

September 18, 2018

Gregory MacLean, P.E.
Regional Division of Materials Management Engineer

AND

Karis Manning, P.E.
Regional Division of Water Engineer
New York State Department of Environmental Conservation
6274 East Avon-Lima Road
Avon, New York 14414

**Re: Site Development Plan and Updated Consent Order Schedule
Lockwood Ash Disposal Site**

Dear Mr. MacLean and Ms. Manning:

We prepared the following site development plan and updated schedule, and have determined that under the conditions assumed, the CWTS can be in-place and fully functional by November 1st, 2019. We submit the following information in support of this conclusion for your review and consideration.

Site Development Plan and Interim Leachate Management

A phased construction approach will be utilized to construct the CWTS which will allow use of a portion of the existing Leachate Pond for management of the leachate during remediation and construction activity within the footprint of the proposed system, see the attached Draft Site Development Plan. The following summarizes the proposed construction approach and sequence.

1. The Leachate Pond will be drained by discharging clarified water via existing Outfall 001. The water will be discharged in accordance with the conditions of the existing SPDES permit.
2. A temporary Pond inlet will be installed to direct leachate to the area that will become the Interim Leachate Pond.

3. A temporary berm or cofferdam will be constructed around the proposed footprint of the CWTS, which will create two areas – the CWTS area and the Interim Leachate Pond. The approximate locations of the temporary berm and the two areas are shown on the attached Draft Site Development Plan. During construction of the temporary berm, leachate will be allowed to flow into the Pond. Construction of the temporary berm is anticipated to be completed in four days.
4. Once the temporary berm is completed, leachate will be pumped from the footprint segregated for the CWTS to the Interim Leachate Pond. All incoming leachate will be treated and discharged as normally practiced within the Interim Leachate Pond during the remainder of construction.
5. Sediment will be removed from the CWTS area in accordance with the Sediment Removal and Disposal Plan described in the May 2018 Engineering Report. Sediment removal from the CWTS area is anticipated to be completed within six days.
6. Once sediment removal is complete, construction of the CWTS will commence. CWTS construction will include: fence removal, excavation, compacted fill placement, subgrade preparation, liner system installation, installation of CWTS infrastructure (e.g., cascade aerator, outlet control structures, valves, pipes, effluent metering manhole, outlet, etc.), and restoration to include the planting of wetland vegetation. CWTS construction would be completed within forty days.
7. Once CWTS construction is complete startup and commissioning of the CWTS would begin. A small amount of effluent from the Interim Leachate Pond would be directed to the wetland to establish wetland plants. The wetland plant establishment period is anticipated to be a minimum of ten weeks. A metric will be established to determine when the wetland establishment period is over.
8. Following the wetland establishment period and once the pre-determined metric is met, the wetland can be certified as fully operational, the temporary pond inlet will be removed, and the cascade aerator, settling pond, and wetland will be brought online.

9. All leachate will be drained from the Interim Leachate Pond and the temporary berm will be removed. The remaining sediment will be removed from beneath the temporary berm and the Interim Leachate Pond in accordance with the Sediment Removal and Disposal Plan described in the May 2018 Engineering Report.
10. The northern half of the CWTS berm will be completed to the full design width of the berm.
11. Finally, restoration of the unused portion of the former Leachate Pond, to include grading to blend into existing terrain, CWTS access, and stormwater features will be completed.

Project Schedule

The site development plan detailed above was used to develop a construction schedule. The schedule and construction plan calculations are attached. Construction activities were identified and quantities were calculated that are consistent with the attached Site Development Plan. Production rates contained in the 2017 edition of *RS Means - Site Work & Landscape Data* were used to estimate the time in days needed to complete each activity. The project schedule assumes a normal 5-day work week. Lost time due to inclement weather of approximately one week per month was incorporated into the estimate, as well.

As the schedule shows, the proposed project can be completed well in advance of the November 1st, 2019 deadline. Step 1 in the sequence detailed above is assumed to begin in mid-April. The initial mobilization of the contractor will begin April 15th, 2019. All work required to implement the Engineering Report through site restoration is expected to be completed by September 26th, 2019. Only one task, closure of the confined disposal area, may extend past that date due to the strong dependency on weather conditions.

Given the conservative assumptions made in the construction schedule, it is fully expected to be met. However, a few additional measures will be put in place to ensure the schedule is kept. The construction job will be formally bid to a select list of qualified contractors. The bidders will be required to submit a construction schedule with the bid. If the work begins to fall behind the schedule provided in the bid, overtime will be necessary. Hard deadlines will be established for the completion of Step 6 by August 1st, 2019 (planting of the wetland vegetation) and Step 11 by September 23, 2019 (certification that the wetland is fully operational). The contract will

include liquidated damages which will incur if the work is not fully completed by the established hard deadlines.

Closing

It is our firm belief from having gone through this planning exercise that the proposed construction of the CWTS can be constructed and fully functional by the November 1, 2019 deadline. Approval of the system and construction approach can be accelerated by improving communications and keeping the NYSDEC informed of significant design decisions as they are made. The Engineering Report Revision 2 and a full response to the NYSDEC's additional technical comments is anticipated to be ready for resubmittal within the upcoming weeks provided that the content of this letter is agreeable to NYSDEC.

Thank you for your consideration of the above. As always, please do not hesitate to contact me if you have any questions or concerns about the information provided herein. We look forward to working with the NYSDEC to successfully complete this project.

Sincerely,

DAIGLER ENGINEERING, PC

Bethany Acquisto, Ph.D.
Senior Scientist and Group Manager

ec: Dale Irwin – Lockwood Hills LLC
Ken Scott – Lockwood Hills LLC
Scott Foti – NYSDEC
Scott Sheeley – NYSDEC
Dennis Harkawik – NYSDEC
Yasmin Guevara – NYSDEC
Steve Giese – Brown and Caldwell
Ann Redmond – Brown and Caldwell

Attachments: (1) Site Development Plan Concept
(2) Lockwood Ash Disposal Site Consent Order Compliance Schedule (9/17/18)
(3) Constructed Wetland Treatment System Construction Plan

WARNING: IT IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW ARTICLE 148, SECTION 700(2) FOR ANY PERSON, UNLESS HE/SHE IS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS ITEM IN ANY WAY. IF THIS ITEM, BEARING THE SEAL OF AN ENGINEER, IS ALTERED, THE ALTERING ENGINEER SHALL AFFIX TO THE ITEM HIS/HER SEAL AND THE NOTATION "ALTERED BY" FOLLOWED BY HIS/HER SIGNATURE AND THE DATE OF SUCH ALTERATION AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

DRAFT
SUBMITTAL

9/14/2018

LOCKWOOD HILLS
LLC
LOCKWOOD ASH
DISPOSAL SITE
DRESDEN, NEW YORK

**CONSTRUCTED
WETLANDS LEACHATE
TREATMENT SYSTEM
PRELIMINARY DESIGN**

REVISIONS		
REV	DATE	DESCRIPTION

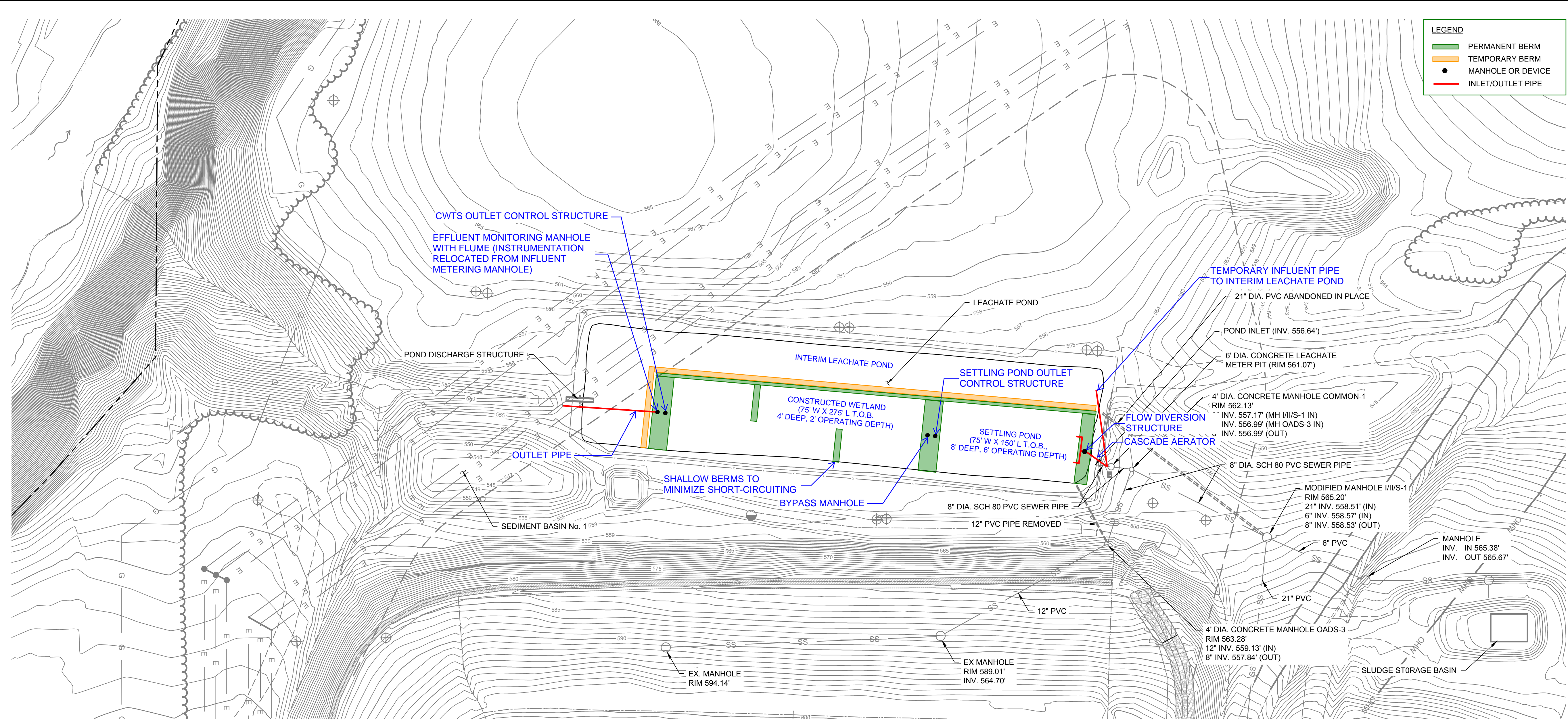
LINE IS 2 INCHES AT FULL SIZE

DESIGNED: A. ANDREWS
DRAWN: R. NEAR
CHECKED: S. GIESE

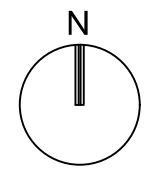
APPROVED:
FILENAME: C-101.DWG
BC PROJECT NUMBER: 152178
CLIENT PROJECT NUMBER: 5

CIVIL
SITE DEVELOPMENT PLAN

DRAWING NUMBER
C-101
SHEET NUMBER
3 OF



SITE DEVELOPMENT PLAN
SCALE: 1" = 60'



LEGEND

	PERMANENT BERM
	TEMPORARY BERM
●	MANHOLE OR DEVICE
—	INLET/OUTLET PIPE

LEGEND:

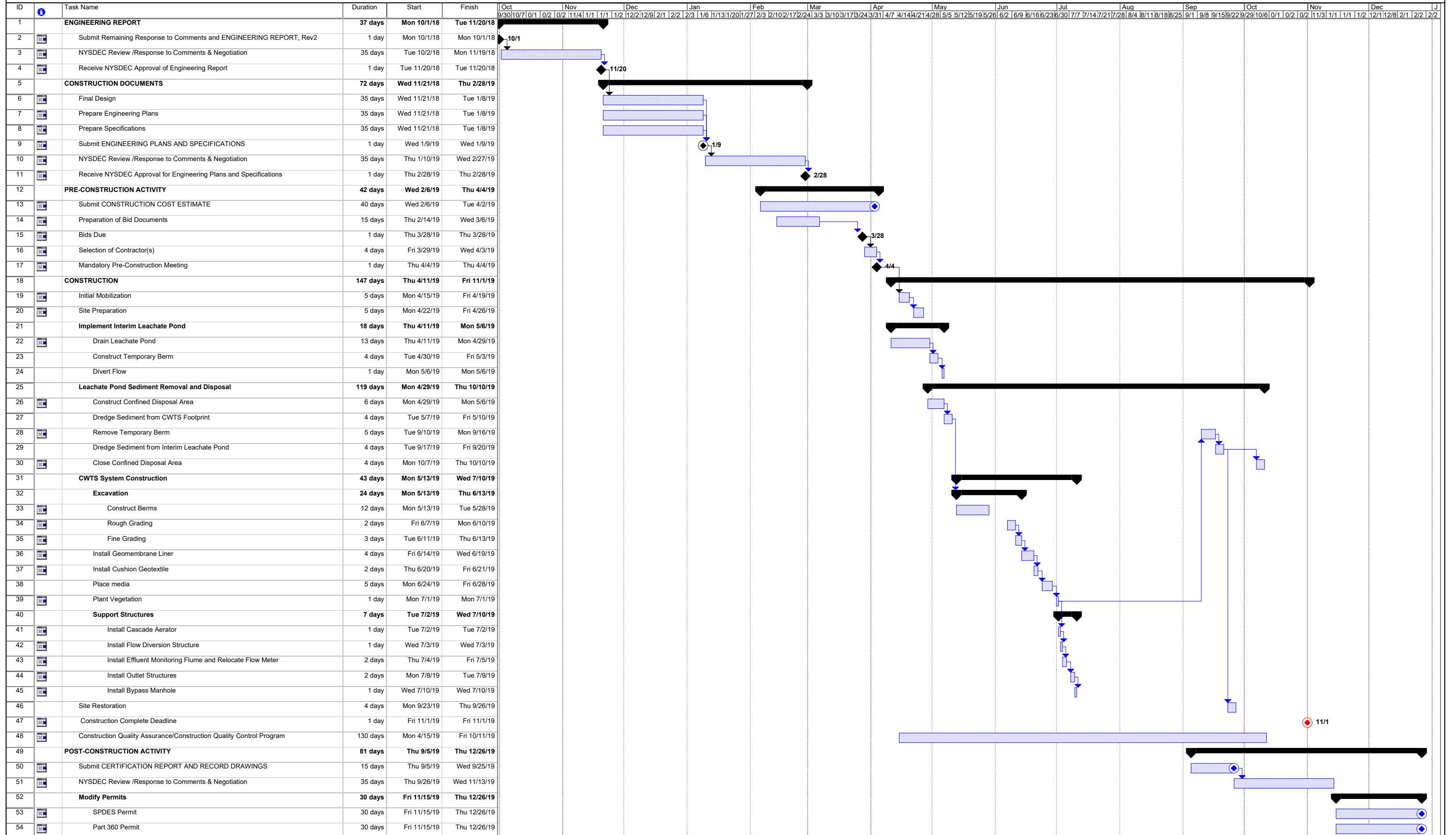
---	PROPERTY LINE
---	TAX LOT LINE
630	GROUND SURFACE 5' INDEX CONTOUR
---	GROUND SURFACE 1' MINOR CONTOUR
---	PAVED ROAD
---	UNPAVED ROAD
---	FENCE LINE
⊕	MONITORING WELL
E	OVERHEAD POWER LINES
OHW	OVERHEAD WIRE
SS	LEACHATE SEWER AND MANHOLES
G	GAS LINE

MAP SOURCES:
1. BASEMAP FROM DIGITAL CAD FILE SITE PLAN FOR RD1, ENTITLED "SITE PLAN AND PROJECT LOCATION" DATED JUNE 2016 BY DAIGLER ENGINEERING, P.C. BROWN AND CALDWELL ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE SAME.
2. THE VERTICAL CONTROL IS THE GREENIDGE STATION PLANT DATUM. THE HORIZONTAL CONTROL IS REFERENCED TO THE NEW YORK STATE GRID NAD 83.

PLOT DATE: 9/11/2018 9:30 AM CAD USER: ROBERT NEAR FILENAME: C-101.DWG PLOT DATE: 9/11/2018 9:30 AM CAD USER: ROBERT NEAR

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LOCKWOOD HILLS LLC
LOCKWOOD ASH DISPOSAL SITE CONSENT ORDER COMPLIANCE SCHEDULE



Lockwood Hills LLC
Constructed Wetland Treatment System (CWTS)
Construction Plan

Construction Activity	Description of Assumptions	Production Rate	Quantities	Completion Rate	Production Rate Reference	RS Means Crew
Divert Leachate Flow to Interim Leachate Pond				1 days	Approximation	
Construct Cofferdam				4 days	Lost days due to weather: 1	
Excavate soil stockpile	Hydraulic, crawler mounted, 2 cy cap, 1.20 quantity factor	1320 bcy/day	690 bcy	1 days	RS Means page 291, line 0260	B-12C
Haul soil to bank of pond	22 cy off-road, 2,000 foot cycle, 10 mph, 1.15 bulk factor, 1.20 quantity factor	594 lcy/day	794 lcy	2 days	RS Means page 314, line 5060	B-34F
Backfill cofferdam east-west	Dozer, 105 hp, 300' haul, clay, 1.15 bulk factor, 1.20 quantity factor	370 lcy/day	660 lcy	2 days	RS Means page 299, line 3340	B-10W
Backfill cofferdam north-south	Dozer, 105 hp, 50' haul, clay, 1.15 bulk factor, 1.20 quantity factor	1100 lcy/day	138 lcy	1 days	RS Means page 299, line 3040	B-10W
Dredge Sediment from Construction Area and Dispose in Confined Disposal Area (CDA)				4 days	Lost days due to weather: 1	
Push sediment to bank of pond	Dozer, 200 hp, 50' haul, sandy clay and loam	1,360 bcy/day	3,000 bcy	3 days	RS Means page 294, line 4010	B-10B
Excavate material from pond	Hydraulic, crawler mounted, 2 cy cap	1320 bcy/day	3,000 bcy	3 days	RS Means page 291, line 0260	B-12C
Haul sediment to CDA	22 cy off-road, 1 mile cycle, 10 mph, 3 trucks onsite, 1.15 bulk factor	1518 lcy/day	3450 lcy	3 days	RS Means page 314, line 5100	B-34F
Construct Settling Pond and free Surface Wetland				24 days	Lost days due to weather: 4	
Excavate Settling Pond and Surface Wetland						
Push excavated soil to proposed berm areas	Dozer, 200 hp, 50' haul, clay	770 bcy/day	4524 bcy	6 days	RS Means page 294, line 4040	B-10B
Construct permanent berm using excavated soil						
Backfill berm east-west	Dozer, 200 hp, 300' haul, clay, 1.15 bulk factor, 1.20 quantity factor	660 lcy/day	3254 lcy		RS Means page 299, line 4440	B-10B
Backfill berm north-south	Dozer, 200 hp, 50' haul, clay, 1.15 bulk factor, 1.20 quantity factor	1950 lcy/day	493 lcy	6 days	RS Means page 299, line 4040	B-10B
Backfill intermediate berm north-south	Dozer, 200 hp, 50' haul, clay, 1.15 bulk factor, 1.20 quantity factor	1950 lcy/day	1508 lcy		RS Means page 299, line 4040	B-10B
Rough grading of subgrade and permanent berms	25,100-30,000 sf per day (use average), dozer	38,625 sf/day	39,700 sf	2 days	RS Means page 282, line 0170	B-10L
Fine grading						
Base of Settling Pond and Wetland	Gentle slopes	8900 sy/day	15000 sy	2 days	RS Means page 282, line 3310	B-11L
Permanent berm sideslopes	Steep slopes	7100 sy/day	3000 sy	1 days	RS Means page 282, line 3500	B-11L
Install geomembrane liner	60 mil thick	0.25 ac/day	0.92 ac	4 days	Approximation	
Install geotextile cushion	Non-woven, 120 lb. tensile strength	2500 sy/day	4500 sy	2 days	RS Means page 326, line 1550	2 Clab
Place soil media above geotextile						
Excavate soil stockpile and place into trucks	Hydraulic, crawler mounted, 2 cy cap, 1.20 quantity factor	1320 bcy/day	1800 bcy	2 days	RS Means page 291, line 0260	B-12C
Haul soil to work area	22 cy off-road, 2,000 foot cycle, 10 mph, 2 trucks onsite, 1.15 bulk factor, 1.20 quantity factor	1188 lcy/day	2070 lcy	2 days	RS Means page 314, line 5060	B-34F
Backfill soil	Dozer, 200 hp, 50' haul, sandy clay and loam, 1.20 quantity factor	2,435 bcy/day	1,800 bcy	1 days	RS Means page 294, line 4010	B-10B
Apply wetland plants				1 days	Approximation	
Install Support Structures				7 days	Lost days due to weather: 1	
Install cascade aerator				1 days	RS Means page 493, line 1118	B-22
Install flow diversion structure				1 days	RS Means page 493, line 1119	B-22
Install effluent monitoring manhole with flume				1 days	RS Means page 493, line 1120	B-22
Install CWTS outlet control structure				1 days	RS Means page 493, line 1120	B-22
Install Settling Pond outlet control structure				1 days	RS Means page 493, line 1120	B-22
Install Settling Pond bypass manhole				1 days	RS Means page 493, line 1120	B-22
Dredge Remaining Sediment from Interim Leachate Pond and Dispose in Confined Disposal Area (CDA), Close CDA				4 days	Lost days due to weather: 1	
Push sediment to bank of pond	Dozer, 200 hp, 50' haul, sandy clay and loam	1,360 bcy/day	1,000 bcy	1 days	RS Means page 294, line 4010	B-10B
Excavate material from pond	Hydraulic, crawler mounted, 2 cy cap	1320 bcy/day	1,000 bcy	1 days	RS Means page 291, line 0260	B-12C
Haul sediment to CDA	22 cy off-road, 1 mile cycle, 10 mph, 3 trucks onsite, 1.15 bulk factor	1518 lcy/day	1150 lcy	1 days	RS Means page 314, line 5100	B-34F
Grade sediment at CDA	Dozer, 200 hp, 50' haul, sandy clay and loam, 1.20 quantity factor	2,435 bcy/day	4600 lcy	2 days	RS Means page 294, line 4010	B-10B
Backfill CDA when finished	Dozer, 105 hp, 50' haul, common earth, 150'x150' area, 6" cover	1225 lcy/day	417 lcy	1 days	RS Means page 299, line 3020	B-10W
Site Stabilization				4 days	Lost days due to weather: 1	
Grade Topsoil on finished grades	200 hp, 150' haul, common earth, 1.15 bulk factor, 1.20 quantity factor	1,100 lcy/day	1,390 lcy	2 days	RS Means page 299, line 4220	B-10B
Apply seed	Hydro or air seeding with mulch and fertilizer	80,000 sf/day	54,400 sf	1 days	RS Means page 391, line 0200	B-81
Final Remediation and Grading of Interim Leachate Pond				4 days	Lost days due to weather: 1	
Construction time needed to apply wetland plants		33 days	6.6 weeks	1.7 months		
Time to establish wetland vegetation (evaluation metric)		90 days	18.0 weeks	4.5 months	Note: Required weeks and months assume 5 working days per week.	
Time needed to bring CWTS online		123 days	24.6 weeks	6.2 months		
Total Construction time needed to Remediate Leachate Pond		52 days	10.4 weeks	2.6 months		