluent Stilling Basin transducer data. Transducer data from August 27, 16:34 through August 30, 15:08 was not retrieved. Where transducer data was missing (grey shading) but flow through the System was observed (i.e., non-flooding conditions), flowrate was extrapolated (dashed green). The imputed flowrate was calculated as the median of measured flowrates from 3 days before and after the data gap. Section 3 describes the gaps in transducer data record.

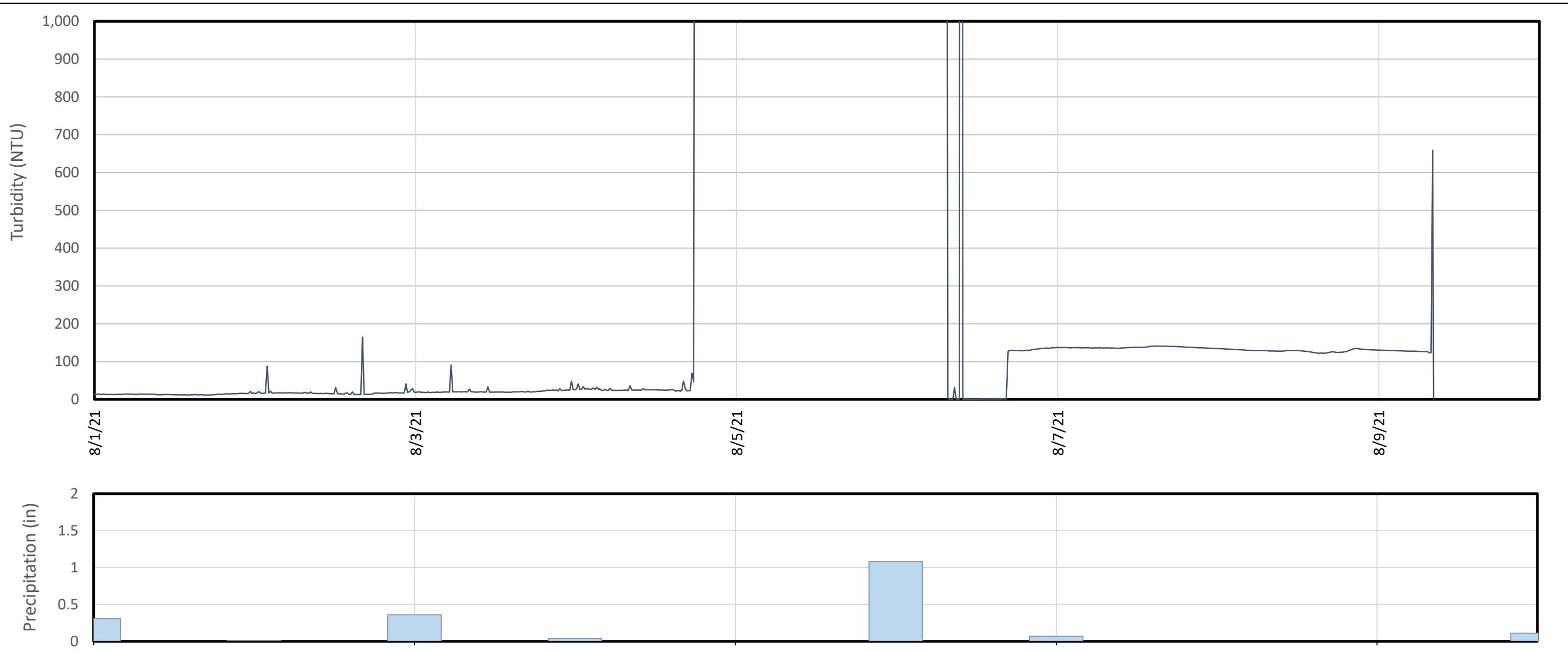
Measured Discharge Flowrate (August - September 2021) - Seep B	
Chemours Fayetteville Works Fayetteville, North Carolina	
Geosyntec consultants	Figure 2
Raleigh, NC	November 2021



- Legend
- Influent Chamber/Impoundment Water Elevation
 - Impoundment Water Elevation Above Bypass Spillway
 - ◆◆◆ Bypass Spillway Elevation
 - Precipitation (daily totals)
 - Transducer Data Gap

Notes:
 Figure 3 shows 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.
 Transducer data from August 27, 16:34 to August 30, 15:08 were not retrieved. Section 3 describes the gaps in transducer data record.

Influent Water Elevation and Bypass Flow (Aug - Sept 2021) - Seep B		Figure 3
Chemours Fayetteville Works Fayetteville, North Carolina		
Geosyntec consultants	Geosyntec Consultants of NC, P.C. NC License No.: C 3500 and C 295	3
Raleigh, NC	November 2021	



Legend
 — Turbidity
 ■ Precipitation (daily totals)

Notes
 NTU - Nephelometric Turbidity Unit
 Turbidity data logged with a AquaTROLL Turbidity 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 1,000 NTU.

Seep B Turbidity Logging and Precipitation (August 2021)		Figure 4
Chemours Fayetteville Works Fayetteville, North Carolina		
Geosyntec consultants	<small>Geosyntec Consultants of NC, P.C. NC License No.: C 3500 and C 295</small>	
Raleigh, NC	November 2021	

APPENDIX A
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. NCG01-2021-0166
Certificate of Coverage No. NCC210166

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 B 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-2021-008

This Certificate of Coverage shall become effective 1/12/2021.

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 B
Civil As-Built Record Drawings

The Chemours Company

Fayetteville, North Carolina

Seep B Interim Remediation System

As-Built

November 9, 2020



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



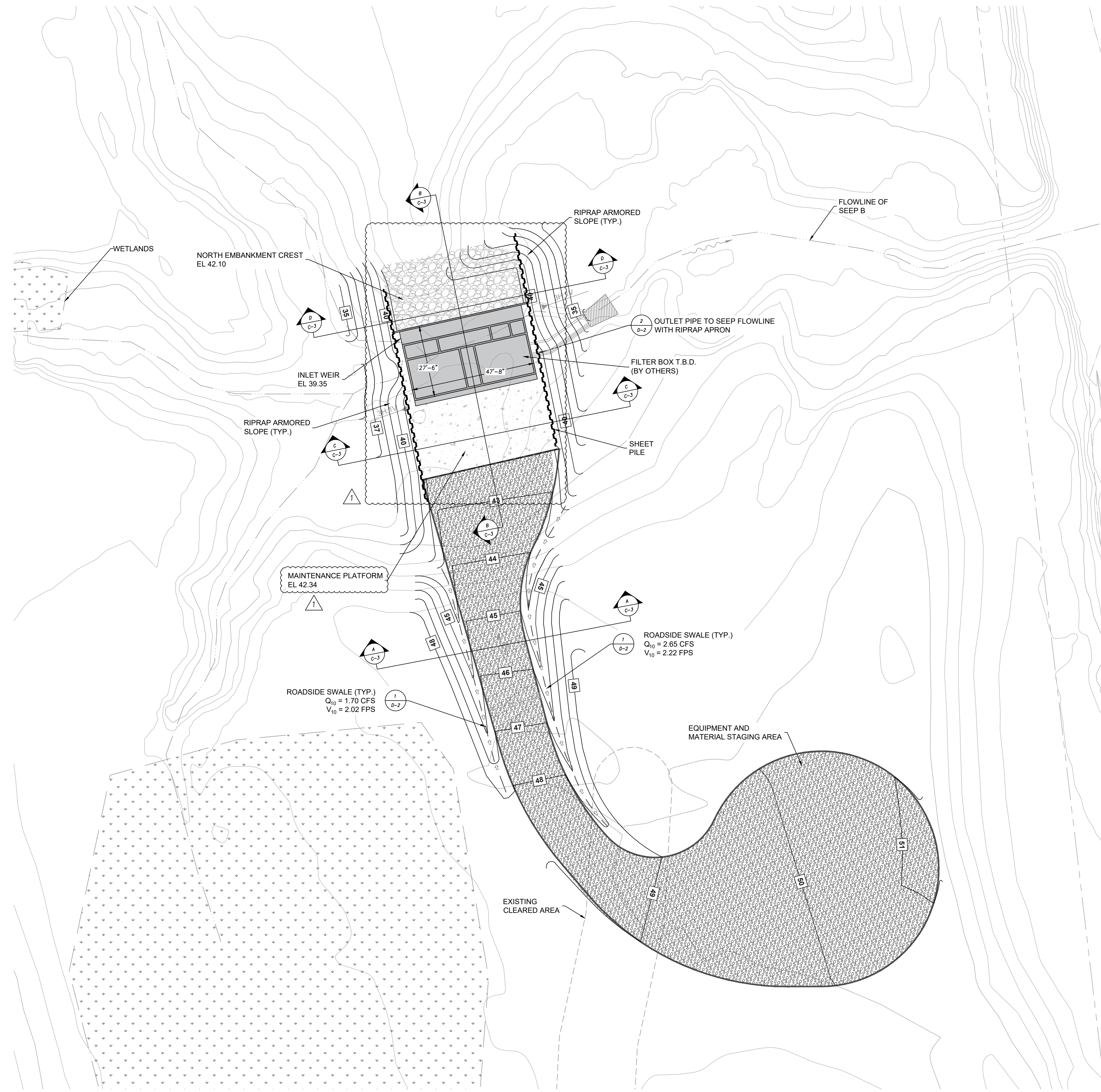
COVER SHEET
 Chemours Interim Seep B Remediation Project
 Fayetteville, North Carolina

DESIGNED BY: TJD	APPROVED BY: DAH
DRAWN BY: NSS	REVIEWED BY: DKK
SCALE: AS SHOWN	
DATE: November 9, 2020	

Revisions		Date	By:
No.	Description	8/30/2021	NSS
1	As-Built		
2			
3			
4			
5			
6			

DRAWING:
G-1

PROJECT NUMBER:
43-20631B



LEGEND:
 DRAINAGE SWALE



CIVIL SITE PLAN

Chemours Interim Seep B Remediation Project
 Fayetteville, North Carolina

DRAWN BY: NSS	REVIEWED BY: DKK
DESIGNED BY: TJD	APPROVED BY: DAH
SCALE: AS SHOWN	
DATE: November 9, 2020	

No.	Date	Revisions	
		Description	As-Built
1	8/30/2021		
2			
3			
4			
5			
6			

DRAWING:
C-1
 PROJECT NUMBER:
 43-20631B



LEGEND:
 DRAINAGE SWALE



ACCESS PLAN

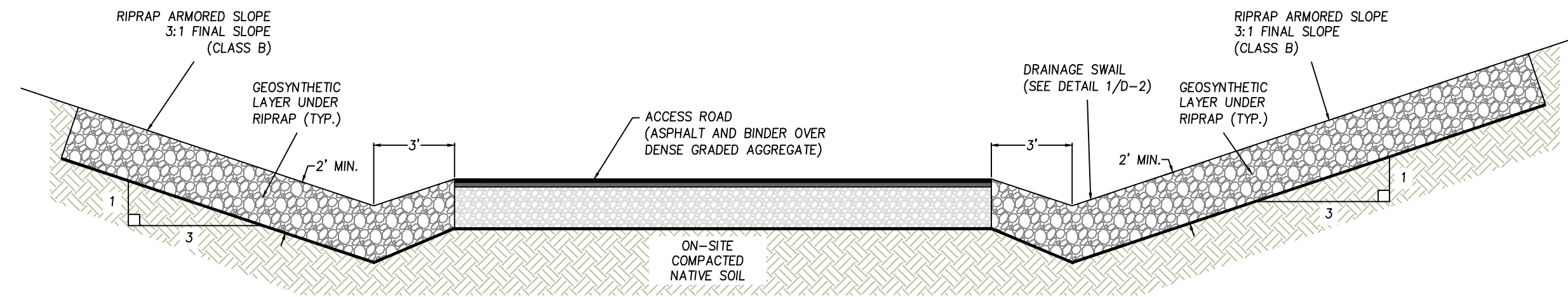
Chemours Interim Seep B Remediation Project
 Fayetteville, North Carolina

DRAWN BY: NSS	REVIEWED BY: DKK
DESIGNED BY: TJD	APPROVED BY: DAH
SCALE: AS SHOWN	
DATE: November 9, 2020	

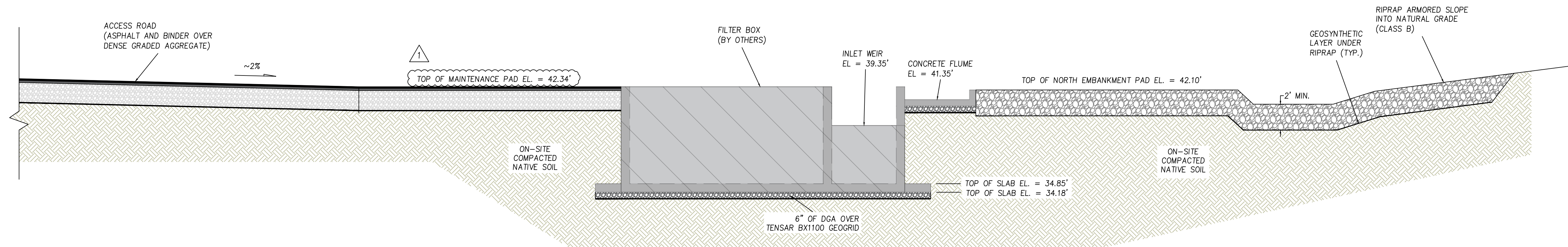
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No.	Description		
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3			
4			
5			
6			

DRAWING:
C-2
 PROJECT NUMBER:
 43-20631B

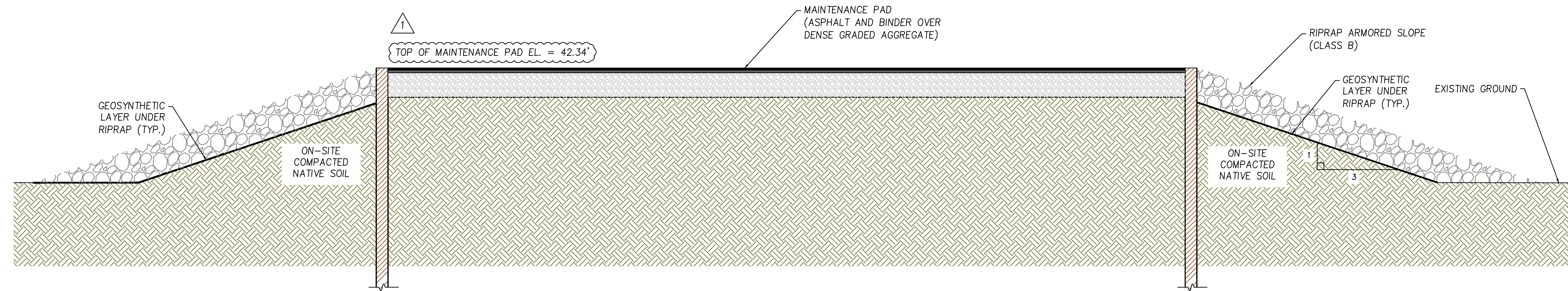
- NOTES:
1. ALL ON-SITE COMPACTED NATIVE SOILS SHALL BE COMPACTED TO 98% MAX DRY DENSITY FROM PROCTOR TESTING.
 2. ALL RIPRAP SHALL BE NCDOT CLASS B.
 3. ALL GEOGRID SHALL BE TENSAR BX1100 OR APPROVED EQUIVALENT.
 4. ALL GEOSYNTHETIC LAYERS SHALL BE NON-WOVEN WITH 5.0 OZ MINIMUM.



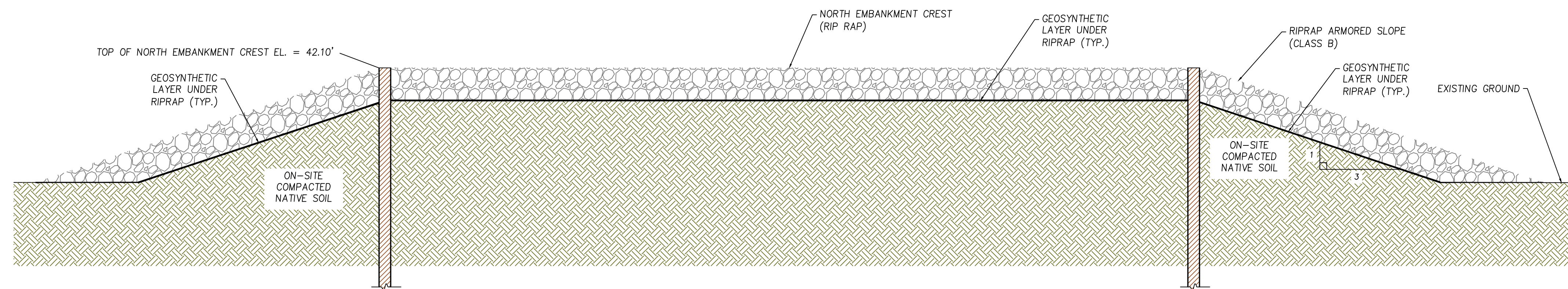
1 SECTION A-A
C-3 SCALE: NTS



2 SECTION B-B
C-3 SCALE: NTS



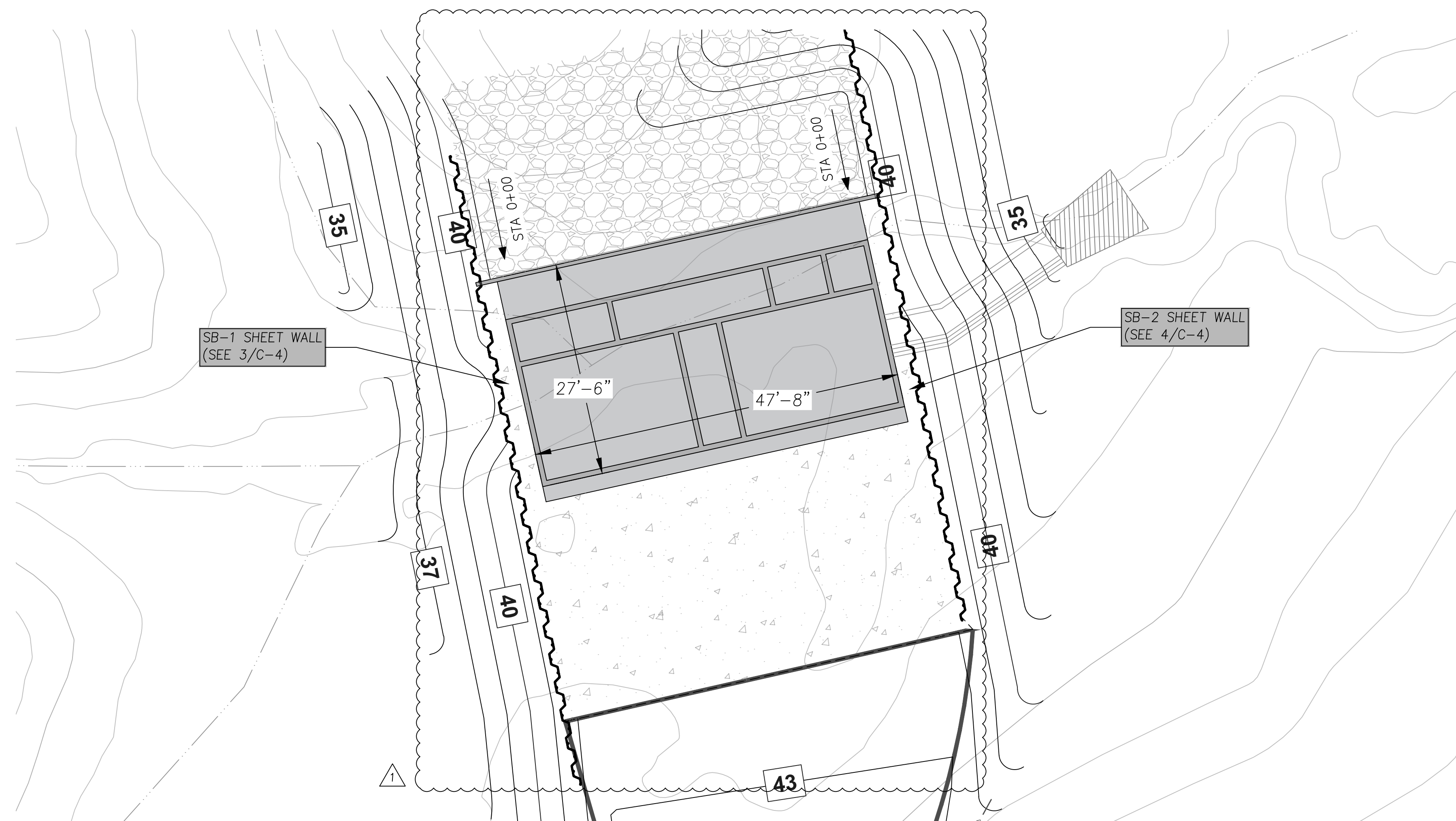
3 SECTION C-C
C-3 SCALE: NTS



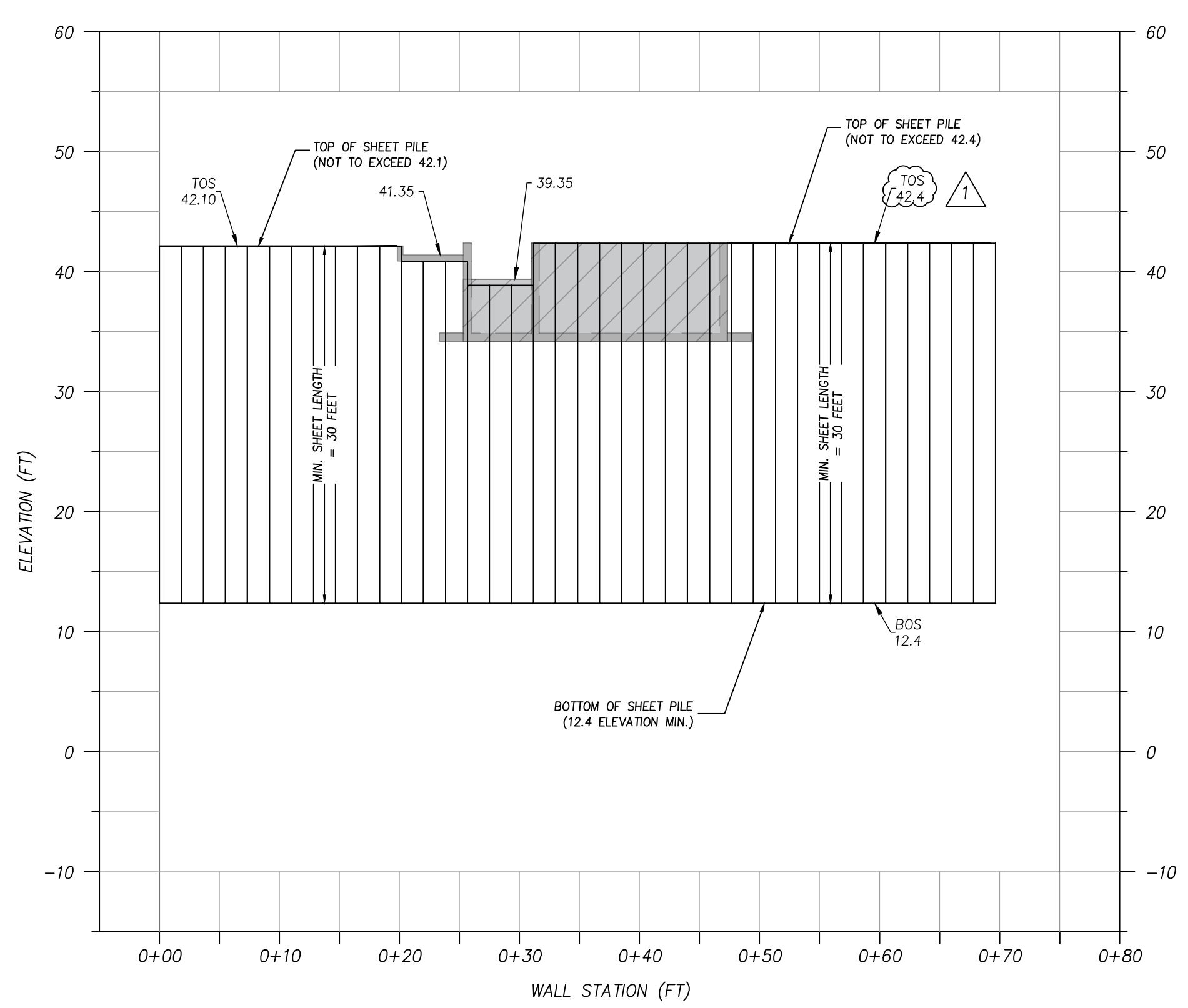
4 SECTION D-D
C-3 SCALE: NTS

DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH
SCALE: AS SHOWN	
DATE: November 9, 2020	

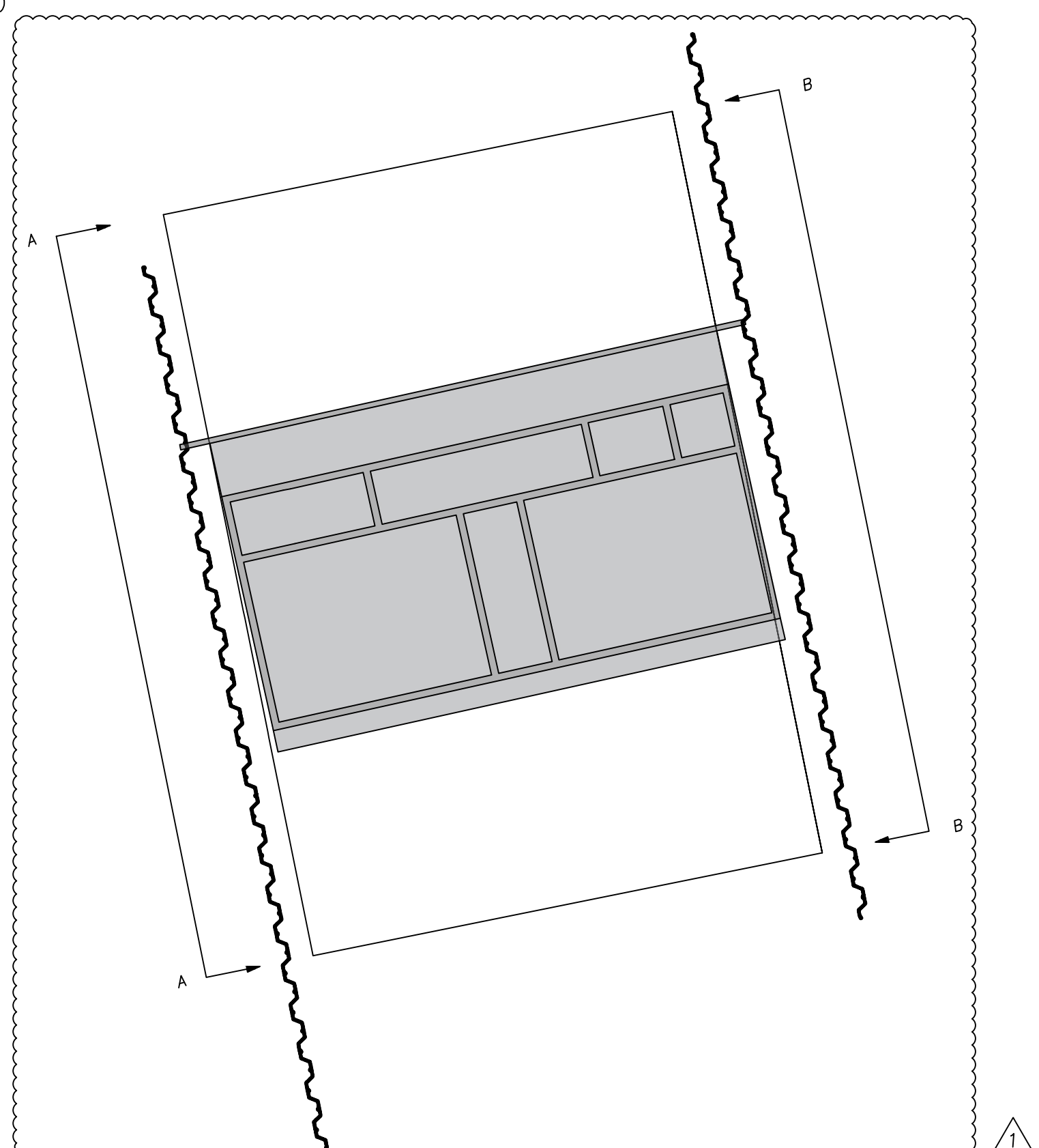
No.	Date	Description	
		By:	As-Built
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4			
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1
C-4
IMPOUNDMENT PLAN VIEW
SCALE: 1" = 10'



3
C-4
SECTION A-A, SB-1 SHEET PILE PROFILE
SCALE: 1" = 10'

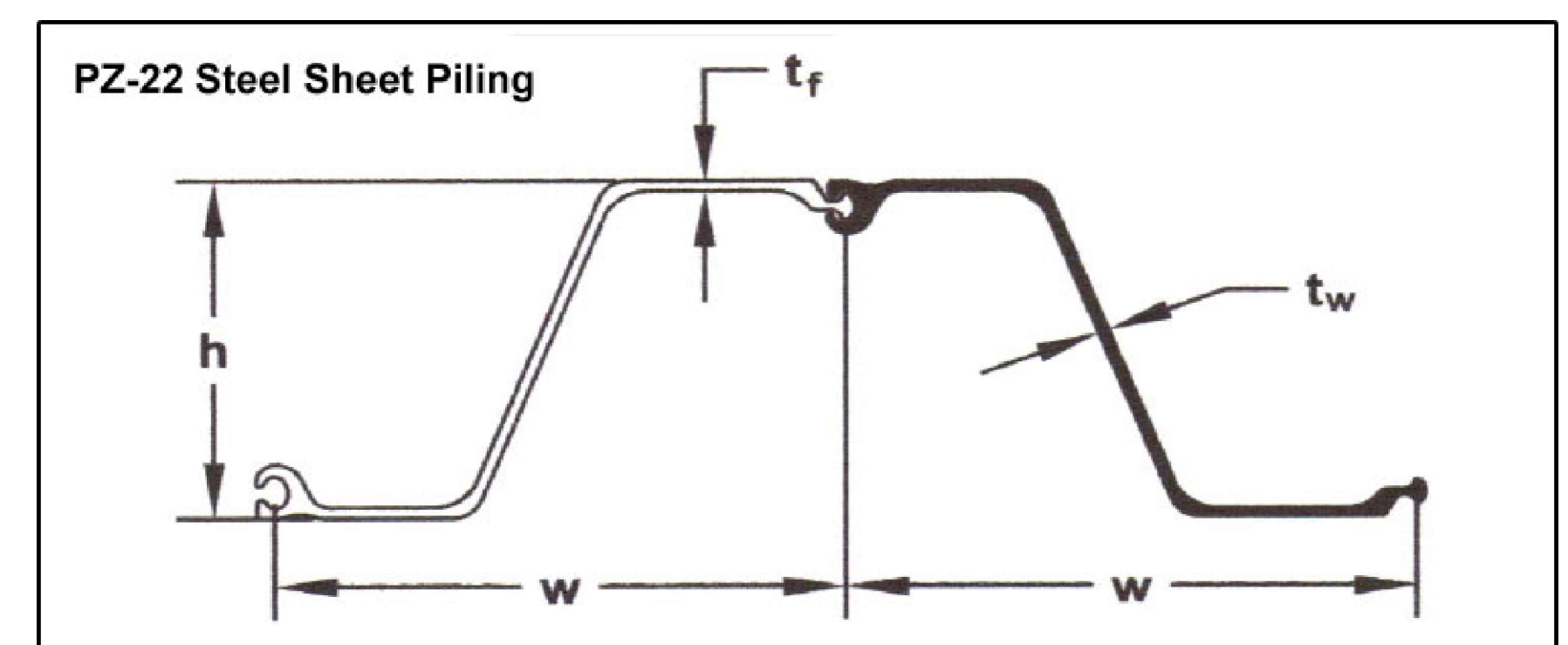


4
C-4
SECTION B-B, SB-2 SHEET PILE PROFILE
SCALE: 1" = 10'

SEEP B SHEET PILE QUANTITIES

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

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



Specification: ASTM A572 Grade 50

Section	Width	Height	Thickness	Cross Sectional Area	Weight		Section Modulus	Moment of Inertia	Coating Area Both	Coating Area
	w in (mm)	h in (mm)	tf in (mm)		Pile lb/ft (kg/m)	Wall lb/ft ² (kg/m ²)				
PZ-22	22.00 559	9.00 229	0.375 9.50	11.86 36.5	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

DESIGNED BY:	TJD	APPROVED BY:	DAH
DRAWN BY:	NSS	REVIEWED BY:	DKK
SCALE:	AS SHOWN		
DATE:	November 9, 2020		

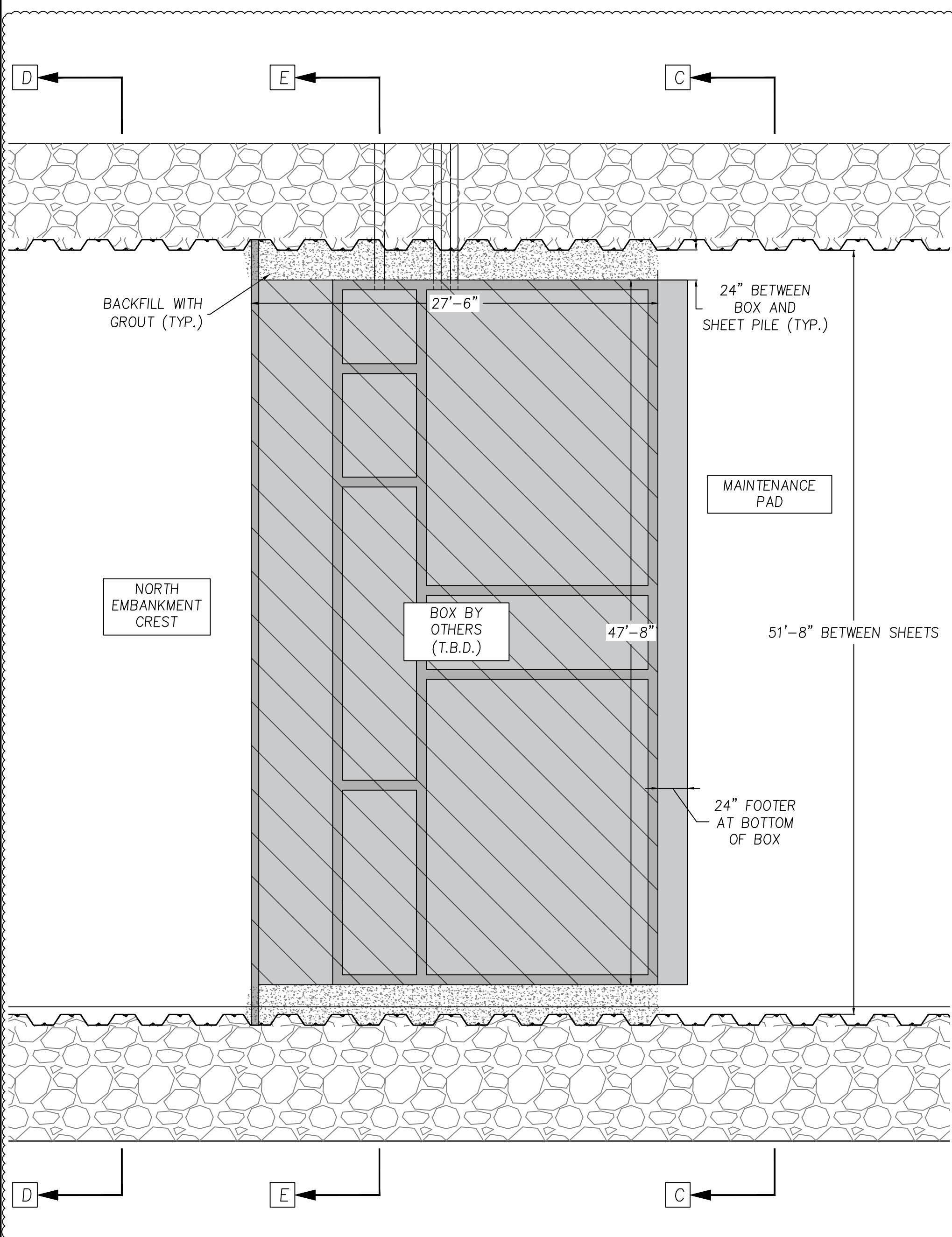
Revisions

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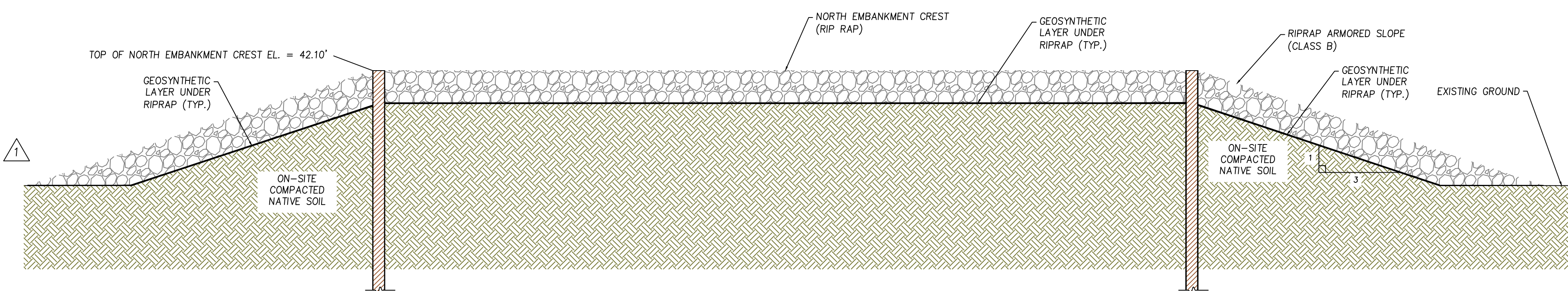
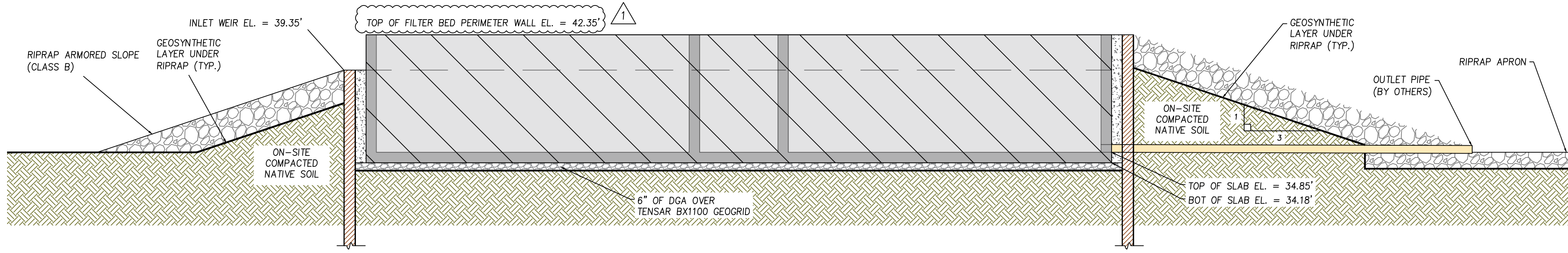
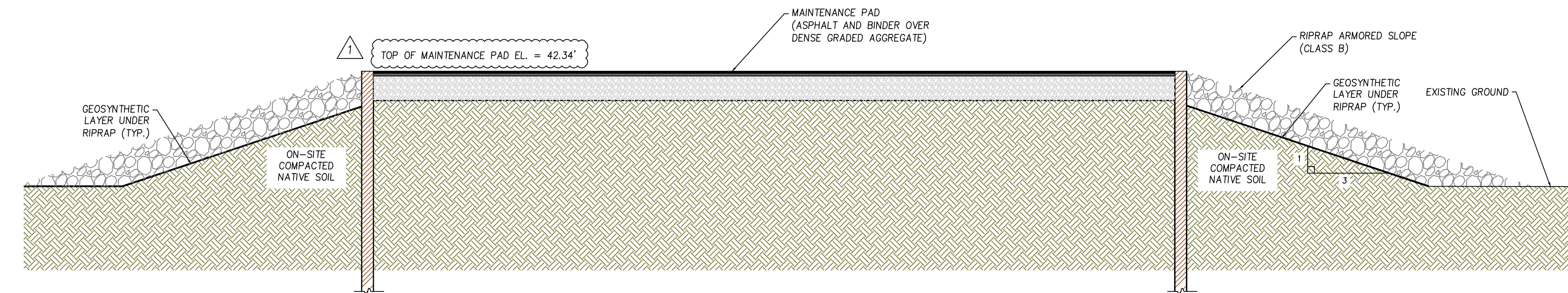
DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH
SCALE: AS SHOWN	
DATE: November 9, 2020	

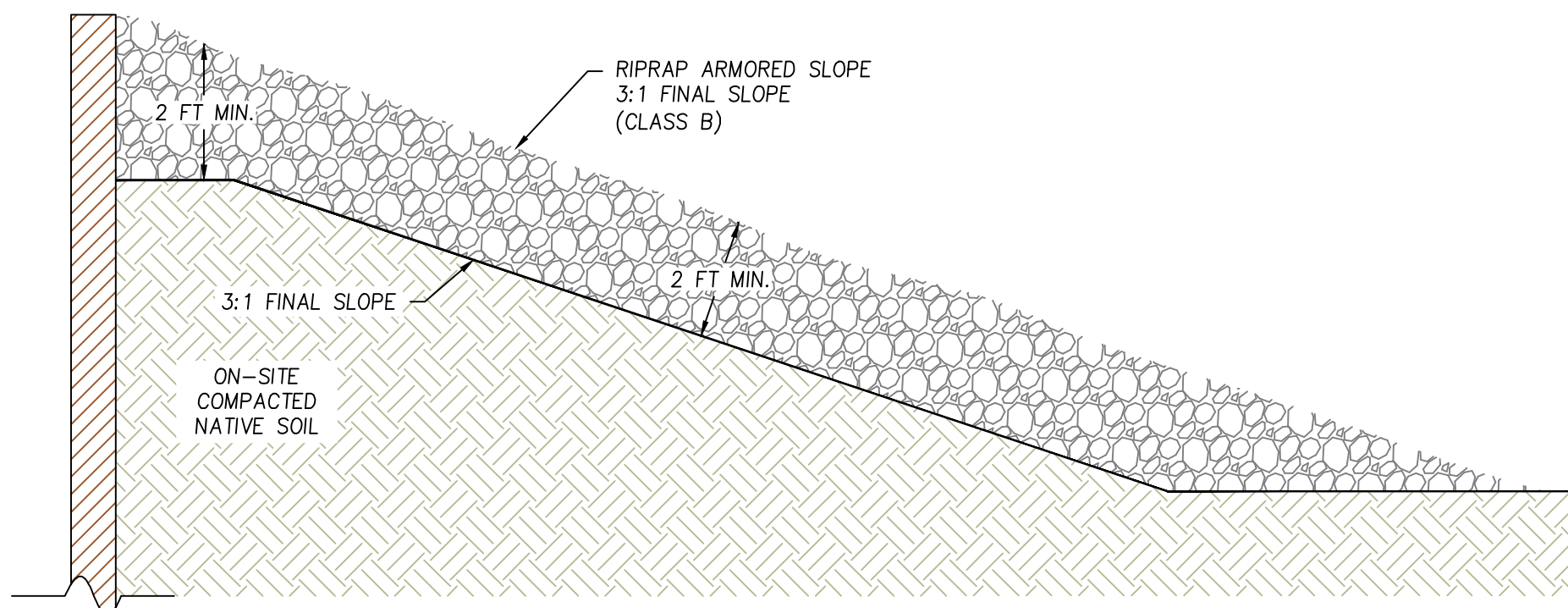
No.	Date	Revisions	
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4			
5			
6			

DRAWING: **C-5**
PROJECT NUMBER: 43-20631B

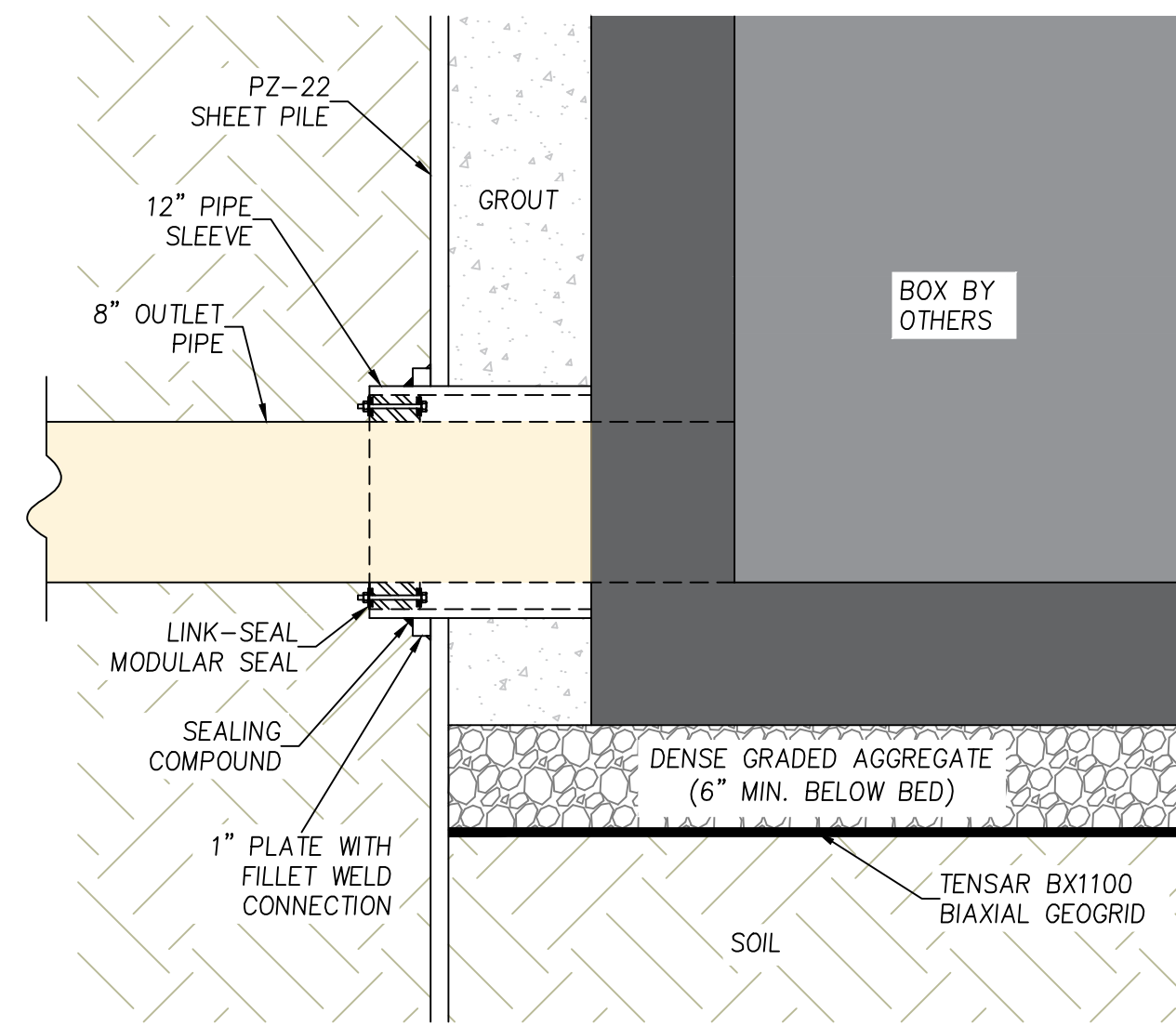


- NOTES:
- ALL ON-SITE COMPACTED NATIVE SOILS SHALL BE COMPACTED TO 98% MAX DRY DENSITY FROM PROCTOR TESTING.
 - ALL RIPRAP SHALL BE NODOT CLASS B.
 - ALL GEOGRID SHALL BE TENSAR BX1100 OR APPROVED EQUIVALENT.
 - ALL GEOSYNTHETIC LAYERS SHALL BE NON-WOVEN WITH 5.0 OZ MINIMUM.



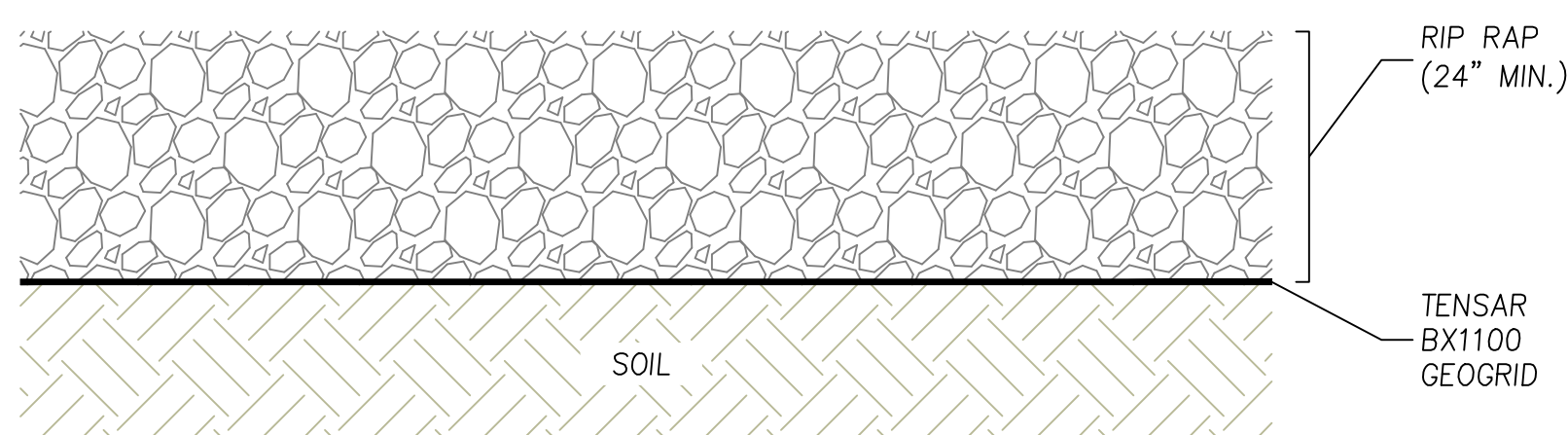


1 RIPRAP ARMORED SLOPE
SCALE: NTS



2 LINK-SEAL PIPE THROUGH WALL CONNECTION
SCALE: NTS

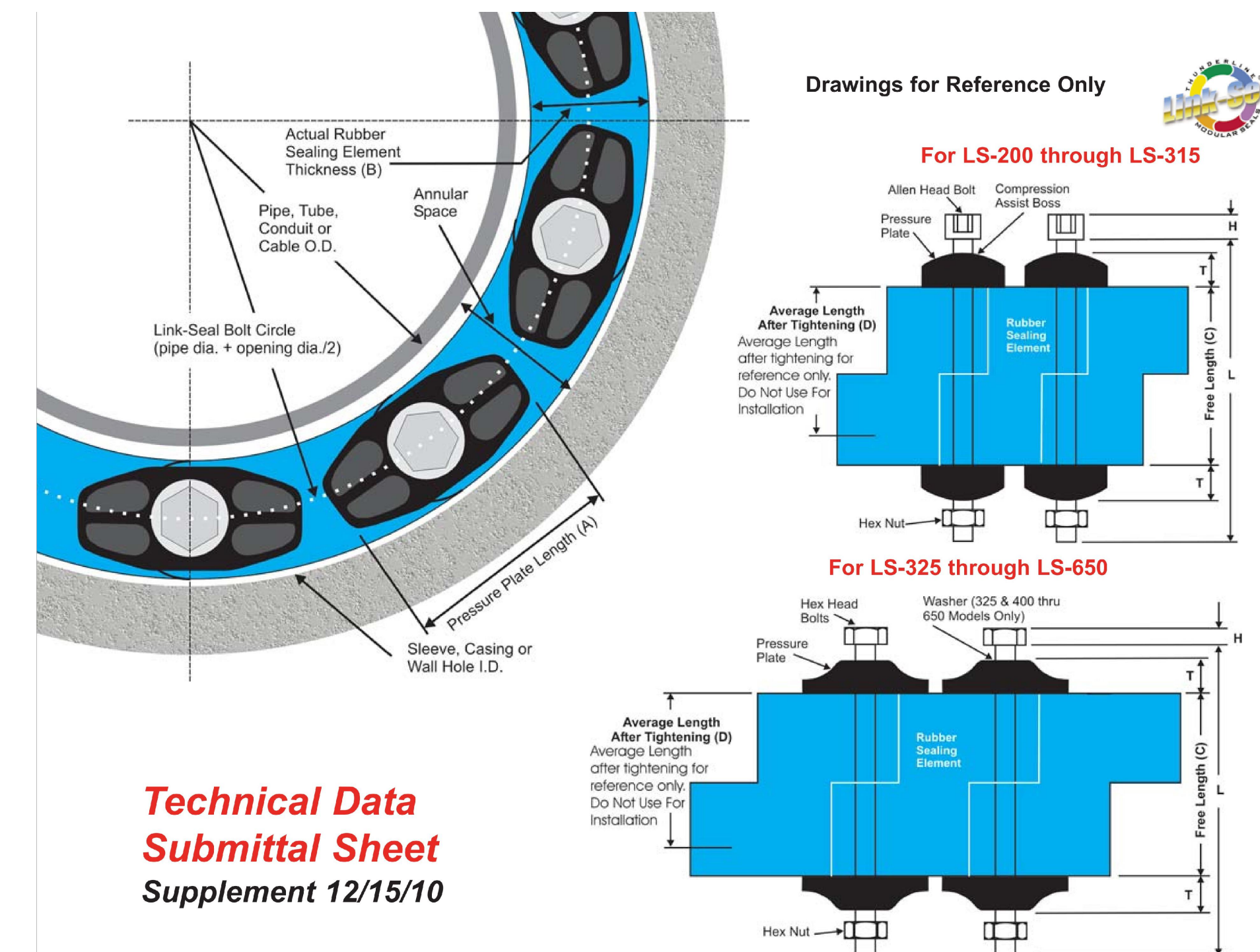
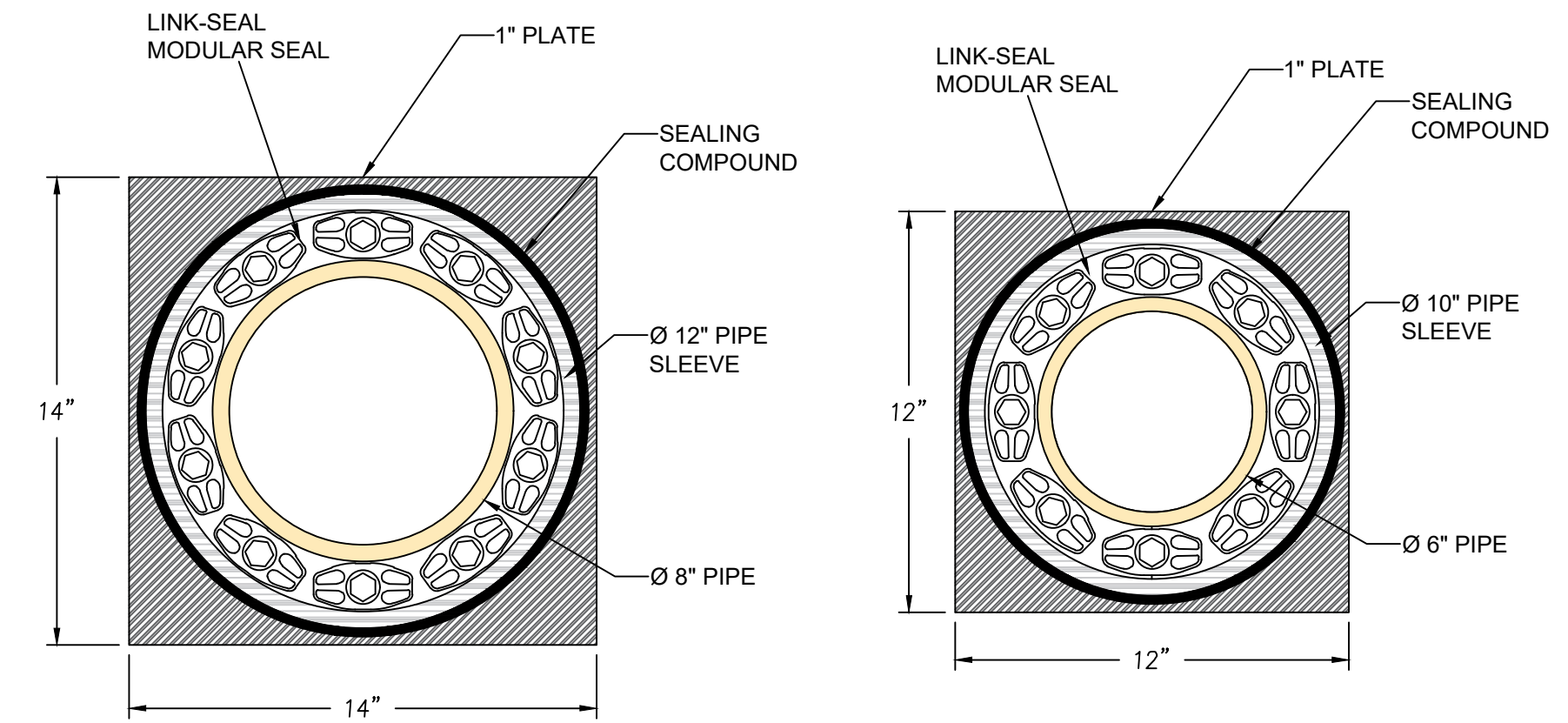
REFERENCE: DETAIL FROM PVC PIPE SUPPLIES, <https://pvcpipesupplies.com/stainless-steel-ls-300-s.html>



4 NORTH EMBANKMENT CREST DETAIL
SCALE: NTS



5 ACCESS ROAD, STAGING AREA, & MAINTENANCE PAD SURFACING
SCALE: NTS



Technical Data
Submittal Sheet
Supplement 12/15/10

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

LINK-SEAL MODEL NO.	RUBBER SEALING ELEMENT			PRESSURE PLATE		BOLT				WEIGHT FOR 10 LINK SECTION (LBS)	MIN. REQUIRED SEATING WIDTH
	ACTUAL THICKNESS (B)	FREE LENGTH (C)	AVG. LENGTH AFTER TIGHTENING (D)	(A)	(T)	ALLEN HEAD HEX ACROSS FLATS (H)	THREAD SIZE (I)	(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 (7.088")	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"



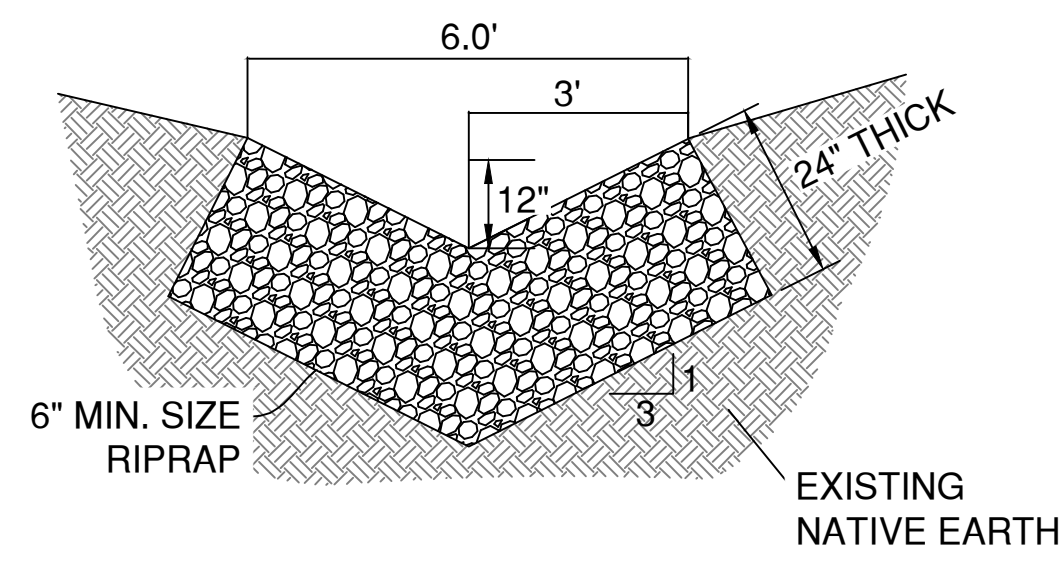
VISIT WWW.LINKSEAL.COM FOR LITERATURE AND INSTALLATION INSTRUCTIONS

3 LINK-SEAL PIPE THROUGH WALL CONNECTION
SCALE: NTS

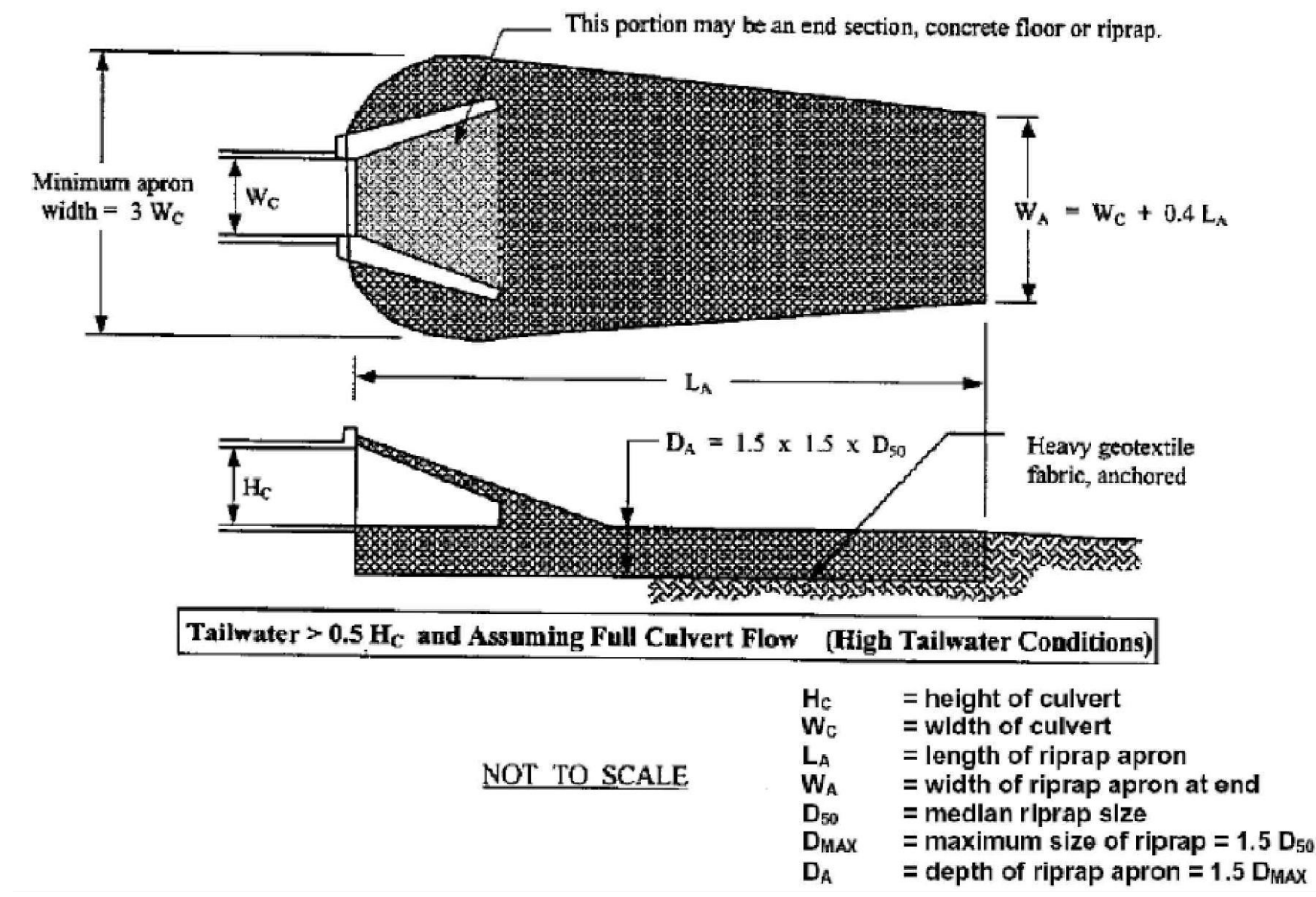
REFERENCE: DETAIL FROM PVC PIPE SUPPLIES, <https://pvcpipesupplies.com/stainless-steel-ls-300-s.html>

DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH
SCALE:	AS SHOWN
DATE:	November 9, 2020

Revisions	Description	As-Built	Date	By:							
				1	2	3	4	5	6		
			8/30/2021								



1
D-2
ROADSIDE SWAIL SECTION DETAIL
SCALE: NTS



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

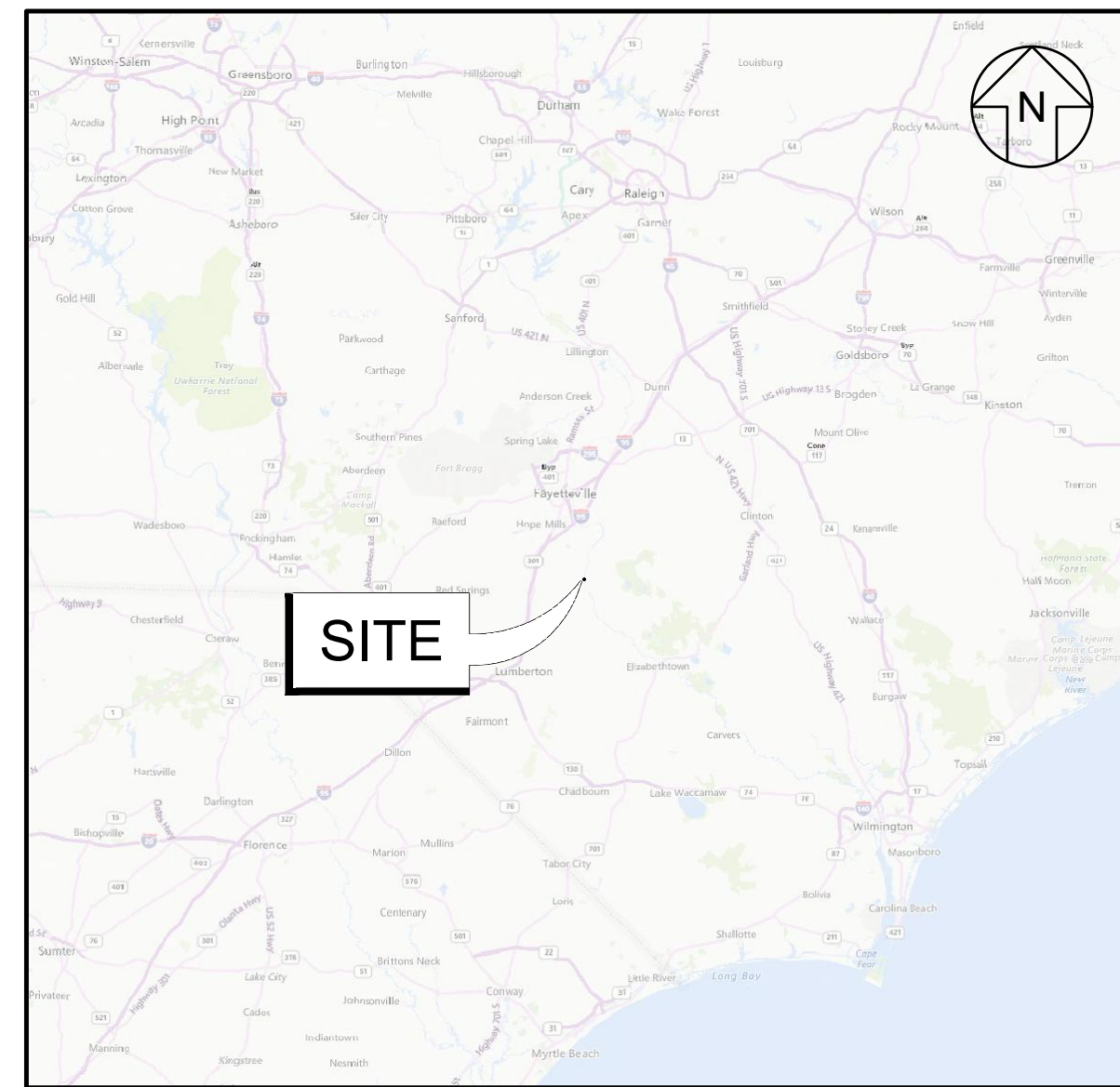
DRAWN BY:	REVIEWED BY:
NSS	DKK
DESIGNED BY:	APPROVED BY:
TJD	DAH
SCALE:	AS SHOWN
DATE:	November 9, 2020

No.	Date	Description	By:	
			As-Built	NSS
1	8/30/2021			
2				
3				
4				
5				
6				

APPENDIX C
Mechanical As-Built Record Drawings

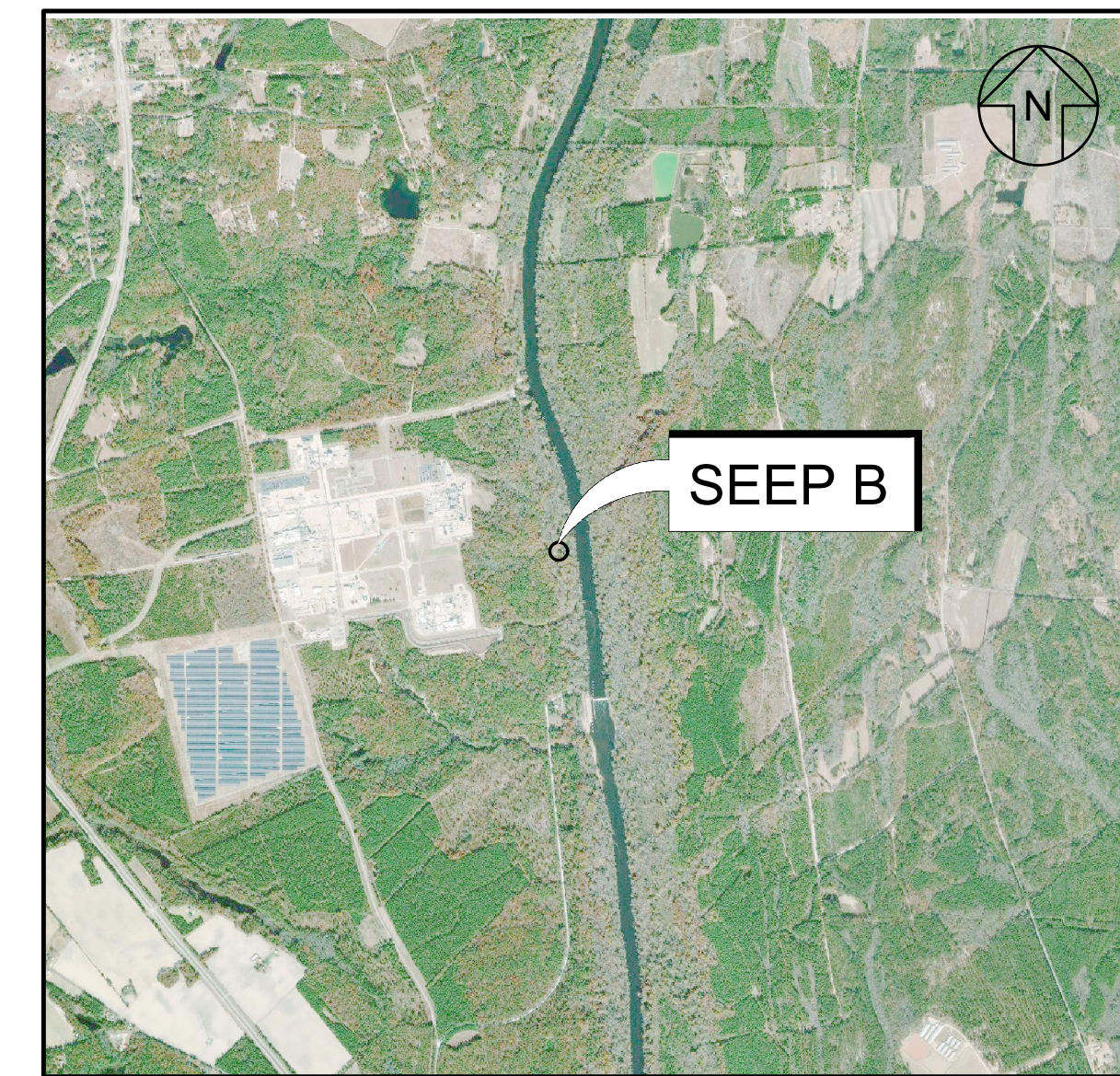
THE CHEMOURS COMPANY FAYETTEVILLE WORKS PROJECT SEEP B REMEDIATION SYSTEM MECHANICAL RECORD DRAWINGS

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



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

REV	DATE	DESCRIPTION	DRN	APP
0	11.04.21	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 B INTERIM REMEDIATION SYSTEM

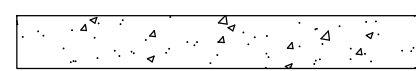
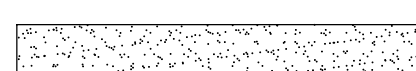

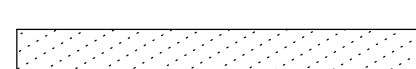


SITE: FAYETTEVILLE WORKS SITE

THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.	DESIGN BY: CMDS	DATE: NOVEMBER 2021	
	DRAWN BY: JFH	PROJECT NO.: TR0795A	
	CHECKED BY: JWE	FILE: TR0795-G01.dwg	
	REVIEWED BY: JJD	DRAWING NO.:	
	APPROVED BY: CAS	G-01	

AS-BUILT CONSTRUCTION
RECORD DRAWINGS

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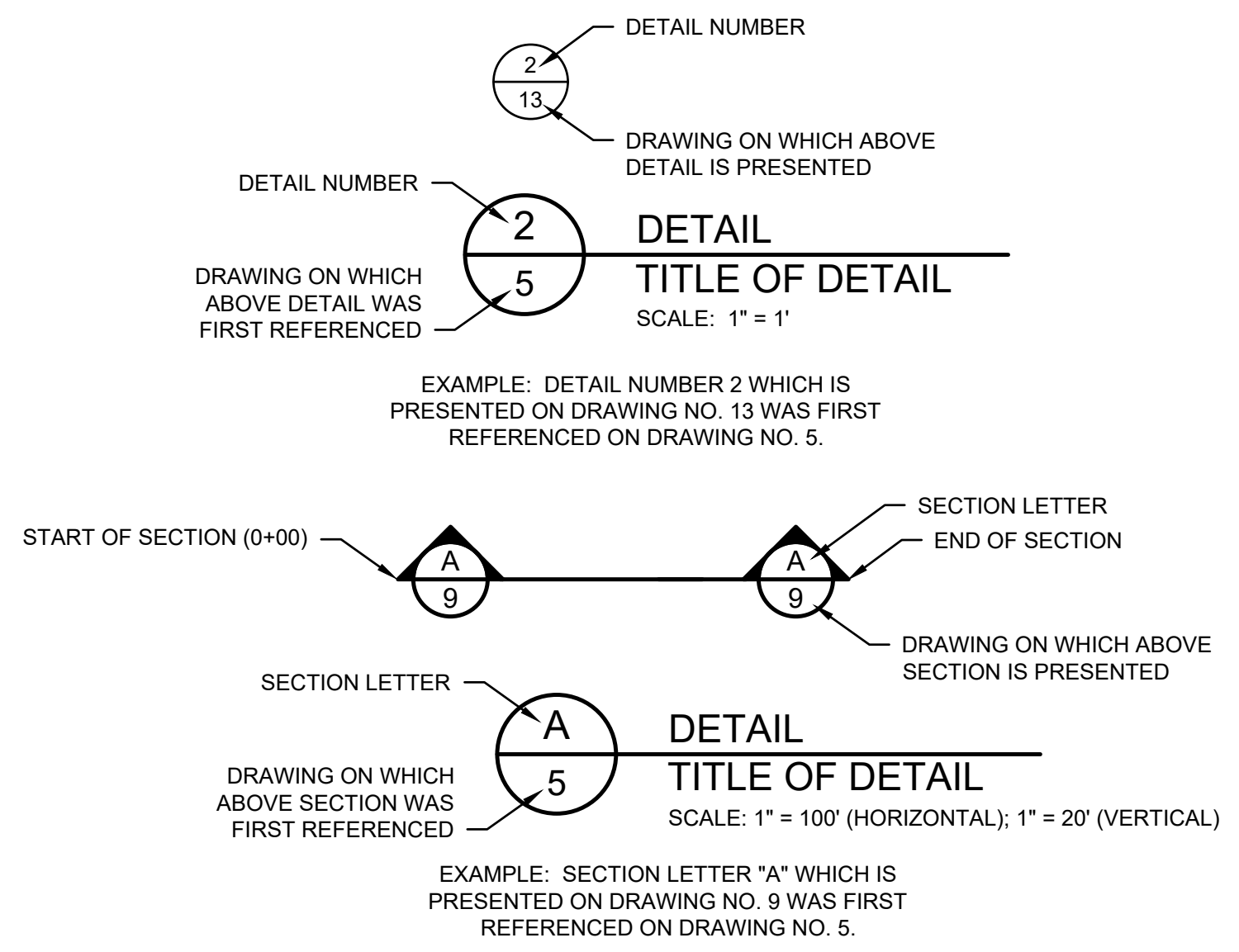
HATCH PATTERN LEGEND

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


ABBREVIATIONS

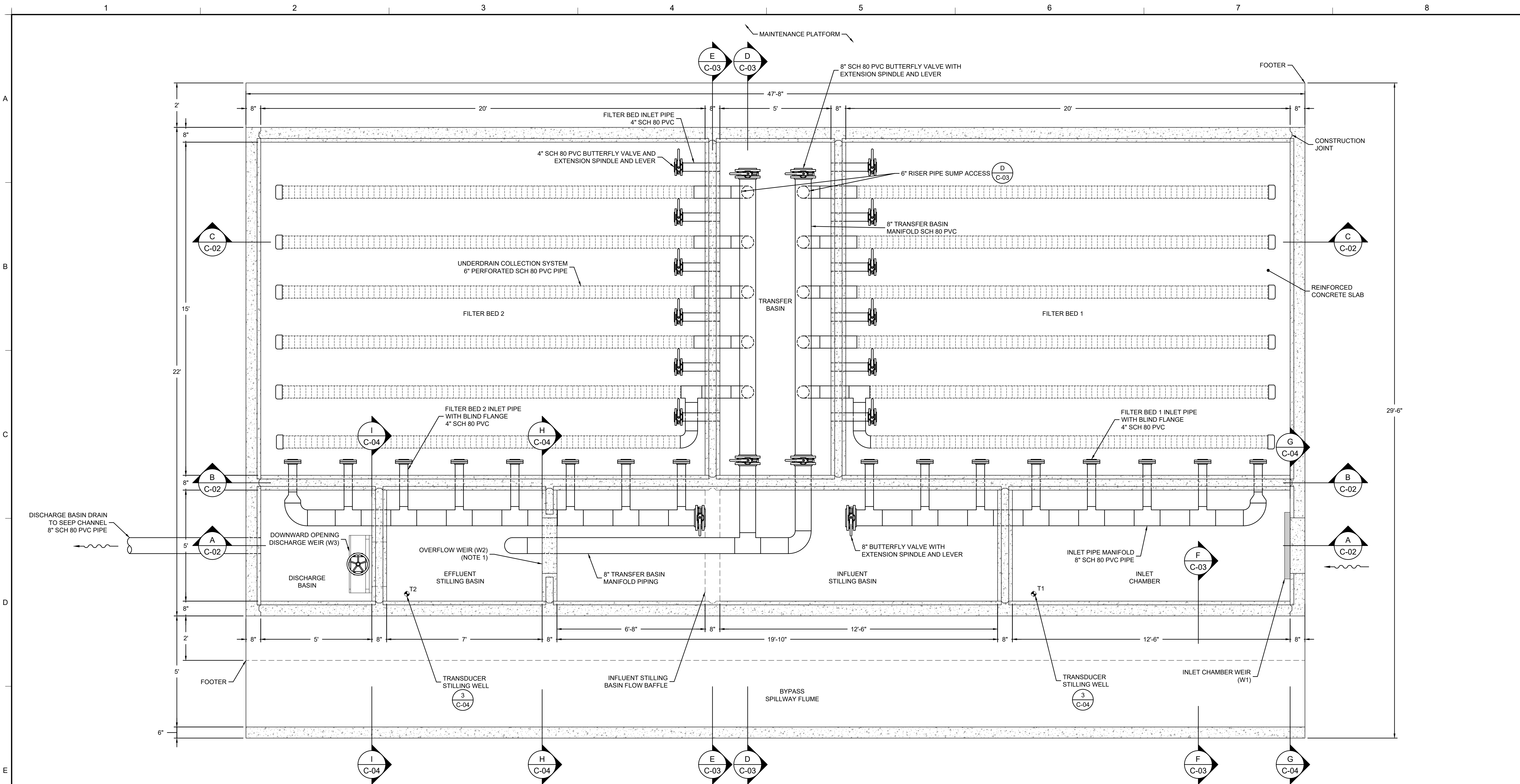
AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
APP	APPROVED BY
¢	CENTER LINE
DRN	DRAWN BY
DWG	DRAWING
E	EAST OR EASTING
EL	ELEVATION
FT	FEET
HDPE	HIGH DENSITY POLYETHYLENE
H:V	HORIZONTAL TO VERTICAL LENGTH RATIO FOR A SLOPE
HWY	HIGHWAY
IN	INCH
INV	INVERT
MAX	MAXIMUM
MIN	MINIMUM
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

DETAIL AND SECTION IDENTIFICATION LEGEND

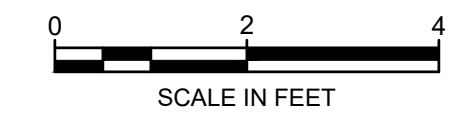


AS-BUILT CONSTRUCTION RECORD DRAWINGS

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TITLE: NOTES AND SYMBOLS				
PROJECT: THE CHEMOURS COMPANY SEEP B INTERIM REMEDIATION SYSTEM				
SITE: FAYETTEVILLE WORKS SITE				
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.		DESIGN BY: CMDS	DATE: NOVEMBER 2021	
SIGNATURE		DRAWN BY: JFH	PROJECT NO.: TR0795A	
DATE		CHECKED BY: JWE	FILE: TR0795-G02.dwg	
		REVIEWED BY: JJD	DRAWING NO.:	
		APPROVED BY: CAS	G-02	



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

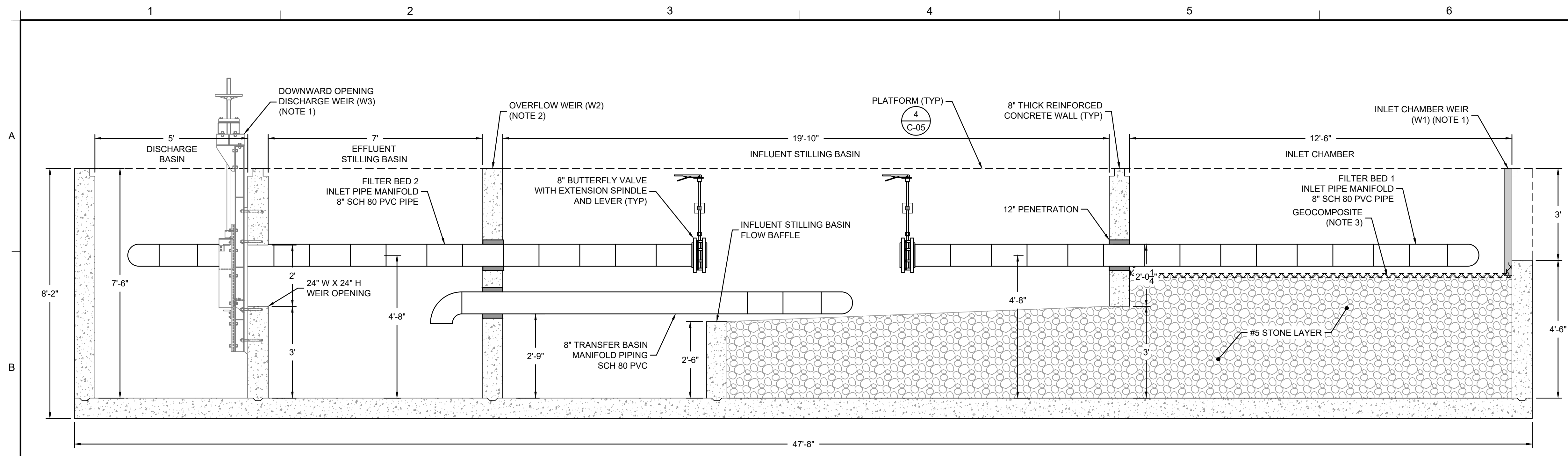


- NOTES:
- WEIR 2 (W2) WALL OPENING WAS FILLED WITH REINFORCED CONCRETE.

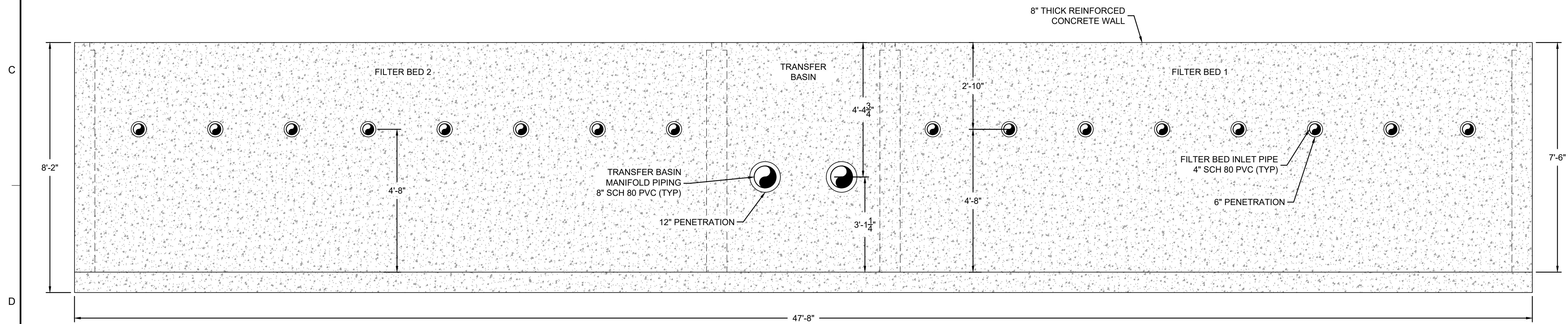
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REV	DATE	DESCRIPTION	DRN	APP
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TITLE: CONSTRUCTION DETAILS I				
PROJECT: THE CHEMOURS COMPANY SEEP B INTERIM REMEDIATION SYSTEM				
SITE: FAYETTEVILLE WORKS SITE				
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.		DESIGN BY: CMDS	DATE: NOVEMBER 2021	
SIGNATURE		DRAWN BY: JFH	PROJECT NO.: TR0795A	
DATE		CHECKED BY: JWE	FILE: TR0795-C01.dwg	
		REVIEWED BY: JJD	DRAWING NO.:	
		APPROVED BY: CAS	C-01	

AS-BUILT CONSTRUCTION RECORD DRAWINGS

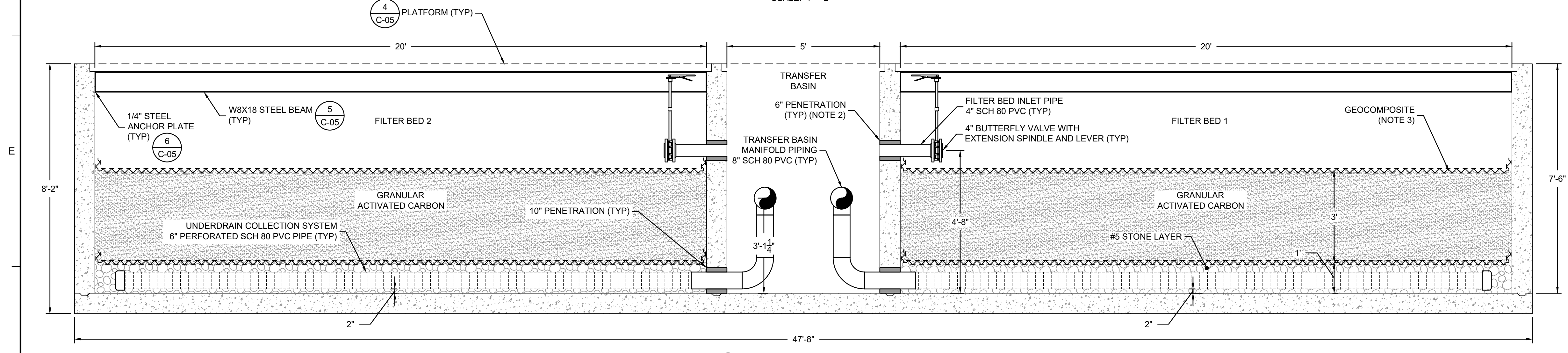
GEOSYNTEC\\NA1\DOCUMENTS\CLIENTS\CHEMOURS\2795A - CHEMOURS\CAD\03 - INTERIM REMEDIAL DESIGN - SEEP B DRAWINGS\SHEETS\TR0795-C01



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

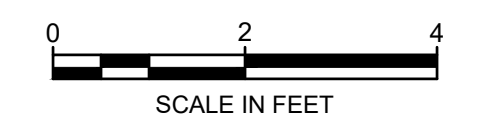


B
SECTION
C-01
FLOW THROUGH CELL SECTION B
SCALE: 1" = 2'



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

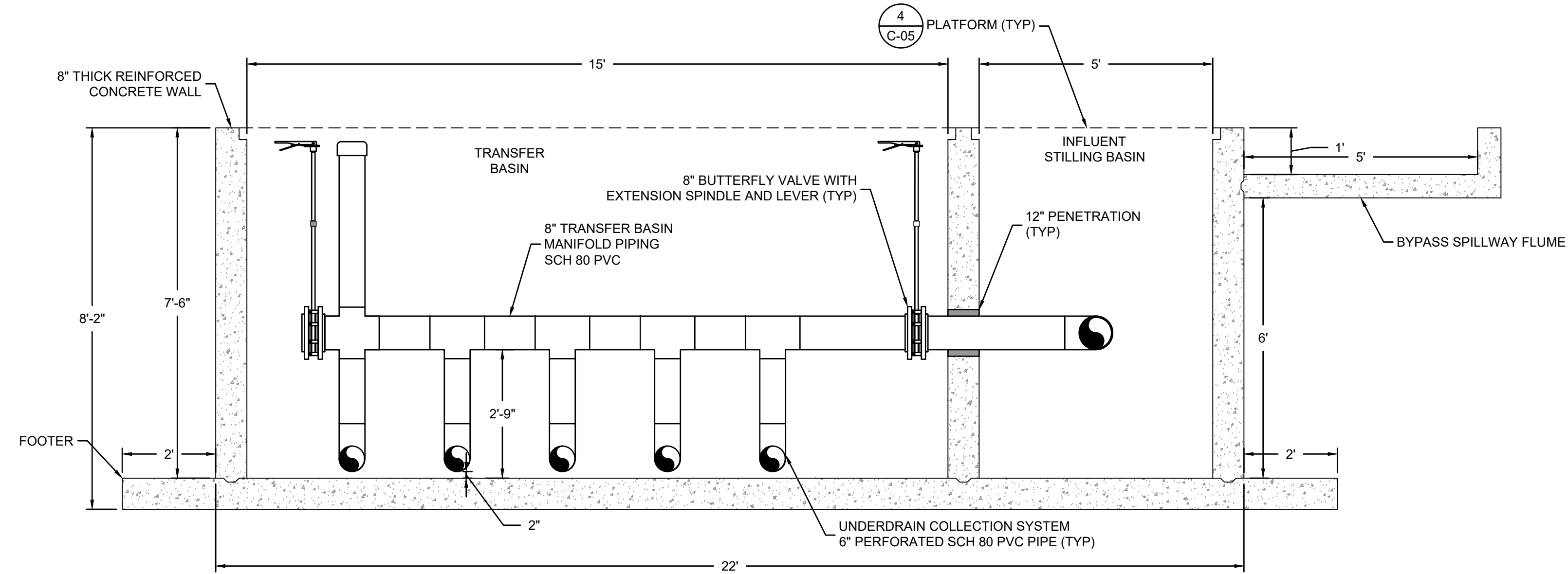
- NOTES:**
- THE WEIRS WERE PURCHASED FROM GOLDEN HARVEST INC., AS FOLLOWS:
 THE INLET CHAMBER WEIR (W1) IS A 30.5" X 36" STAINLESS STEEL WEIR GATE, HANDLE LIFT, MANUFACTURER DRAWING NUMBER MD GH-42.
 THE DOWNWARD OPENING DISCHARGE WEIR (W3) IS A 24"X24" STAINLESS STEEL WEIR GATE, GEAR OPERATED, MANUFACTURER DRAWING NUMBER MD GH-66.
 - WEIR 2 (W2) WALL OPENING WAS FILLED WITH REINFORCED CONCRETE.
 - 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.



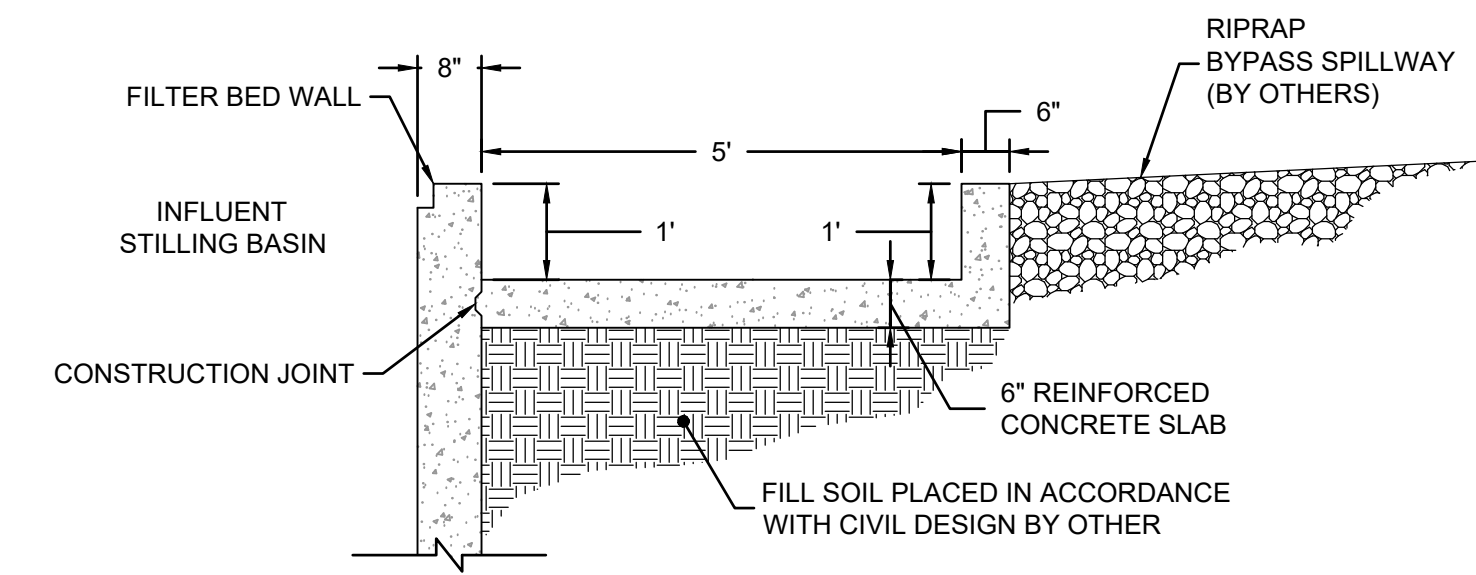
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REV	DATE	DESCRIPTION	DRN	APP
		Geosyntec Consultants of NC, P.C. NC License No.: C-3500 and C-295	ATRIUM AT BLUE RIDGE 2501 BLUE RIDGE ROAD, SUITE 430 RALEIGH, NC 27607 919.870.0576	
CONSTRUCTION DETAILS II				
PROJECT: THE CHEMOURS COMPANY SEEP B INTERIM REMEDIATION SYSTEM				
SITE: FAYETTEVILLE WORKS SITE				
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.		DESIGN BY: CMDS	DATE: NOVEMBER 2021	
SIGNATURE		DRAWN BY: JFH	PROJECT NO.: TR0795A	
DATE		CHECKED BY: JWE	FILE: TR0795-C02.dwg	
		REVIEWED BY: JJD	DRAWING NO.:	
		APPROVED BY: CAS	C-02	

AS-BUILT CONSTRUCTION RECORD DRAWINGS

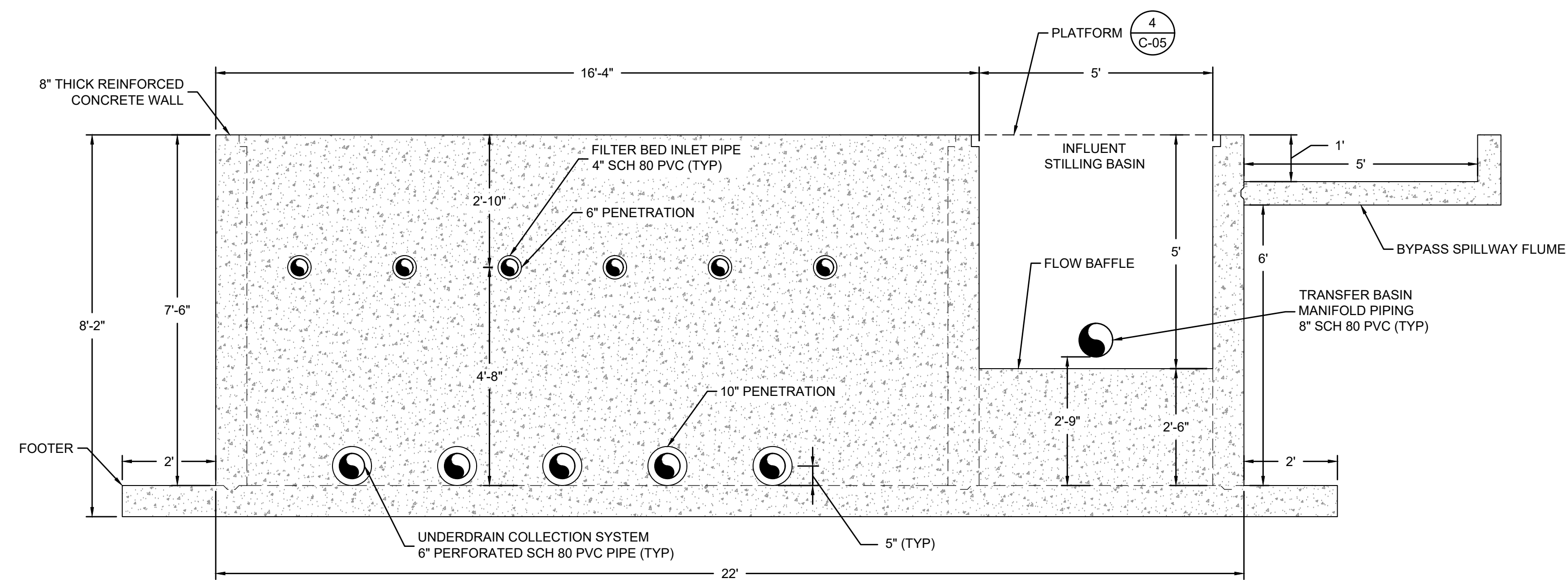
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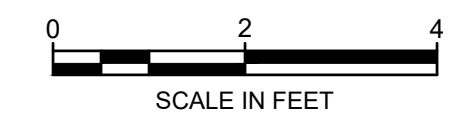
D SECTION
C-01 FLOW THROUGH CELL SECTION D
 SCALE: 1" = 2'



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



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



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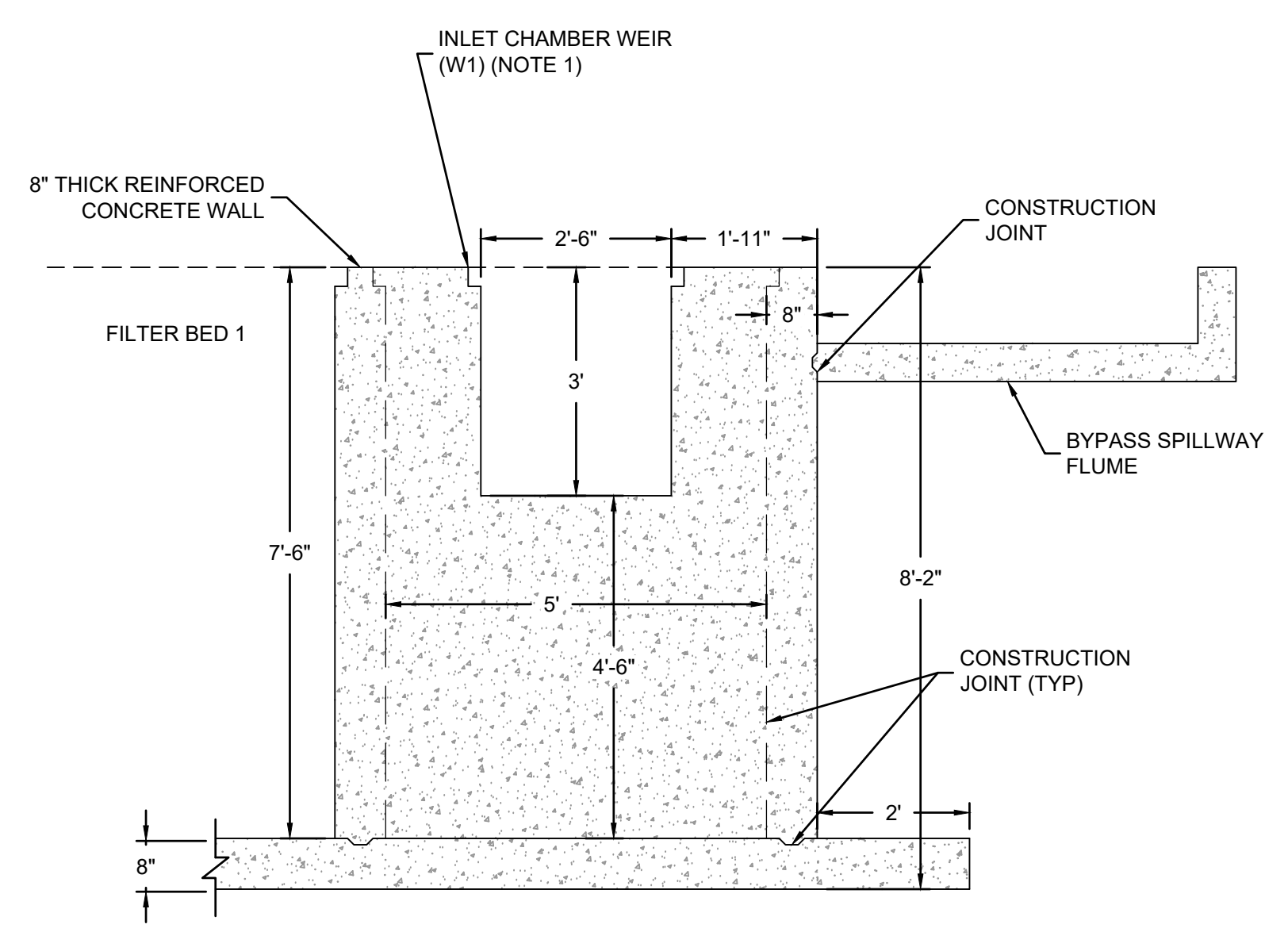
Geosyntec
 consultants
 Geosyntec Consultants of NC, P.C.
 NC License No.: C-3500 and C-295
 ATRIUM AT BLUE RIDGE
 2501 BLUE RIDGE ROAD, SUITE 430
 RALEIGH, NC 27607
 919.870.0576

TITLE: CONSTRUCTION DETAILS III
PROJECT: THE CHEMOURS COMPANY SEEP B INTERIM REMEDIATION SYSTEM
SITE: FAYETTEVILLE WORKS SITE

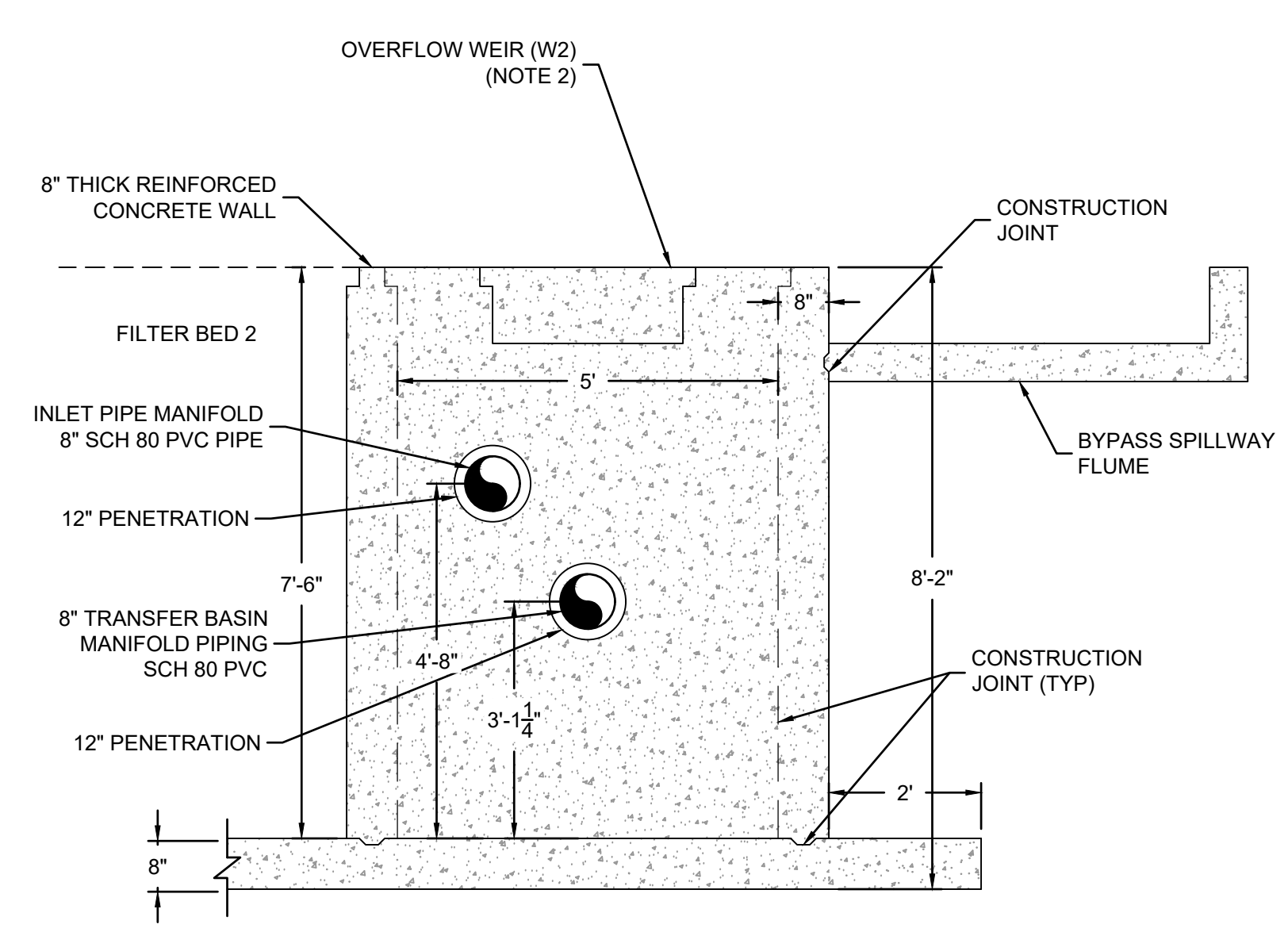
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.	DESIGN BY: CMDS	DATE: NOVEMBER 2021
	DRAWN BY: JFH	PROJECT NO.: TR0795A
	CHECKED BY: JWE	FILE: TR0795-C03.dwg
	REVIEWED BY: JJD	DRAWING NO.:
	APPROVED BY: CAS	C-03

AS-BUILT CONSTRUCTION RECORD DRAWINGS

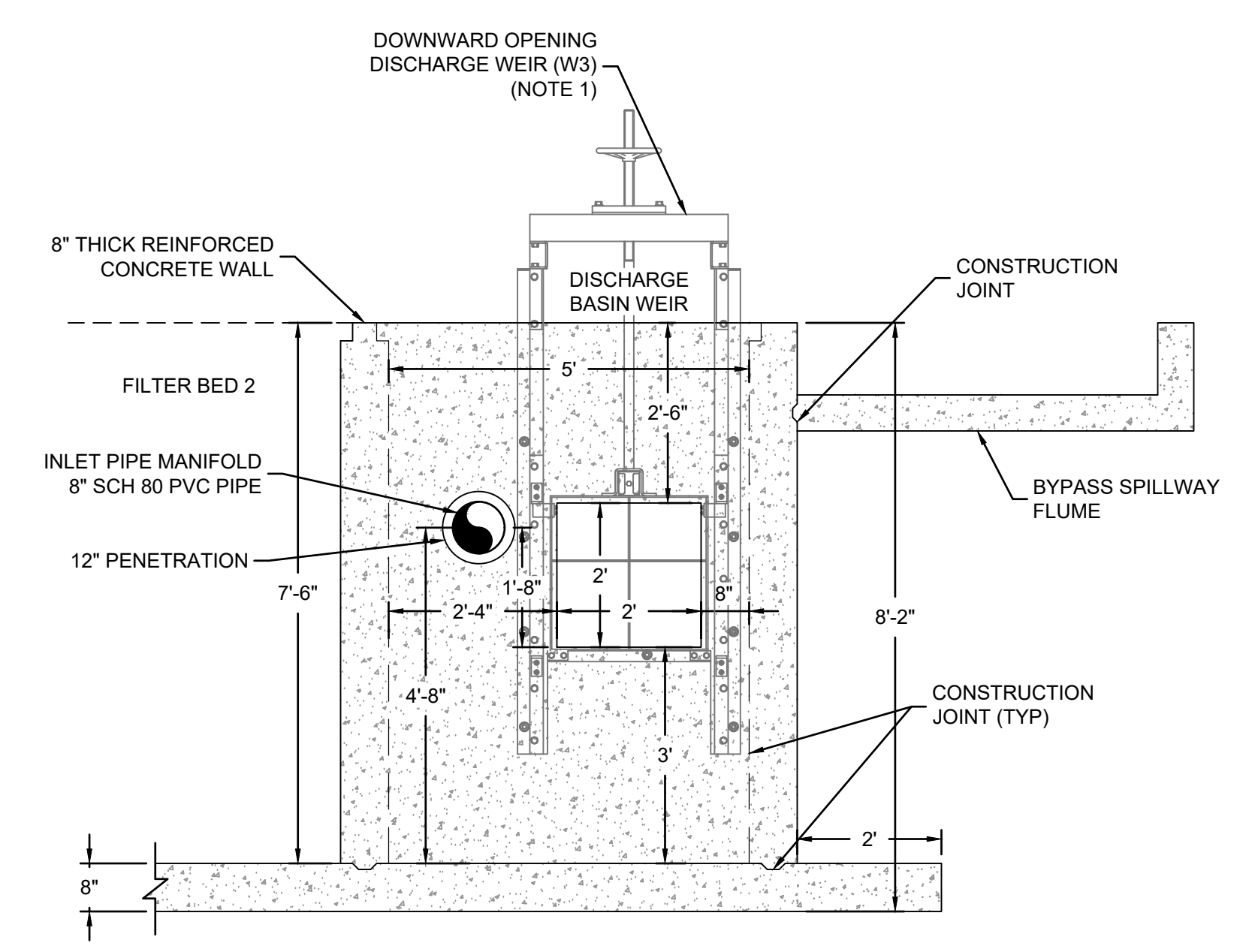
GEO\SYNTEC\AW\DOCUMENTS\CLIENTS\CHEMOURS\TR0795A - CHEMOURS\03\03 - INTERIM REMEDIATION DESIGN - SEEP B DRAWINGS\SHEETS\TR0795-C03



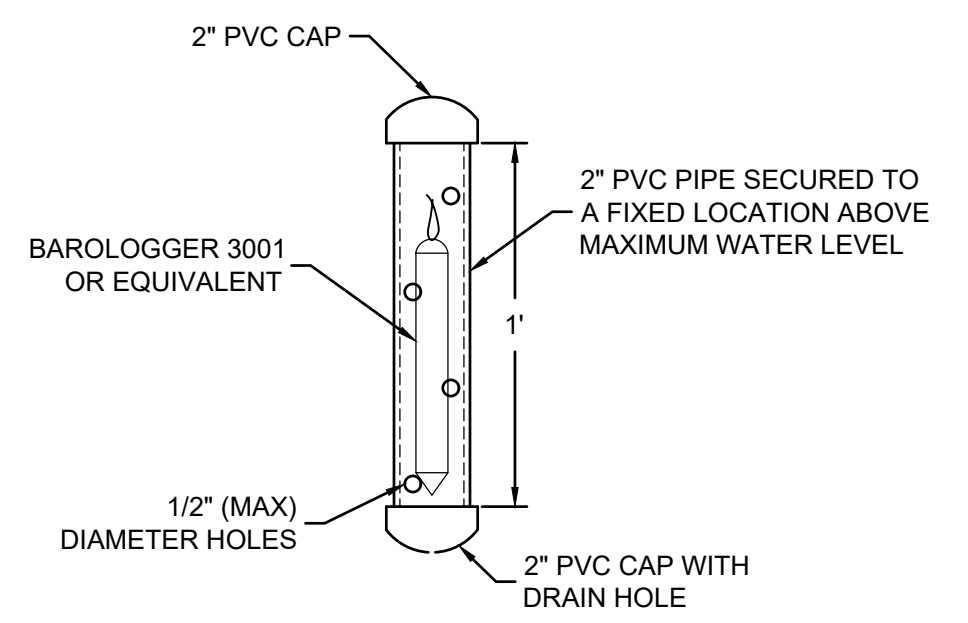
G SECTION
C-01 INLET CHAMBER WEIR (W1)
 SCALE: 1" = 2'



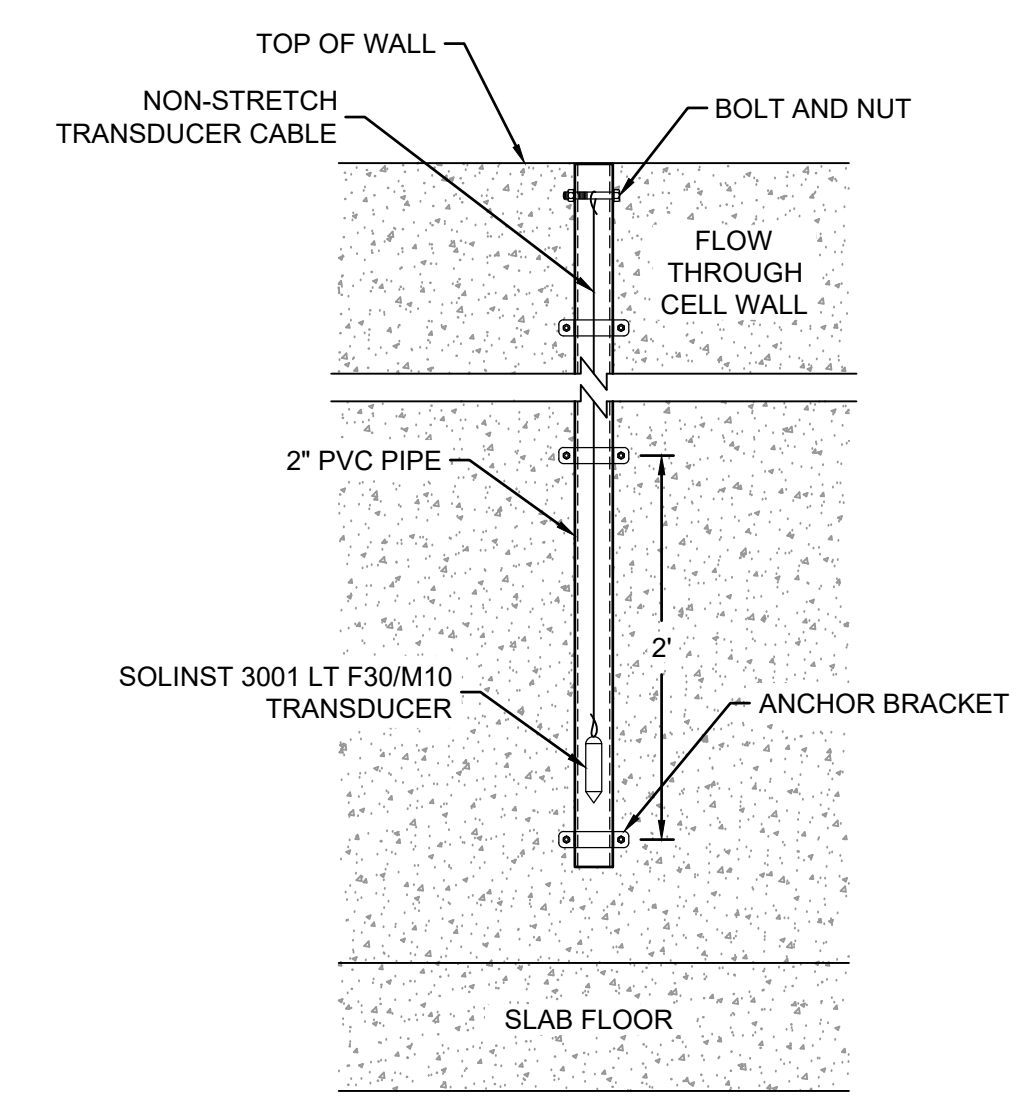
H SECTION
C-01 OVERFLOW WEIR (W2)
 SCALE: 1" = 2'



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



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



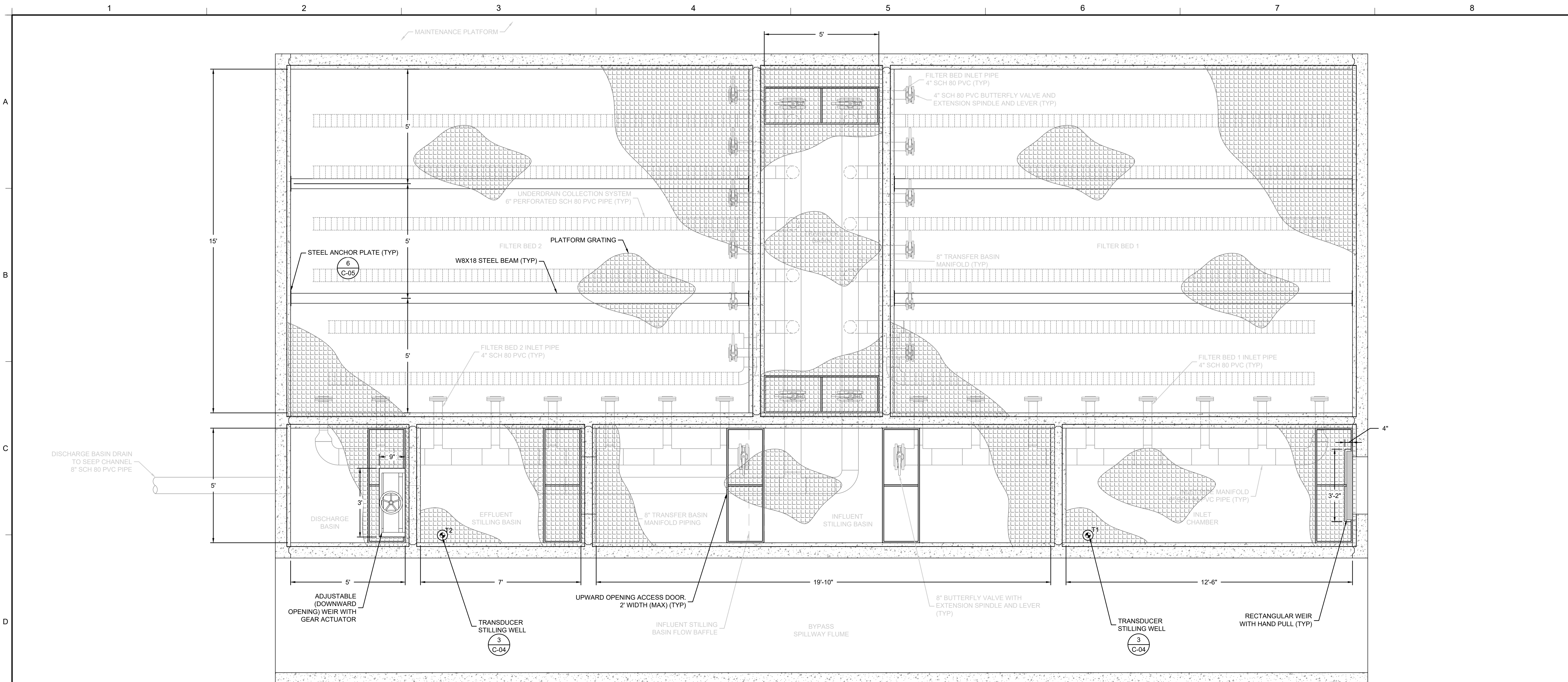
3 DETAIL
C-01 TRANSDUCER STILLING WELL
 SCALE: 1" = 1'

- NOTES:**
- THE WEIRS WERE PURCHASED FROM GOLDEN HARVEST INC., AS FOLLOWS:
 THE INLET CHAMBER WEIR (W1) IS A 30.5" X 36" STAINLESS STEEL WEIR GATE, HANDLE LIFT, MANUFACTURER DRAWING NUMBER MD GH-42.
 THE DOWNWARD OPENING DISCHARGE WEIR (W3) IS A 24" X 24" STAINLESS STEEL WEIR GATE, GEAR OPERATED, MANUFACTURER DRAWING NUMBER MD GH-66.
 - WEIR 2 (W2) WALL OPENING WAS FILLED WITH REINFORCED CONCRETE.

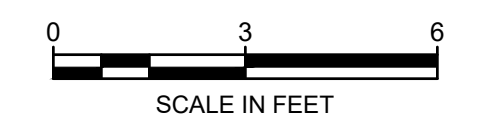
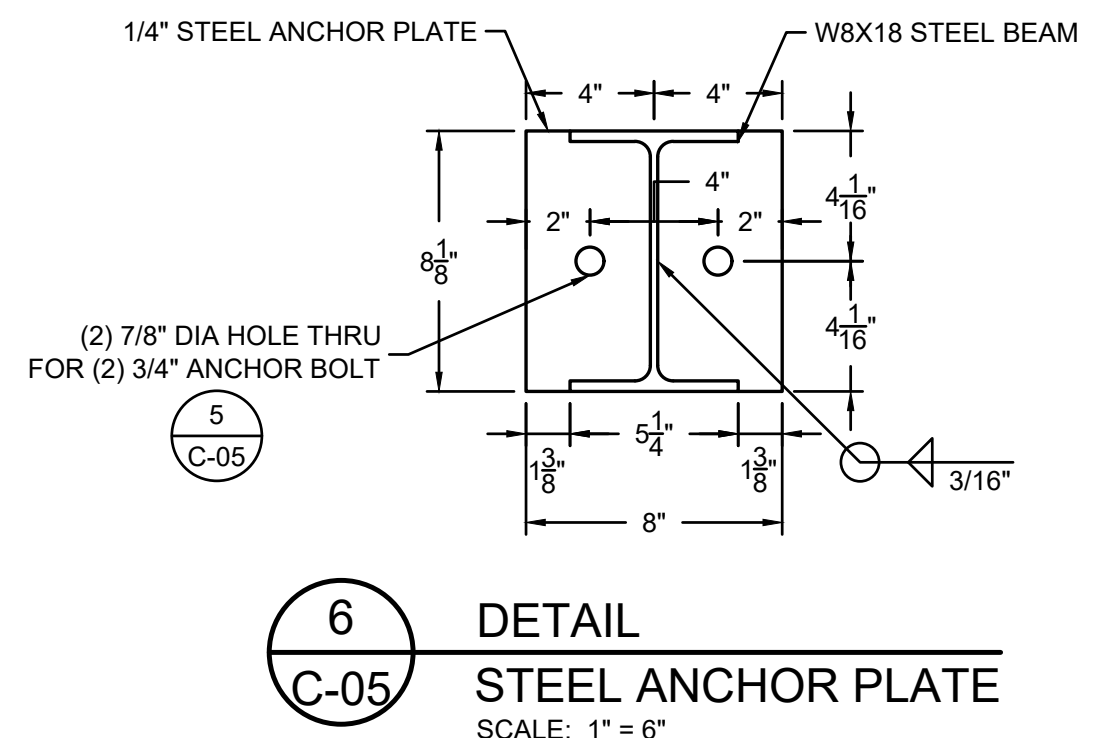
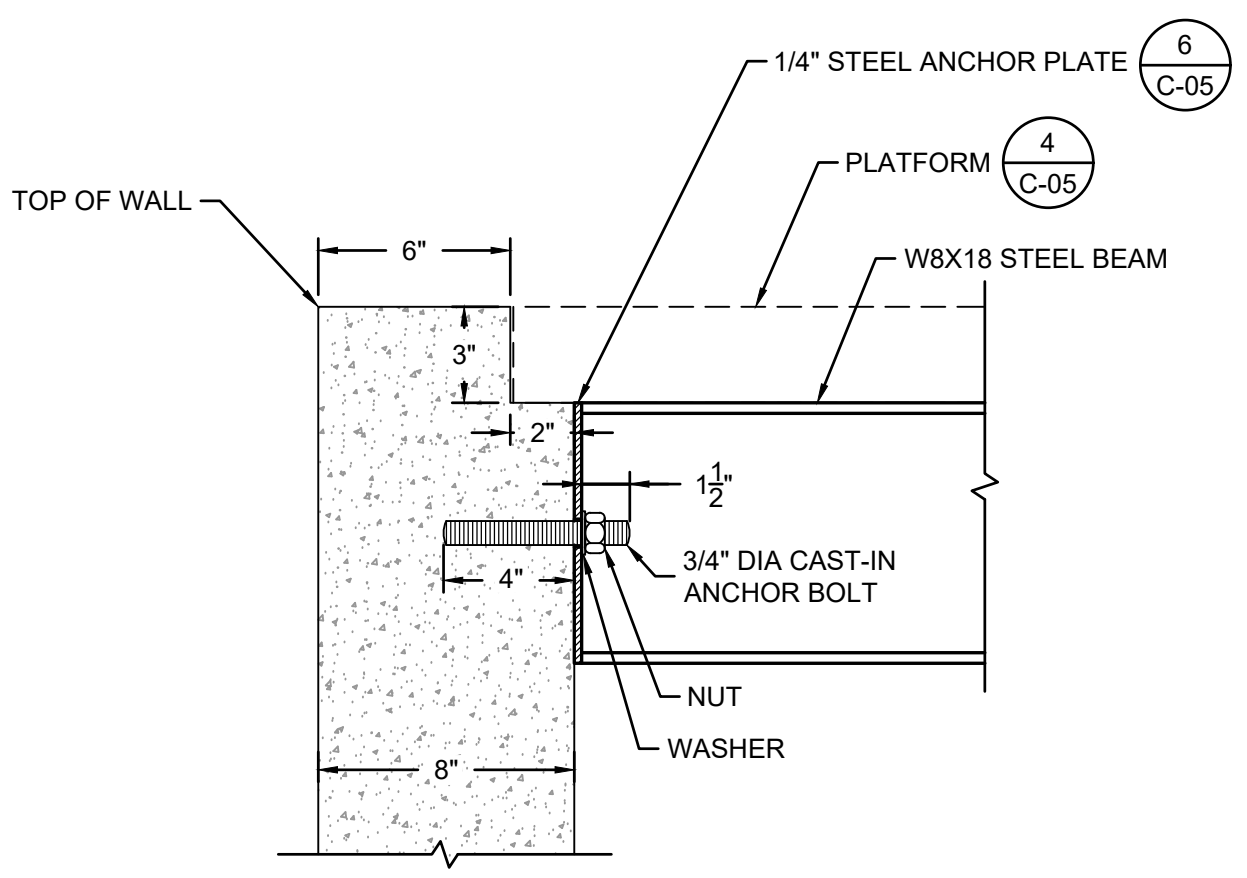
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REV	DATE	DESCRIPTION	DRN	APP
Geosyntec consultants		Geosyntec Consultants of NC, P.C. NC License No.: C-3500 and C-295	ATRIUM AT BLUE RIDGE 2501 BLUE RIDGE ROAD, SUITE 430 RALEIGH, NC 27607 919.870.0576	
TITLE: CONSTRUCTION DETAILS IV				
PROJECT: THE CHEMOURS COMPANY SEEP B INTERIM REMEDIATION SYSTEM				
SITE: FAYETTEVILLE WORKS SITE				
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.		DESIGN BY: CMDS	DATE: NOVEMBER 2021	
SIGNATURE		DRAWN BY: JFH	PROJECT NO.: TR0795A	
DATE		CHECKED BY: JWE	FILE: TR0795-C04.dwg	
		REVIEWED BY: JJD	DRAWING NO.:	
		APPROVED BY: CAS	C-04	

AS-BUILT CONSTRUCTION
 RECORD DRAWINGS

GEOSYNTEC\PROJECTS\DOCUMENTS\CHEMOURS\SEEP B\INTERIM REMEDIATION DESIGN - SEEP B DRAWINGS\SHEETS\TR0795-C04



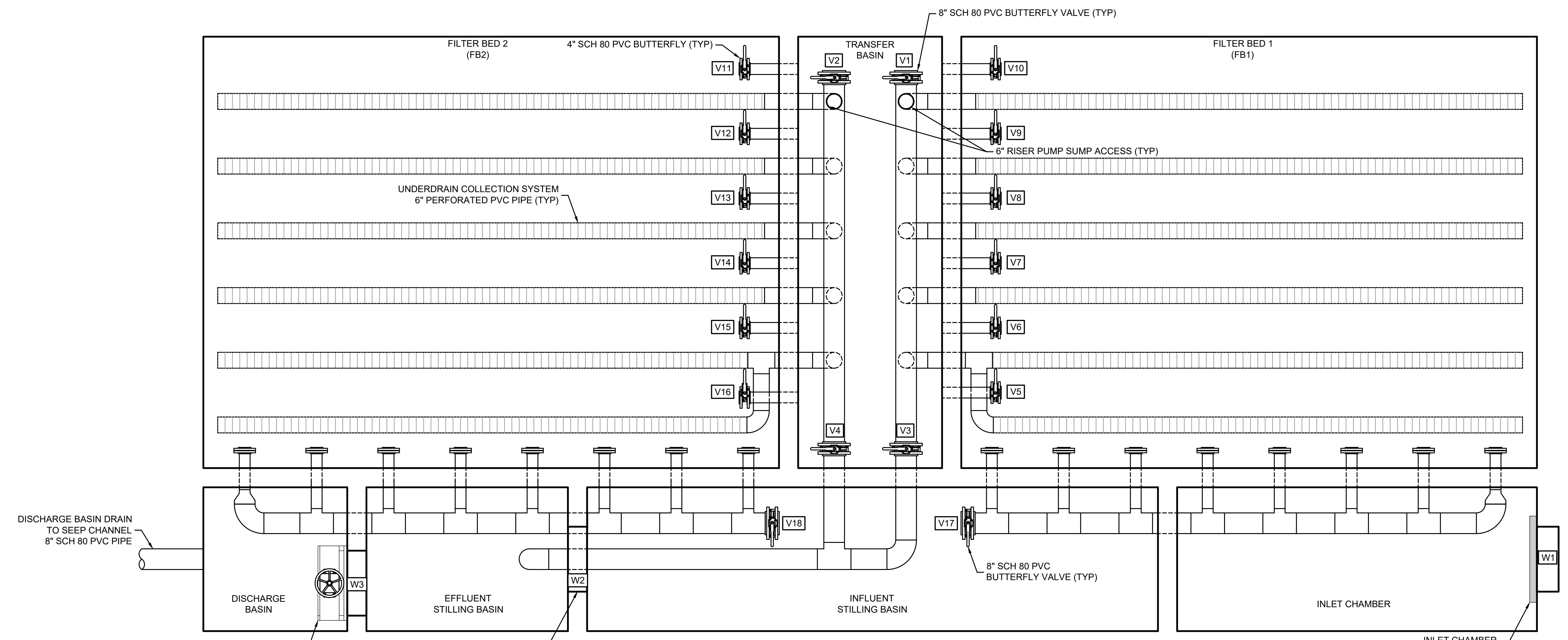
4 PLAN
C-02 PLATFORM INSTALLATION
 SCALE: 1" = 2'



0	11.04.21	AS-BUILT CONSTRUCTION RECORD DRAWING SUBMITTAL	JFH	CAS
REV	DATE	DESCRIPTION	DRN	APP
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	
PLATFORM DETAILS				
PROJECT: THE CHEMOURS COMPANY SEEP B INTERIM REMEDIATION SYSTEM				
SITE: FAYETTEVILLE WORKS SITE				
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.		DESIGN BY: CMDS	DATE: NOVEMBER 2021	
SIGNATURE		DRAWN BY: JFH	PROJECT NO.: TR0795A	
DATE		CHECKED BY: JWE	FILE: TR0795-C06.dwg	
		REVIEWED BY: JJD	DRAWING NO.:	
		APPROVED BY: CAS	C-05	

AS-BUILT CONSTRUCTION RECORD DRAWINGS

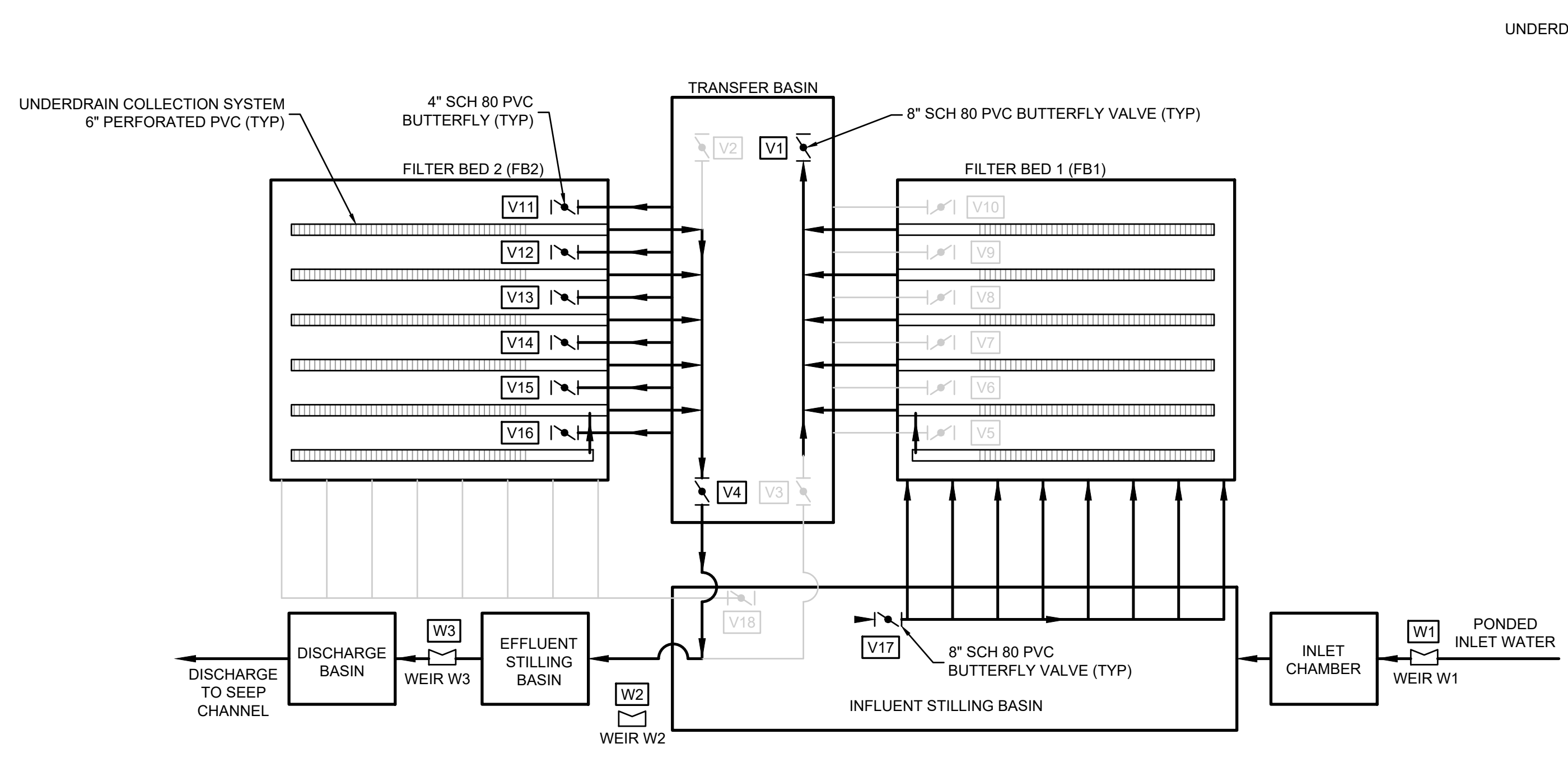
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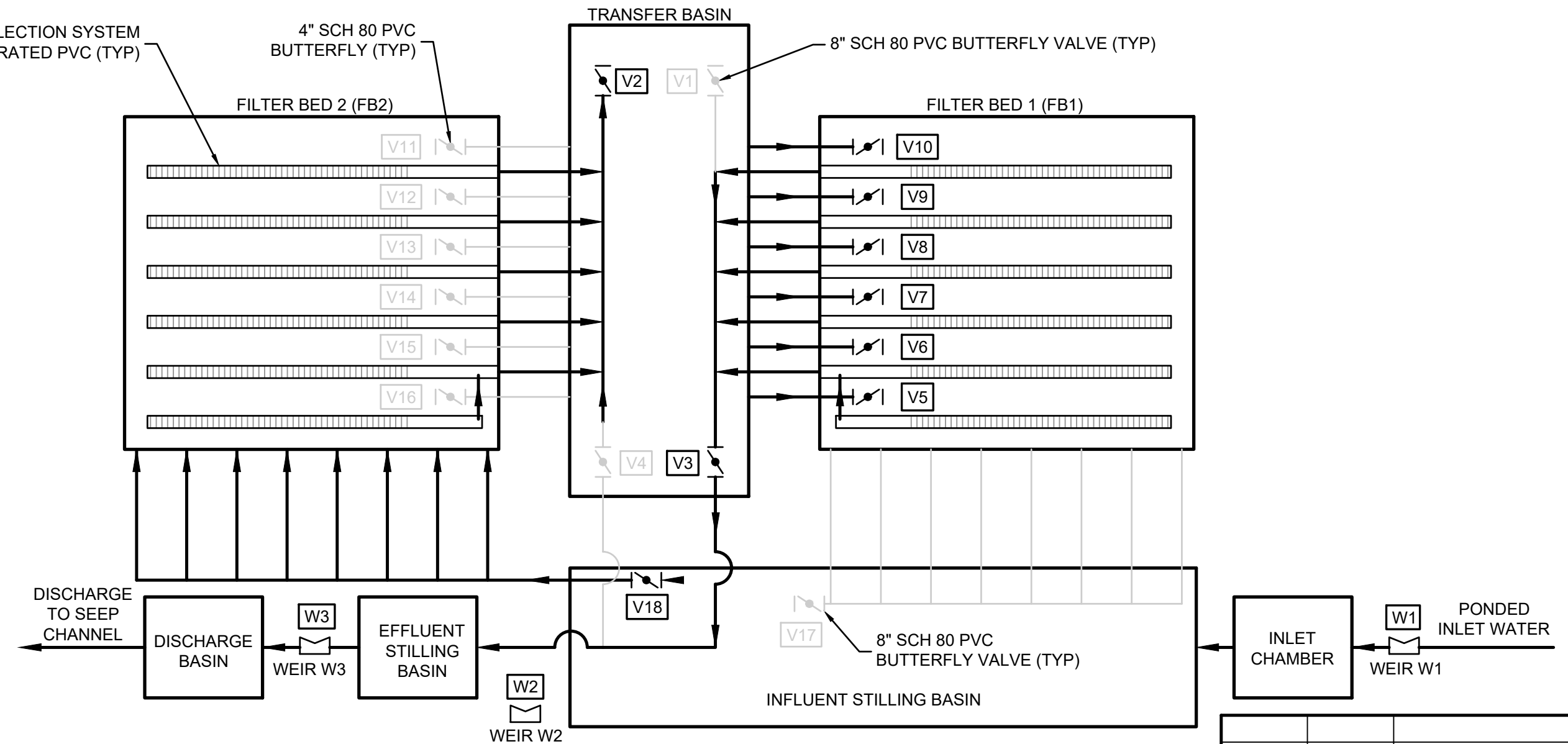
7 PLAN FLOW THROUGH CELL VALVE SCHEMATIC

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 TABLE OPERATIONAL MODE



9 SCHEMATIC FLOW THROUGH CELL SYSTEM FLOW WITH FILTER BED 1 IN LEAD POSITION AND FILTER BED 2 IN LAG POSITION



10 SCHEMATIC FLOW THROUGH CELL SYSTEM FLOW WITH FILTER BED 2 IN LEAD POSITION AND FILTER BED 1 IN LAG POSITION

NOTES:
1. WEIR 2 (W2) WALL OPENING WAS FILLED WITH REINFORCED CONCRETE.

0	11.04.21	AS-BUILT CONSTRUCTION RECORD DRAWING SUBMITTAL	JFH	CAS
REV	DATE	DESCRIPTION	DRN	APP

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

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

TITLE: **PROCESS FLOW DIAGRAM**

PROJECT: **THE CHEMOURS COMPANY SEEP B INTERIM REMEDIATION SYSTEM**

SITE: **FAYETTEVILLE WORKS SITE**

DESIGN BY:	CMDS	DATE:	NOVEMBER 2021
DRAWN BY:	JFH	PROJECT NO.:	TR0795A
CHECKED BY:	JWE	FILE:	TR0795-D01.dwg
REVIEWED BY:	JJD	DRAWING NO.:	D-01
APPROVED BY:	CAS		

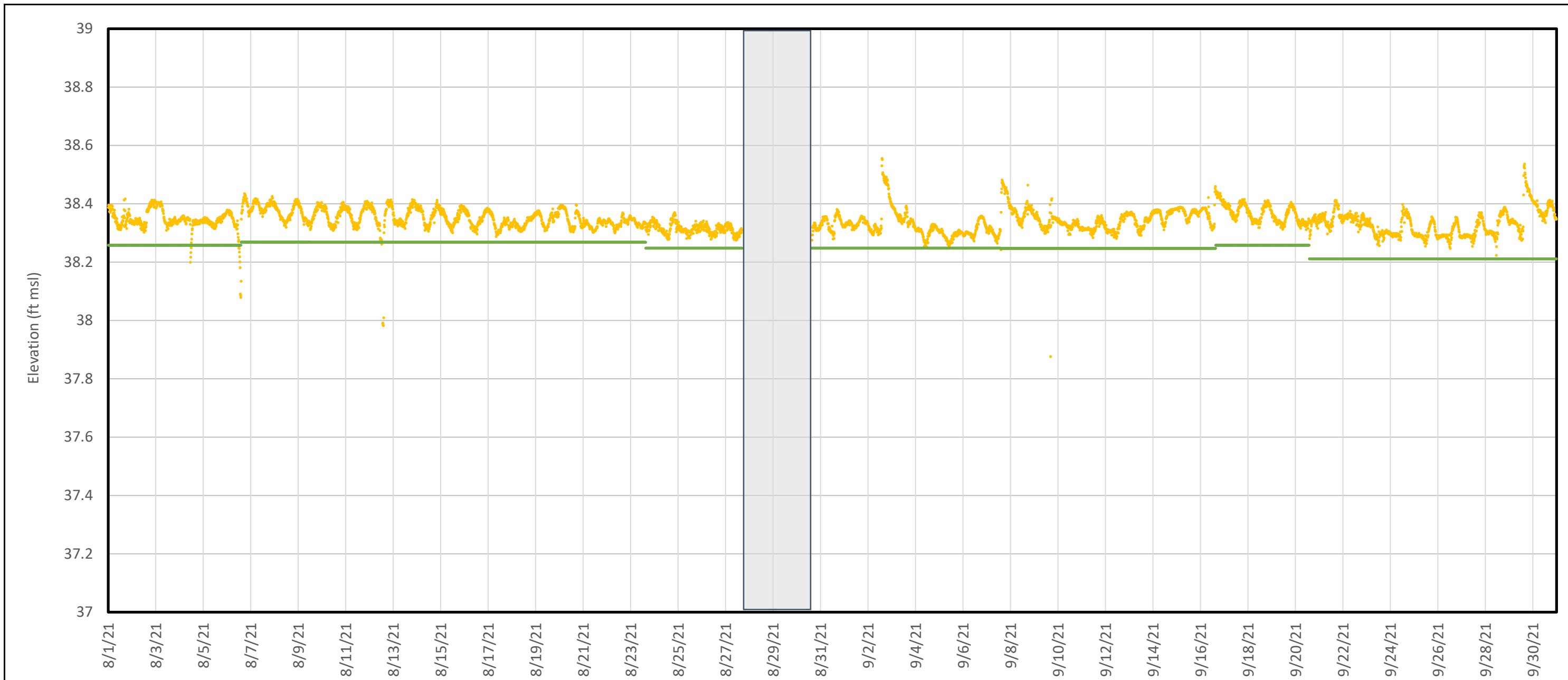
THIS DRAWING MAY NOT BE ISSUED FOR PROJECT TENDER OR CONSTRUCTION, UNLESS SEALED.

SIGNATURE _____
DATE _____

AS-BUILT CONSTRUCTION RECORD DRAWINGS

APPENDIX D

Transducer Data Reduction

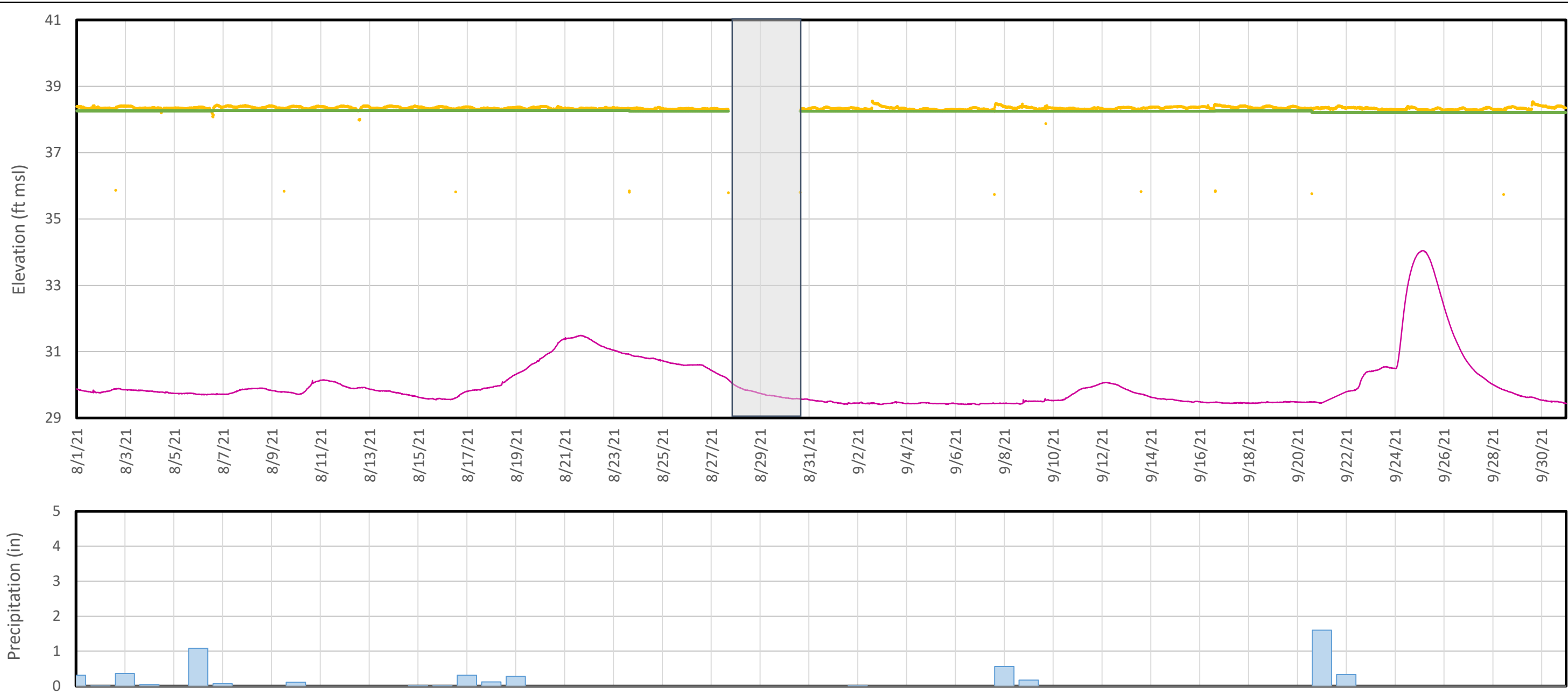


Legend

- Discharge Basin Elevation
- Weir 3 Elevation
- Transducer Data Gap

Notes:
 Figure D1 shows the discharge basin transducer data that was collected during the reporting period.
 Transducer data from August 27, 16:34 through August 30, 15:08 was not retrieved. Section 3 describes the gaps in transducer data record.

Discharge Basin Water Elevation - Seep B		Figure D1
Chemours Fayetteville Works Fayetteville, North Carolina		
Geosyntec consultants	Geosyntec Consultants of NC, P.C. NC License No.: C 3500 and C 295	Figure D1
Raleigh, NC	November 2021	



Legend

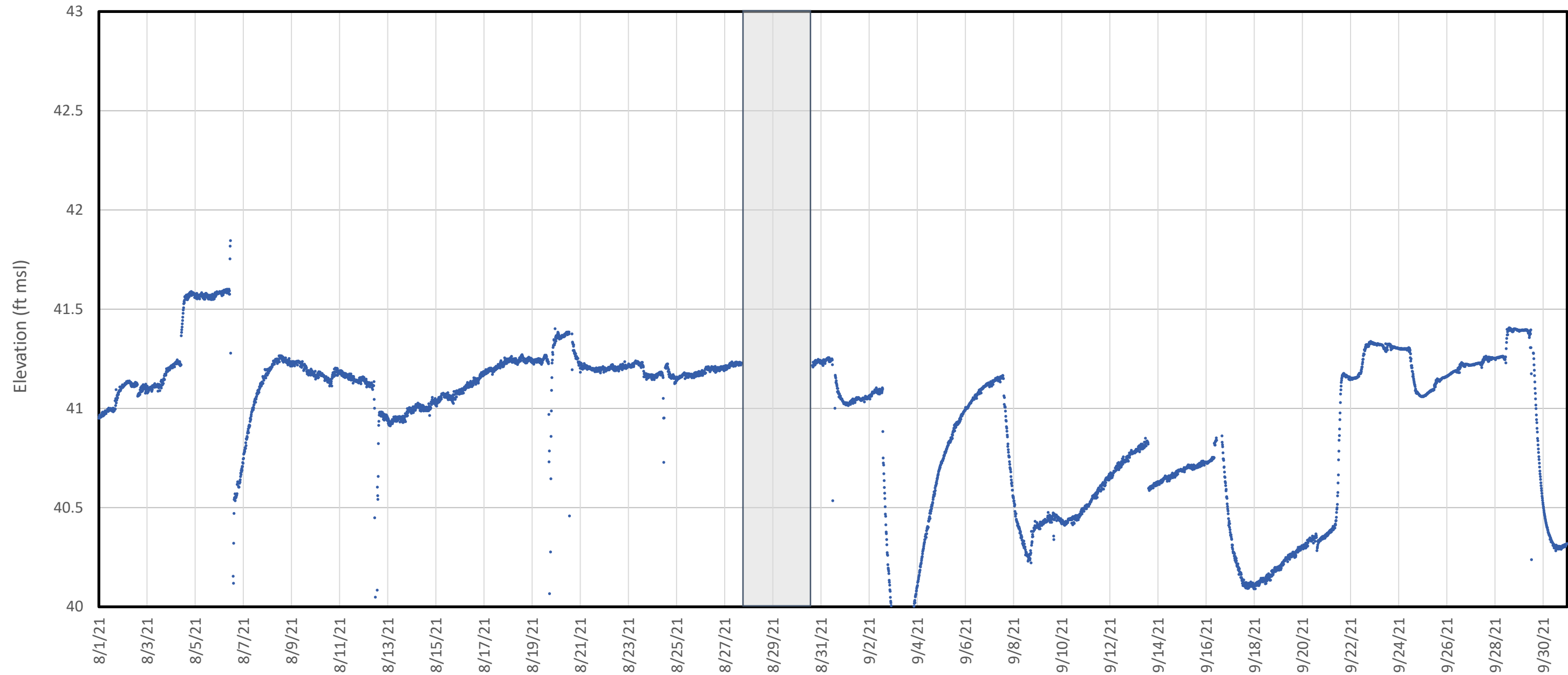
- Discharge Basin Water Elevation
- River Stage
- Weir 3 Elevation
- Transducer Data Gap
- Precipitation (daily totals)

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 D2 compares the available transducer data to precipitation and river stage elevation data available from the USGS Huske Lock and Dam.

Transducer data from August 27, 16:34 through August 30, 15:08 was not retrieved. Section 3 describes the gaps in transducer data record.

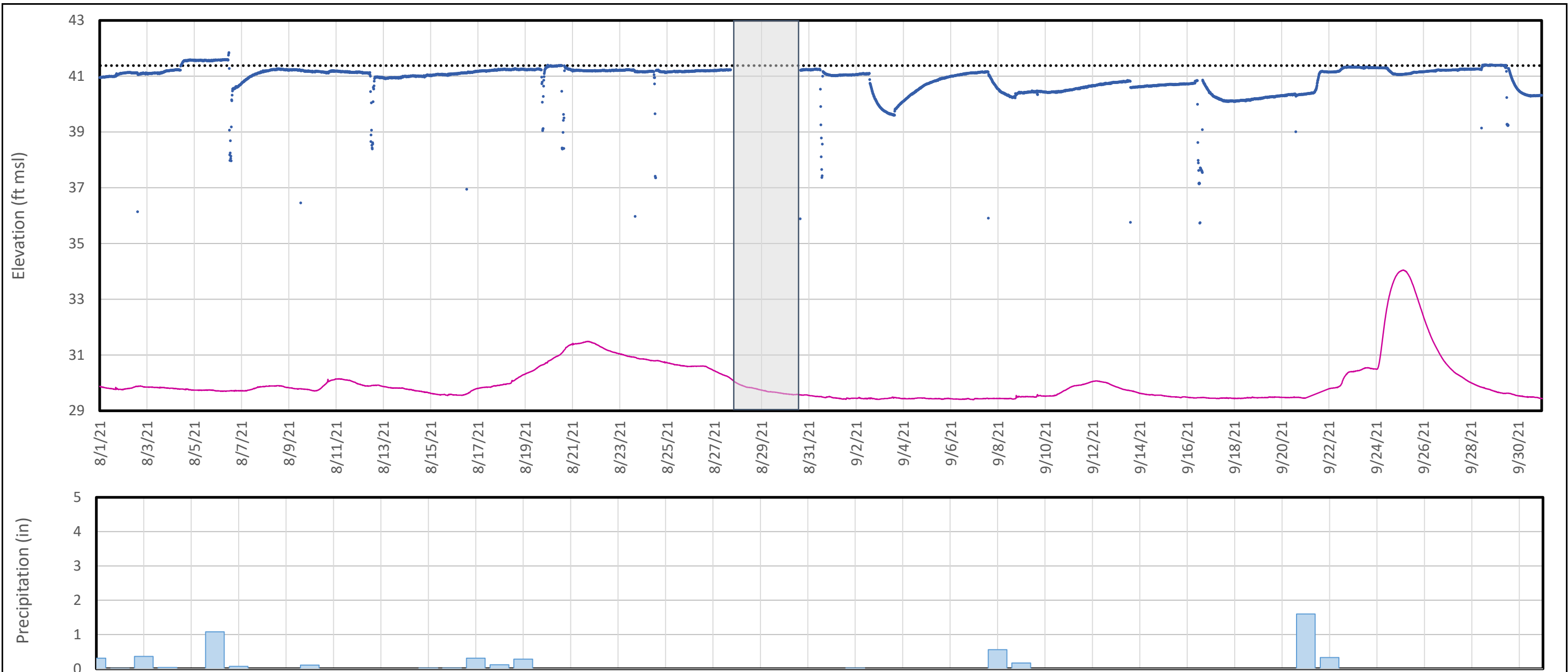
Discharge Basin Water Elevation and External Forcings - Seep B	
Chemours Fayetteville Works Fayetteville, North Carolina	
Geosyntec consultants	Geosyntec Consultants of NC, P.C. NC License No.: C 3500 and C 295
Raleigh, NC	November 2021
Figure D2	



Legend
 — Inlet Chamber/Impoundment Elevation
 █ Transducer Data Gap

Notes:
 Figure D3 shows the influent transducer data that was collected during the reporting period.
 Transducer data from August 27, 16:34 to August 30, 15:08 were not retrieved. Section 3 describes the gaps in transducer data record.

Inlet Chamber Water Elevation - Seep B	
Chemours Fayetteville Works Fayetteville, North Carolina	
Geosyntec consultants	Geosyntec Consultants of NC, P.C. NC License No.: C 3500 and C 295
Raleigh, NC	November 2021
Figure D3	



- Legend**
- Inlet Chamber Water Elevation
 - River Stage
 - ◆◆◆ Bypass Spillway Elevation
 - Transducer Data Gap
 - 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 D4 compares the available transducer data to precipitation and river stage elevation data available from the USGS Huske Lock and Dam.
 Transducer data from August 27, 16:34 to August 30, 15:08 were not retrieved. Section 3 describes the gaps in transducer data record.

Inlet Chamber Water Elevation and External Forcings - Seep B	
Chemours Fayetteville Works Fayetteville, North Carolina	
Geosyntec [®] consultants	<small>Geosyntec Consultants of NC, P.C. NC License No.: C 3500 and C 295</small>
Raleigh, NC	November 2021
Figure D4	

APPENDIX E

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-336-081721	320-77803-1	Other liquid	N	08/17/2021	10:00	FS
SEEP-D-EFFLUENT-336-081721-D	320-77803-10	Other liquid	N	08/17/2021	10:00	DUP
SEEP-A-EFFLUENT-306-081721	320-77803-2	Other liquid	N	08/17/2021	10:00	FS
SEEP-C-INFLUENT-336-081721	320-77803-3	Other liquid	N	08/17/2021	10:00	FS
SEEP-C-EFFLUENT-336-081721	320-77803-4	Other liquid	N	08/17/2021	10:00	FS
SEEP-D-INFLUENT-306-081721	320-77803-5	Other liquid	N	08/17/2021	10:00	FS
SEEP-D-EFFLUENT-336-081721	320-77803-6	Other liquid	N	08/17/2021	10:00	FS
SEEP-B-INFLUNET-336-081721	320-77803-7	Other liquid	N	08/17/2021	10:00	FS
SEEP-B-EFFLUENT-336-081721	320-77803-8	Other liquid	N	08/17/2021	10:00	FS
SEEP-FBLK-081721	320-77803-9	Blank Water	N	08/17/2021	10:00	FB
SEEP-A-INFLUENT-24-082021	320-78111-1	Surface Water	N	08/20/2021	19:00	FS
SEEP-A-EFFLUENT-24-082021	320-78111-2	Surface Water	N	08/20/2021	19:00	FS
SEEP-C-INFLUENT-24-082021	320-78111-3	Surface Water	N	08/20/2021	19:00	FS
SEEP-C-EFFLUENT-24-082021	320-78111-4	Surface Water	N	08/20/2021	19:00	FS
SEEP-D-INFLUENT-24-082021	320-78111-5	Surface Water	N	08/20/2021	19:00	FS
SEEP-D-EFFLUENT-24-082021	320-78111-6	Surface Water	N	08/20/2021	19:00	FS
SEEP-B-INFLUENT-24-082021	320-78111-7	Surface Water	N	08/20/2021	19:00	FS

SEEP-B-EFFLUENT-24-082021	320-78111-8	Surface Water	N	08/20/2021	19:00	FS
SEEP-A-INFLUENT-24-082821	320-78428-1	Other liquid	N	08/28/2021	19:00	FS
SEEP-A-EFFLUENT-24-082821	320-78428-2	Other liquid	N	08/28/2021	19:00	FS
SEEP-C-INFLUENT-24-082821	320-78428-3	Other liquid	N	08/28/2021	19:00	FS
SEEP-C-EFFLUENT-24-082821	320-78428-4	Other liquid	N	08/28/2021	19:00	FS
SEEP-D-INFLUENT-24-082821	320-78428-5	Other liquid	N	08/28/2021	19:00	FS
SEEP-D-EFFLUENT-24-082821	320-78428-6	Other liquid	N	08/28/2021	19:00	FS
SEEP-B-INFLUENT-24-082821	320-78428-7	Other liquid	N	08/28/2021	19:00	FS
SEEP-B-EFFLUENT-24-082821	320-78428-8	Other liquid	N	08/28/2021	19:00	FS
SEEP-B-INFLUENT-210-090921	320-78765-1	Other liquid	N	09/09/2021	12:00	FS
SEEP-B-EFFLUENT-210-090921	320-78765-2	Other liquid	N	09/09/2021	12:00	FS
SEEP-B-INFLUENT-330-092321	320-79639-1	Other liquid	N	09/23/2021	11:01	FS
SEEP-B-EFFLUENT-336-092321	320-79639-2	Other liquid	N	09/23/2021	11:00	FS
SEEP-B-EFFLUENT-168-100121	320-79696-3	Other liquid	N	10/01/2021	06:00	FS
SEEP-B-INFLUENT-168-100121	320-79696-4	Other liquid	N	10/01/2021	06:00	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	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, except as noted on the attached DVM Narrative Report.

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.).

DVM Narrative Report

Site: Fayetteville

Sampling Program: Seep Flow Through Cell Sampling 2021

Validation Options: LABSTATS

Validation Reason

Associated MS and/or MSD analysis had relative percent recovery (RPR) values less than the lower control limit. The actual detection limits may be higher than reported.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SEEP-D-EFFLUENT-336-081721	08/17/2021	320-77803-6	PFMOAA	0.0020	ug/L	PQL		0.0020	UJ	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-D-EFFLUENT-336-081721	08/17/2021	320-77803-6	PFMOAA	0.0020	ug/L	PQL		0.0020	UJ	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep

Validation Reason

Associated LCS and/or LCSD analysis had relative percent recovery (RPR) values higher than the upper control limit. The reported result may be biased high.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SEEP-D-INFLUENT-306-081721	08/17/2021	320-77803-5	R-PSDA	0.73	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-336-081721	08/17/2021	320-77803-1	R-PSDA	2.1	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUNET-336-081721	08/17/2021	320-77803-7	R-PSDA	4.8	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-C-INFLUENT-336-081721	08/17/2021	320-77803-3	R-PSDA	0.88	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep

Validation Reason

Uncertainty around the analysis of R-PSDA, Hydrolyzed PSDA and R-EVE; J-qualifier added to all detects in the data set, even if there was no matrix spike analyzed for that particular sample.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SEEP-D-INFLUENT-306-081721	08/17/2021	320-77803-5	Hydrolyzed PSDA	2.0	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-D-INFLUENT-306-081721	08/17/2021	320-77803-5	R-EVE	0.73	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-EFFLUENT-24-082021	08/20/2021	320-78111-2	Hydrolyzed PSDA	0.0022	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-24-082021	08/20/2021	320-78111-1	R-PSDA	1.7	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-24-082021	08/20/2021	320-78111-1	Hydrolyzed PSDA	19	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-24-082021	08/20/2021	320-78111-1	R-EVE	0.97	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-24-082021	08/20/2021	320-78111-7	R-PSDA	4.0	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-24-082021	08/20/2021	320-78111-7	Hydrolyzed PSDA	29	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-24-082021	08/20/2021	320-78111-7	R-EVE	3.2	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-C-INFLUENT-24-082021	08/20/2021	320-78111-3	R-PSDA	0.58	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-C-INFLUENT-24-082021	08/20/2021	320-78111-3	Hydrolyzed PSDA	0.70	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-C-INFLUENT-24-082021	08/20/2021	320-78111-3	R-EVE	0.55	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-D-INFLUENT-24-082021	08/20/2021	320-78111-5	R-PSDA	0.56	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-D-INFLUENT-24-082021	08/20/2021	320-78111-5	Hydrolyzed PSDA	1.3	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-D-INFLUENT-24-082021	08/20/2021	320-78111-5	R-EVE	0.58	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-EFFLUENT-24-082821	08/28/2021	320-78428-2	R-PSDA	0.0075	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep

Validation Reason

Uncertainty around the analysis of R-PSDA, Hydrolyzed PSDA and R-EVE; J-qualifier added to all detects in the data set, even if there was no matrix spike analyzed for that particular sample.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SEEP-A-EFFLUENT-24-082821	08/28/2021	320-78428-2	Hydrolyzed PSDA	0.073	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-EFFLUENT-24-082821	08/28/2021	320-78428-2	R-EVE	0.0053	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-24-082821	08/28/2021	320-78428-1	R-PSDA	2.2	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-24-082821	08/28/2021	320-78428-1	Hydrolyzed PSDA	23	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-24-082821	08/28/2021	320-78428-1	R-EVE	1.0	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-24-082821	08/28/2021	320-78428-7	R-PSDA	3.6	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-24-082821	08/28/2021	320-78428-7	Hydrolyzed PSDA	23	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-24-082821	08/28/2021	320-78428-7	R-EVE	2.2	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-C-INFLUENT-24-082821	08/28/2021	320-78428-3	R-PSDA	0.79	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-C-INFLUENT-24-082821	08/28/2021	320-78428-3	Hydrolyzed PSDA	0.92	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-C-INFLUENT-24-082821	08/28/2021	320-78428-3	R-EVE	0.64	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-D-INFLUENT-24-082821	08/28/2021	320-78428-5	R-PSDA	0.43	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-D-INFLUENT-24-082821	08/28/2021	320-78428-5	Hydrolyzed PSDA	0.98	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-D-INFLUENT-24-082821	08/28/2021	320-78428-5	R-EVE	0.32	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-210-090921	09/09/2021	320-78765-1	R-PSDA	3.9	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-210-090921	09/09/2021	320-78765-1	Hydrolyzed PSDA	32	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-EFFLUENT-168-100121	10/01/2021	320-79696-3	Hydrolyzed PSDA	0.0062	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound		PFAS_DI_Prep

Validation Reason Uncertainty around the analysis of R-PSDA, Hydrolyzed PSDA and R-EVE; J-qualifier added to all detects in the data set, even if there was no matrix spike analyzed for that particular sample.

Field Sample ID	Date		Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
	Sampled	Lab Sample ID										
SEEP-B-EFFLUENT-336-092321	09/23/2021	320-79639-2	R-PSDA	0.0043	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-EFFLUENT-336-092321	09/23/2021	320-79639-2	Hydrolyzed PSDA	0.023	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-EFFLUENT-336-092321	09/23/2021	320-79639-2	R-EVE	0.0037	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-168-100121	10/01/2021	320-79696-4	R-PSDA	7.1	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-168-100121	10/01/2021	320-79696-4	Hydrolyzed PSDA	54	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-168-100121	10/01/2021	320-79696-4	R-EVE	4.4	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-210-090921	09/09/2021	320-78765-1	R-EVE	1.9	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-330-092321	09/23/2021	320-79639-1	R-PSDA	5.1	UG/L	PQL		0.071	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-330-092321	09/23/2021	320-79639-1	Hydrolyzed PSDA	42	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUENT-330-092321	09/23/2021	320-79639-1	R-EVE	3.1	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-EFFLUENT-306-081721	08/17/2021	320-77803-2	Hydrolyzed PSDA	0.0058	UG/L	PQL		0.0020	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-336-081721	08/17/2021	320-77803-1	Hydrolyzed PSDA	23	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-A-INFLUENT-336-081721	08/17/2021	320-77803-1	R-EVE	0.81	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUNET-336-081721	08/17/2021	320-77803-7	Hydrolyzed PSDA	32	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-B-INFLUNET-336-081721	08/17/2021	320-77803-7	R-EVE	2.8	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep
SEEP-C-INFLUENT-336-081721	08/17/2021	320-77803-3	Hydrolyzed PSDA	1.2	UG/L	PQL		0.038	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep

Site: Fayetteville

Sampling Program: Seep Flow Through Cell Sampling 2021

Validation Options: LABSTATS

Validation Reason

Uncertainty around the analysis of R-PSDA, Hydrolyzed PSDA and R-EVE; J-qualifier added to all detects in the data set, even if there was no matrix spike analyzed for that particular sample.

Field Sample ID	Date Sampled	Lab Sample ID	Analyte	Result	Units	Type	MDL	PQL	Validation Qualifier	Analytical Method	Pre-prep	Prep
SEEP-C-INFLUENT-336-081721	08/17/2021	320-77803-3	R-EVE	0.80	UG/L	PQL		0.072	J	Cl. Spec. Table 3 Compound SOP		PFAS_DI_Prep