DAIGLER ENGINEERING, P.C.
CIVIL & GEO-ENVIRONMENTAL ENGINEERING

Transmittal

To: Mr. Charles Cranston
New York State Department of Environmental Conservation – Region 9
182 Union Street
Allegany, New York 14706-1328

Date: February 23, 2015

Re: Carroll C&D Landfill Expansion
Water Withdrawal Permit Application

Dear Charles Cranston,

On behalf of Sealand Waste, LLC, please find enclosed two copies of the NYSDEC Water Withdrawal Permit Application for non-potable water withdrawals associated with the expansion of the Jones-Carroll C&D landfill. One copy is for your use and another for distribution as you deem fit. The application has been completed in accordance with Part 601 Water Withdrawal Permitting, Reporting and Registration requirements. An electronic copy was emailed to initialwwpermits@dec.ny.gov and an additional two copies were sent to Dave Denk, Regional Permit Administrator for NYSDEC Region 9, for his use and distribution.

	Applicant	*Engineer*
Name:	Daniel Bree	James A. Daigler, PE
Company:	Sealand Waste, LLC.	Daigler Engineering, PC
Address:	85 High Tech Drive Rush, New York 14543	2620 Grand Island Blvd Grand Island, NY 14072
Phone:	(585) 359-9242	(716) 773-6872 ex. 205

Should you have any questions or comments, please do not hesitate to contact us.

Sincerely,
DAIGLER ENGINEERING, PC

James A. Daigler, PE
President

cc: Dave Denk, Regional Permit Administrator, NYSDEC Region 9 (2 Copies)

Enclosures: Water Withdrawal Permit Application for Non-Potable Water Withdrawals (2 Copies)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

APPLICANT CHECKLIST FOR WATER WITHDRAWAL PERMIT

Complete this form and include with application

Applicant Name: Daniel Bree **Facility Name:** Carroll Landfill

Facility Address: 309 Dodge Road, Frewsburg, New York 14738 **DEC Region:** 9

Project Type (From WW-1): Water Withdrawal

Water Use (From WW-1): Other

For Department Use: WWA #:

Item No.	Requirement (*see*, 6 NYCRR § 601.10) http://www.dec.ny.gov/regs/4445.html http://www.dec.ny.gov/lands/94327.html) **	Included or N/A?	Location of Item In Application Package
1	Electronic Copy of Application Package (Recommended)	N/A	
2	Application Transmittal Letter	Included	Enclosure
3	Joint Application Form – signed **	Included	Enclosure
4	WW-1 Form **	Included	Enclosure
5	Project Authorization for public water supply (PWS) systems, include legal certification form and proof of transportation corporation formation if applicable **	N/A	
6	General Map - Include location of project and other pertinent features.	Included	Engineer's Report
7	Watershed Maps – if applicable	Included	Engineer's Report
8	Contract plans for non-public water supply systems. Plans for PWS systems should be sent directly to NYS Department of Health (DOH)	Included	Engineer's Report
9	Engineering Report - PE signed and sealed **	Included	Enclosure
10	Water Conservation Program Form – signed **	Included	Enclosure
11	Latest Annual Water Withdrawal Reporting Form (for projects involving existing withdrawals)	N/A	
12	Land Acquisition Maps - if applicable	N/A	
13	Water Analysis - sent directly to DOH if new PWS source	N/A	
14	Project Justification - 8 questions answered	Included	Engineer's Report
15	Canal withdrawal approvals - if applicable	N/A	
16	Great Lakes Basin Diversion - if proposed	N/A	
17	SEQR Form, include Determination if available	Included	Enclosure
18	State Historic Preservation Office (SHPO) submission or No Effect Letter from SHPO	Included	Enclosure

Reset Form

JOINT APPLICATION FORM

For Permits/Determinations to undertake activities affecting streams, waterways, waterbodies, wetlands, coastal areas and sources of water withdrawal.

New York State

US Army Corps of Engineers (USACE)

You must separately apply for and obtain separate Permits/Determinations from each involved agency prior to proceeding with work. Please read all instructions.

APPLICATIONS TO

1. NYS Department of Environmental Conservation

Check all permits that apply:

- ☐ Stream Disturbance
- ☐ Excavation and Fill in Navigable Waters
- ☐ Docks, Moorings or Platforms
- ☐ Dams and Impoundment Structures
- ☐ 401 Water Quality Certification
- ☐ Freshwater Wetlands
- ☐ Tidal Wetlands
- ☐ Coastal Erosion Management
- ☐ Wild, Scenic and Recreational Rivers
- ☑ Water Withdrawal
- ☐ Long Island Well
- ☐ Aquatic Vegetation Control
- ☐ Aquatic Insect Control
- ☐ Fish Control
- ☐ Incidental Take of Endangered/Threatened Species

☑ I am sending this application to this agency.

2. US Army Corps of Engineers

Check all permits that apply:

- ☐ Section 404 Clean Water Act
- ☐ Section 10 Rivers and Harbors Act
- ☐ Nationwide Permit(s) - Identify Number(s): _____

Preconstruction Notification - ☐ Y / ☐ N

☐ I am sending this application to this agency.

3. NYS Office of General Services

Check all permits that apply:

- ☐ State Owned Lands Under Water
- ☐ Utility Easement (pipelines, conduits, cables, etc.)
- ☐ Docks, Moorings or Platforms

☐ I am sending this application to this agency.

4. NYS Department of State

Check if this applies:

- ☐ Coastal Consistency Concurrence

☐ I am sending this application to this agency.

5. Name of Applicant (use full name)

Sealand Waste, LLC attn: Daniel Bree

Mailing Address: 85 High Tech Drive

Post Office City: Rush

State: NY Zip Code: 14543

Telephone (daytime): (585) 359-9242

Email:

Applicant must be:

- ☑ Owner
- ☑ Operator
- ☐ Lessee

(check all that apply)

Taxpayer ID (If applicant is NOT an individual):

6. Name of Facility or Property Owner (if different than Applicant)

Mailing Address:

Post Office City:

State: Zip Code:

Telephone (daytime): Email:

7. Contact/Agent Name

James Daigler, PE

Company Name: Daigler Engineering, PC

Mailing Address: 2620 Grand Island Blvd

Post Office City: Grand Island

State: NY Zip Code: 14072

Telephone (daytime): (716) 773-6872 x205

Email: jim@jadenvegr.com

8. Project / Facility Name

Carroll C&D Landfill Expansion

Property Tax Map Section / Block / Lot Number: 458.00-1-30

Project Location - Provide directions and distances to roads, bridges and bodies of waters:

~8,000' from intersection of Dodge and Wiltsie Rds & ~3,000' from intersection of Dodge and Sandberg Rds.3 locations on east PL where Storehouse Run enters site

Street Address, if applicable: 309 Dodge Road

Post Office City: Frewsburg State: NY Zip Code: 14738

Town / Village / City: Carroll

County: Chautauqua

Name of USGS Quadrangle Map: Ivory

Stream/Water Body Name: Storehouse Run & Trib to Storehouse Run

Location Coordinates: Enter NYTMs in kilometers, **OR** Latitude/Longitude

NYTM-E	NYTM-N	Latitude	Longitude
		42.0134946°	-79.0880985°

For Agency Use Only: DEC Application Number: USACE Number:

JOINT APPLICATION FORM - PAGE 2 OF 2

Submit this completed page as part of your Application.

9. **Project Description and Purpose:** Provide a complete narrative description of the proposed work and its purpose. Attach additional page(s) if necessary. Include: description of current site conditions and how the site will be modified by the proposed project; structures and fill materials to be installed; type and quantity of materials to be used (i.e., square ft of coverage and cubic yds of fill material and/or structures below ordinary/mean high water) area of excavation or dredging, volumes of material to be removed and location of dredged material disposal or use; work methods and type of equipment to be used; pollution control methods and mitigation activities proposed to compensate for resource impacts; and where applicable, the phasing of activities. **ATTACH PLANS ON SEPARATE PAGES.**

- see NYSDEC Water Withdrawal Permit Permit Application Engineer's Report for project description and purpose
- no photographs available as proposed wells/trenches/drains will be constructed after excavation of existing grade
- SEQR Determination included as attachment to the Engineer's Report in place of SEAF or FEAF

Proposed Use: ☑ Private ☐ Public ☐ Commercial	Proposed Start Date: January 2017	Estimated Completion Date: August 2028
Has Work Begun on Project? ☐ Yes ☑ No If Yes, explain.		
Will Project Occupy Federal, State or Municipal Land? ☐ Yes ☑ No If Yes, please specify.		

10. List Previous Permit / Application Numbers (if any) and Dates:
Part 360 Permit #9-0624-00025/00002-0 (Oct 1989 - Oct 31, 2007)

11. Will this project require additional Federal, State, or Local Permits including zoning changes? ☑ Yes ☐ No If yes, please list:
See Section 6 of the NYSDEC Water Withdrawal Permit Application Engineer's Report

12. **Signatures.** If applicant is not the owner, both must sign the application.
I hereby affirm that information provided on this form and all attachments submitted herewith is true to the best of my knowledge and belief. False statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law. Further, the applicant accepts full responsibility for all damage, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and agrees to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from said project. In addition, Federal Law, 18 U.S.C., Section 1001 provides for a fine of not more than $10,000 or imprisonment for not more than 5 years, or both where an applicant knowingly and willingly falsifies, conceals, or covers up a material fact; or knowingly makes or uses a false, fictitious or fraudulent statement.

Signature of Applicant	Daniel Bree, Owner Printed Name	Sealand Waste, LLC Title	2/23/16 Date
Same as Applicant Signature of Owner	Printed Name	Title	Date
James Daigler Signature of Agent	James Daigler, President Printed Name	Daigler Engineering PC Title	2/23/16 Date

For Agency Use Only **DETERMINATION OF NO PERMIT REQUIRED**

_____ (Agency Name) has determined that No Permit is required from this Agency for the project described in this application. Agency Project Number _____

Agency Representative: Name (printed) _____ Title _____

Signature _____ Date _____

Joint Application Form - Attachment
Coordinates for Wellheads and Intakes

Well/Intake	Northing	Easting
DW-1	733603.4664	1011532.4511
DW-2	733700.0048	1011506.9220
DW-3	733872.8347	1011498.6776
DW-4	733347.3993	1010592.9982
DW-5	733467.3063	1010597.7225
DW-6	733637.1745	1010604.4153
DW-7	734006.2076	1011511.8294
DW-8	734135.3892	1011526.3939
Trench Drain	733577.2923	1011517.1493
Porewater Drain	733516.4530	1011555.8110

New York State
Department of Environmental Conservation

PERMISSION TO INSPECT PROPERTY

By signing this permission form for submission with an application for a permit(s) to the Department of Environmental Conservation ("DEC"), the signer consents to inspection by DEC staff of the project site or facility for which a permit is sought and, to the extent necessary, areas adjacent to the project site or facility. This consent allows DEC staff to enter upon and pass through such property in order to inspect the project site or facility, without prior notice, between the hours of 7:00 a.m. and 7:00 p.m., Monday through Friday. If DEC staff should wish to conduct an inspection at any other times, DEC staff will so notify the applicant and will obtain a separate consent for such an inspection.

Inspections may take place as part of the application review prior to a decision to grant or deny the permit(s) sought. By signing this consent form, the signer agrees that this consent remains in effect as long as the application is pending, and is effective regardless of whether the signer, applicant or an agent is present at the time of the inspection. In the event that the project site or facility is posted with any form of "posted" or "keep out" notices, or fenced in with an unlocked gate, this permission authorizes DEC staff to disregard such notices or unlocked gates at the time of inspection.

The signer further agrees that during an inspection, DEC staff may, among other things, take measurements, may analyze physical characteristics of the site including, but not limited to, soils and vegetation (taking samples for analysis), and may make drawings and take photographs.

Failure to grant consent for an inspection is grounds for, and may result in, denial of the permit(s) sought by the application.

Permission is granted for inspection of property located at the following address(es):

309 Dodge Road. Frewsburg, New York 14738

~8,000' from intersection of Dodge and Wiltsie Rds & ~3,000' from intersection of Dodge and Sandberg Rds.

*By signing this form, I affirm under penalty of perjury that I am authorized to give consent to entry by DEC staff as described above. I understand that false statements made herein are punishable as a Class A misdemeanor pursuant to Section 210.45 of the Penal Law.**

Daniel Bree Owner Sealand Waste, LLC		2/23/16
Print Name and Title	Signature	Date

*The signer of this form must be an individual or authorized representative of a legal entity that:

- owns fee title and is in possession of the property identified above;
- maintains possessory interest in the property through a lease, rental agreement or other legally binding agreement; or
- is provided permission to act on behalf of an individual or legal entity possessing fee title or other possessory interest in the property for the purpose of consenting to inspection of such property.

New York State Department of Environmental Conservation

Water Withdrawal Application Supplement WW-1

Pursuant to 6 NYCRR Part 601: http://www.dec.ny.gov/regs/4445.html

READ THE INSTRUCTIONS ON PAGE 2 BEFORE COMPLETING THIS FORM

May 2013

FOR DEPARTMENT USE ONLY
Application No.
WWA Number

1. APPLICANT NAME Sealand Waste, LLC attn. Daniel Bree

2. FACILITY NAME Carroll C&D Landfill

3. PROJECT TYPE
☑ Water Withdrawal ☐ New Public Water Supply Service Area or Extension
☐ Land Acquisition for Public Water Supply ☐ Change in Use of Existing Water Withdrawal

4. WATER USE TYPE
☐ Public Water Supply ☐ Bottled/Bulk Water ☐ Commercial ☐ Cooling ☐ Industrial
☐ Institutional ☐ Mine Dewatering ☐ Oil/Gas Production ☐ Power Production ☐ Recreational
☑ Other: Dewatering for landfill baseliner construction

5. WITHDRAWAL TYPE ☐ Existing ☑ New
If this is an existing public water supply, provide the most recent WSA or WWA Number:
If other than public water supply, list other existing or pending related DEC permits (e.g., SPDES, Mining, Dam):
See Section 6 of the NYSDEC Water Withdrawal Permit Application Engineer's Report

6. WATER WITHDRAWAL SOURCE ☐ Surface Water Water Body Name(s):
☑ Groundwater Nearest Surface Water Body: Intermittent Stream Distance From Well (in feet): 265

7. WATER SUPPLY TO OTHER STATES Does this project involve the transport of any fresh water of NYS through pipes, conduits, ditches or canals to any other state?
☑ No ☐ Yes, describe:

8. TRANSPORTATION OF WATER BY VESSEL Does this project involve the transport by vessel of more than 10,000 gallons per day of surface water? (Excludes ballast water necessary for normal vessel activity. A vessel is defined as any floating craft propelled by mechanical power.) ☐ Yes ☑ No

9. WATER WITHDRAWAL AMOUNTS This project involves the withdrawal of up to: 615,000 gallons per day Source Name: Groundwater
Does the project include a MAJOR DRAINAGE BASIN TRANSFER of water? See map at http://www.dec.ny.gov/lands/56800.html ☑ No ☐ Yes
If yes, ☐ Existing ☐ New From Basin: To Basin:

10. *REQUIRED EXHIBITS (6 NYCRR Part 601.10)* *Provide the names of the required exhibits applicable to this withdrawal:*

601.10(a) PROJECT AUTHORIZATION FOR PUBLIC WATER SUPPLY SYSTEMS (e.g. Resolutions, Ordinances)	N/A	***601.10(h) ACQUISITION MAPS (Map of any lands to be acquired as part of project)***	N/A
601.10(b) GENERAL MAP (e.g. Project Location, For Public Water Supplies - water service area boundary)	Engineer's Report	***601.10(i) WATER ANALYSES (Public Water Supplies should submit chemical & bacterial analysis directly to NYSDOH)***	N/A
601.10(c) WATERSHED MAPS (Topographic map with location of withdrawal and any return flow or interbasin diversions).	Engineer's Report	***601.10(j) TREATMENT METHODS (Public Water Supplies - proposed methods to meet NYSDOH standards)***	N/A
601.10(d) CONTRACT PLANS (Public Water Supplies should submit directly to NYSDOH for review and approval)	Engineer's Report	***601.10(k) PROJECT JUSTIFICATION (Provide summary statement of answers to the eight justification questions)***	Engineer's Report
601.10(e) ENGINEER'S REPORT (Signed by NYS PE, includes project description, water source yields and demands, etc.)	Engineer's Report	***601.10(l) CANAL WITHDRAWAL APPROVALS (If applicable, provide adequate proof of approval from Canal Authority)***	N/A
601.10(f) WATER CONSERVATION PROGRAM (Completed Water Conservation Program Form)	Engineer's Report	***601.10(m) TRANSMITTAL LETTER (Include all contact information for applicant, attorney, engineer, etc.)***	Attached
601.10(g) ANNUAL REPORTING FORM FOR EXISTING WITHDRAWALS (Most recent submitted annual report)	N/A	***601.10(n) GREAT LAKES-ST. LAWRENCE RIVER WATER RESOURCES COMPACT PROCESS REQUIREMENTS (Only applicable to Public Water Supply diversions from Great Lakes Basin - no other diversion types are allowed).***	N/A

Clear Form

Applicant Signature: [signature] Name: Daniel Bree Date: 2/23/2016

Title: Owner Sealand Waste, LLC

DEPARTMENT OF ENVIRONMENTAL CONSERVATION

WATER CONSERVATION PROGRAM FORM

NON-POTABLE WATER WITHDRAWALS

TO BE COMPLETED AND SUBMITTED AS PART OF A NYSDEC WATER WITHDRAWAL PERMIT APPLICATION
***SEE PAGE 6 FOR FURTHER INTRODUCTION AND INSTRUCTION REGARDING THIS FORM**

If your water facility already has its own written water conservation program, you may submit it as a supplement to this WCPF. If your system is new, indicate the water conservation measures that will be taken when the system is completed (e.g. All sources of withdrawal will be 100% metered).

I. GENERAL SYSTEM INFORMATION

Facility Name: Carroll C&D Landfill		DEC No. For Dept Use	
Street Address: 309 Dodge Road		WWA No. For Dept Use	
Post Office Box:	**County:** Chautauqua	**State:** New York	**ZIP:** 14738
Contact Name: James Daigler			
Street Address: 2620 Grand Island Blvd.			
Post Office Box:	**County:** Erie	**State:** New York	**ZIP:** 14072
Applicant's Telephone: 585 359-9242		**Contact's Telephone:** 716 773-6872	

II. SOURCES OF WATER WITHDRAWAL

[State capacity and withdrawal in gallons per minute (**gpm**), gallons per day (**gpd**), or million gallons per day (**mgd**).]

Source Type: S = Surface supply, G = Groundwater supply, P = Purchased supply
Source Status: R = Regular use, S = Standby use, E = Emergency use, I = Inactive, D = Decommissioned

Source Name	Source Type	Source Status	Tested Capacity	Actual Current Withdrawal	Start-up Year
See Attached Supplemental Sheet					

III. WATER SOURCES AND METERING

For unmetered systems, please provide your best estimates for water production and/or consumption.

Are all sources of supply (including major interconnections) equipped with master meters?	Yes
How often are they read? 5-6 days/week	
How often are they calibrated? annually	
Are there secondary meters located within the facility or system? No	If yes, how many?
Describe secondary metering system if applicable:	

Water Production for Calendar Year	
Total metered water production:	gallons per year
Average day production (total/days of use):	gallons per day
Maximum day production (largest single day):	gallons per day

What are your future goals and schedule for water metering?

All water withdrawals will be metered. Readings taken 5-6 days/week and heads monitored in select monitoring wells/piezometers will provide sufficient information to determine if dewatering wells are providing adequate draw-down of groundwater table for safe construction of landfill liner system. Atypical readings will signal the need for calibration, investigation into possible leaks, or investigations of other causes of the possible anomaly. Water production has not been metered as this is a new system.

Best Management Practices:

** 100% metering of all sources of water withdrawal.*

** Source and secondary meters must be tested and calibrated annually.*

IV. WATER AUDITING

The process of conducting an audit of a water system will enable the collection of data on how much and where water enters, leaves and is used within a facility or system. Another goal of a water audit is to estimate unaccounted-for water use, which includes: Losses through leaks, improperly-functioning or inoperative system controls and unmetered sources of water. The water audit provides a system with a baseline against which water-conservation measures can be evaluated.

Do you conduct a water audit at least once each year? If yes, please submit a copy of your latest audit in addition to completing the following section.

** Water Audit for Calendar Year

Total metered water production (from previous section)		Total		
Sources of Water Use	**Metered or Estimated?**			**% of Total**
Process Water		subtract		
Cooling Water		subtract		
Wash Water		subtract		
Sanitary		subtract		
Incorporation into Product		subtract		
Irrigation		subtract		
Other		subtract		
Other		subtract		
TOTAL UNACCOUNTED-FOR WATER		Sub-total		
Unaccounted-for water breakdown	Meter under-registration	subtract		
	Unrepaired leakage	subtract		
	Other:	subtract		
** Water measurement and accounting techniques are available in NYSDEC's Water Conservation Manual, http://www.dec.ny.gov/lands/39346.html			0	

What are your future goals for water system auditing?

System audit will be conducted annually. In the event of leak discovery, best estimate of lost water will be included. A water audit has not been conducted as this will be a new facility.

Best Management Practices:

** At least once each year, a system water audit must be conducted using metered water production and consumption data to determine unaccounted-for water.*

** Keep accurate estimates of unmetered water use.*

** Quantify all authorized water uses by consumption categories.*

V. LEAK DETECTION AND REPAIR

Do you regularly survey your facility for leakage? Yes
Are leaks repaired in a timely manner? Yes
If applicable, do you regularly survey underground piping for water leakage? No

Total length of underground piping	Percent of piping surveyed each year	Length of pipe surveyed each year	Listening equipment used	Year of last survey	Number of leaks found	Number of leaks repaired

What are your future goals for water system leak detection and repair?
Inspection of water withdrawal locations for leaks will be conducted as part of the nearly daily meter readings and annual calibration events. Leaks or other issues will be documented and repaired as soon as is practicable.

Best Management Practices:

** Check any underground water distribution systems for leaks each year.*

** Fix every detectable leak as soon as possible.*

** Have an on-going system rehabilitation program.*

VI. WATER REUSE, RECYCLING AND DROUGHT PLANNING

Does your facility reuse or recycle primary use water? Yes If yes, describe process:
Water from construction dewatering will be discharged directly into the unnamed tributary to Storehouse Run and Sandberg Road drainage channel.

Does your facility use reclaimed rainwater, storm water runoff or wastewater? Yes If yes, describe process:
Stormwater runoff is collected in stormwater basins located onsite. This water is the primary supply for dust control via water truck.

Describe any equipment or processes that promote the efficient use of water by your facility:
Magnetic flow meters monitor all withdrawals from groundwater. Leaks resulting in lost water will be repaired as soon as is practicable.

Does your system include storage tanks or ponds to meet short term water demands?
Stormwater basins contain stormwater runoff from the site to be used for dust suppression.

Describe any actions that can be taken to reduce water use during times of drought:
All machine and equipment washing will halt in times of drought and a site wide reduction in water usage will be implemented. Onsite private well water may be used for dust control in addition to dust suppressants.

What are your future goals for recycling or reducing water usage?
Constructing the cells in the most time efficient manner, thus reducing dewatering time and volume. Discharging dewatering water into the unnamed tributary to Storehouse Run. Utilizing the water truck only when needed. Limiting machine washing to once every two weeks, or as needed.

Best Management Practices:

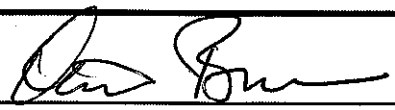
** Reuse or recycle water whenever possible.*

** Employ efficient irrigation techniques*

** Develop a plan to reduce water use during times of drought.*

VI. SIGNATURE PAGE AND DISCUSSION

Facility Name: Carroll C&D Landfill	WWA No. For Dept Use

Signature: 	Signatory: Daniel Bree
Title: Owner Sealand Waste, LLC	Date: February 23, 2016

DISCUSSION:

Effective February 15, 2011, New York State Environmental Conservation Law (§ECL 15-1501) has required that all applications for a NYSDEC Water Withdrawal Permit include a water conservation program. This Water Conservation Program Form (WCPF) is a required submittal of all such applications.

The WCPF has been set up to cover the following basic elements of a water conservation program: Source Water Inventory, Water Usage and Metering, Water Auditing, Leak Detection/Repair, and Water Use Reduction. The Best Management Practices listed at the bottom of each page represent DEC water conservation policy objectives and should be incorporated into your program development. Additional water conservation measures that are specific to your category of water usage should also be incorporated into your individual program.

Water withdrawal permit applicants can consult the NYSDEC publication entitled "A Survey of Methods for Implementing and Documenting Water Conservation in New York".

The American Water Works Association (AWWA) is also an excellent source of information regarding water conservation practices and procedures. Information ranging from technical manuals to online resources and tools can be found at http://www.awwa.org.

Clear Entire Form

WATER CONSERVATION PROGRAM FORM SUPPLEMENTAL SHEET
II. SOURCES OF WATER WITHDRAWAL

Source[1]	Source Type	Source Status	Tested Capacity	Actual Current Withdrawl	Unit	Start-up Year[2]
DW-1	G	R	-	105	GPM	2017
DW-2	G	R	-	95	GPM	2017
DW-3	G	R	-	85	GPM	2017
TDR1	G	R	-	210	GPM	2017
DW-4	G	R	-	54	GPM	2019
DW-5	G	R	-	54	GPM	2019
DW-6	G	R	-	54	GPM	2019
DW-7	G	R	-	65	GPM	2020
DW-8	G	R	-	65	GPM	2020
TDR2	G	R	-	210	GPM	2020
PWD	G	R	-	6.9	GPM	2017

Notes:

[1]DW = Dewatering Well; TDR = Trench Drain Reach; PWD = Porewater Drain

[2]Assumes all permits needed for construction are in place by 2017

STATE ENVIRONMENTAL QUALITY REVIEW ACT
POSITIVE DECLARATION
NOTICE OF DETERMINATION OF SIGNIFICANCE and
INTENT TO PREPARE A DRAFT ENVIRONMENTAL IMPACT STATEMENT
DEC FILE NO. 9-0624-00025/00002

This notice is issued pursuant to Part 617 of the State regulations for Article 8 (the N.Y. State Environmental Quality Review Act) of the N.Y. State Environmental Conservation Law (ECL).

The Department of Environmental Conservation (the Department), as SEQR Lead Agency, has determined that the proposed action described below may have a significant effect on the environment and that a Draft Environmental Impact Statement (EIS) will be prepared after scoping.

TITLE OF ACTION: CARROLL C & D DISPOSAL EXPANSION AND MODIFICATION
Project Sponsor: Sealand Waste, L.L.C.

DEPARTMENT PERMIT JURISDICTION:

- Article 27, Title 7 ECL & 6NYCRR Part 360, Solid Waste Management Facility
- Article 17, Title7 & 8 ECL, State Pollutant discharge Elimination System (SPDES) for Storm Water Discharges
- Article 15, Title 5 ECL & 6NYCRR Part 608, Protection of Waters and Water Quality Certification*
- Article 19 ECL & 6NYCRR Parts 201, 203 and 215, Air Pollution Control*

[Jurisdictions indicated by asterisk (*) are potential and require more information from the applicant in order to determine applicability]

OTHER INVOLVED AGENCIES: Town of Carroll Town Board

SEQR STATUS: Type I Action.
Applicable threshold: The expansion of an existing facility that will cause the physical alteration of 5 or more acres of land (actually an expansion of 46.5 acres) for a purpose other than constructing residential structures.

DESCRIPTION OF ACTION:

Sealand Waste is proposing to acquire the existing construction and demolition debris (C & D) landfill, currently permitted to Mr. Donald J. Jones, and to expand the landfill from the currently approved 3 acres to 49.5 acres. Sealand Waste also proposes to accept, in addition to non-hazardous construction and demolition debris waste, other non-putrescible waste such as petroleum contaminated soil, ash, slag, foundry sand and tire chips, but not including wastewater treatment plant sludge, putrescible household waste and garbage. It is proposed to use some of this additional waste material as "alternate daily cover." The proposed design capacity is 1,000 tons per day and the estimated life is approximately 12 years.

LOCATION:

The site is in the Town of Carroll, Chautauqua County, within 54.1 acres of land presently owned by Mr. Jones, located on the southwest side of Dodge Road and north of Sandberg Road, approximately 1,000 feet northwest from their intersection and 1 mile north of the New York/Pennsylvania border.

REASONS SUPPORTING THIS DETERMINATION:

During review of this project, the Department identified the following significant and/or potentially significant adverse environmental impacts:

1. Because there will be an estimated 50 to 60 trucks per day (approximately 28 truck trips per hour), there

is likely to be a significant adverse impact on the physical integrity and capacity of local highways and traffic within the hamlet of Frewsburg and between Frewsburg and the site.

2. There may be significant adverse noise and visual impacts on nearby residences.

3. There is a potential for significant adverse impacts on the aquatic ecology of Storehouse Run Creek, including its naturally reproducing Brown trout population.

4. There is a potential for adverse impacts on groundwater and nearby residential water wells.

5. Because 70% of the existing slopes on the site exceed 10% the potential for landfill slope failure, must be evaluated.

6. Several small wetlands on the site, possibly federally regulated, would be eliminated by the Landfill.

SUMMARY/CONCLUSIONS:

The Department, therefore, has concluded that the project may have a significant effect on the natural and/or human resources of the State and/or the health, safety and welfare of the public, and may not be consistent with social and economic considerations. Therefore, a Draft EIS must be prepared. In reaching this decision, the Department carefully considered the "Criteria" for Determination of Significance listed in the SEQR Regulations at 6NYCRR 617.7.

FOR FURTHER INFORMATION:

Contact Person: Kenneth C. Taft
NYS Department of Environmental Conservation
182 East Union - Suite 3
Allegany, New York 14706-1328
Telephone: (716) 372-0645

Date: November 12, 2004
(Revised November 26, 2004)

Deputy Regional Permit Administrator
Region 9

DISTRIBUTION:

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Sealand Waste, L.L.C.
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Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks, Recreation and Historic Preservation

Historic Preservation Field Services Bureau • Peebles Island, PO Box 189, Waterford, New York 12188-0189
518-237-8643
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December 21, 2011

Bethany Acquisto
Daigler Engineering, PC
1711 Grand Island Blvd
Grand Island, New York 14072

Re: CORPS PERMITS, DEC
Carroll Landfill Expansion/Dodge Road
Town of Carroll, Chautauqua County
10PR06502

Dear Ms. Acquisto:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the Phase I Cultural Resources Investigation Report, prepared by the Rochester Museum and dated November 22, 2011, in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, it is the SHPO's opinion that your project will have **No Effect** upon cultural resources in or eligible for inclusion in the National Register of Historic Places.

The SHPO appreciates the opportunity to comment on this information. Further consultation with the SHPO is recommended if there are any changes to the project. Please telephone me at ext. 3280 with any questions you may have. Please also refer to the PR# above in any future correspondence for this project.

Sincerely,

Nancy Herter

Nancy Herter
Scientist, Archaeology

cc. Mark Ewing, Rochester Museum *(via email only)*

Andrew M. Cuomo
Governor

Rose Harvey
Commissioner

New York State Office of Parks,
Recreation and Historic Preservation

Division for Historic Preservation
Peebles Island, PO Box 189, Waterford, New York 12188-0189
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June 20, 2014

Brian Boddecker
Daigler Engineering, PC
1711 Grand Island Blvd
Grand Island, New York 14072
(via email only)

Re: CORPS PERMITS, DEC
Carroll Landfill Expansion/Dodge Rd
Town of Carroll, Chautauqua County
10PR06502

Dear Mr. Boddecker:

Thank you for requesting the comments of the State Historic Preservation Office (SHPO). We have reviewed the information on the stone-lined spring in accordance with Section 106 of the National Historic Preservation Act of 1966. These comments are those of the SHPO and relate only to Historic/Cultural resources. They do not include potential environmental impacts to New York State Parkland that may be involved in or near your project. Such impacts must be considered as part of the environmental review of the project pursuant to the National Environmental Policy Act and/or the State Environmental Quality Review Act (New York Environmental Conservation Law Article 8).

Based upon this review, the SHPO has no concerns with this stone-lined spring. Therefore, we continue to recommend that this project will have **No Effect** upon cultural resources in or eligible for inclusion in the National Register of Historic Places.

If further correspondence is required regarding this project, please be sure to refer to the OPRHP Project Review (PR) number noted above.

Sincerely,

Nancy Herter

Nancy Herter
Historic Preservation Program Analyst

WATER WITHDRAWAL PERMIT APPLICATION ENGINEER'S REPORT

For Non-Potable Water Withdrawals

CARROLL LANDFILL EXPANSION

CARROLL, NEW YORK

Prepared on behalf of:

Sealand Waste, LLC
85 High Tech Drive
Rush, New York 14543

Prepared by:

DAIGLER ENGINEERING P.C.
2620 Grand Island Blvd.
Grand Island, New York 14072-2131

February 2016

WATER WITHDRAWAL PERMIT APPLICATION ENGINEER'S REPORT

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WATER WITHDRAWAL PERMIT APPLICATION ENGINEER'S REPORT
For Non-Potable Water Withdrawals

Sealand Waste, LLC

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WATER WITHDRAWAL PERMIT APPLICATION ENGINEER'S REPORT
For Non-Potable Water Withdrawals

Sealand Waste, LLC

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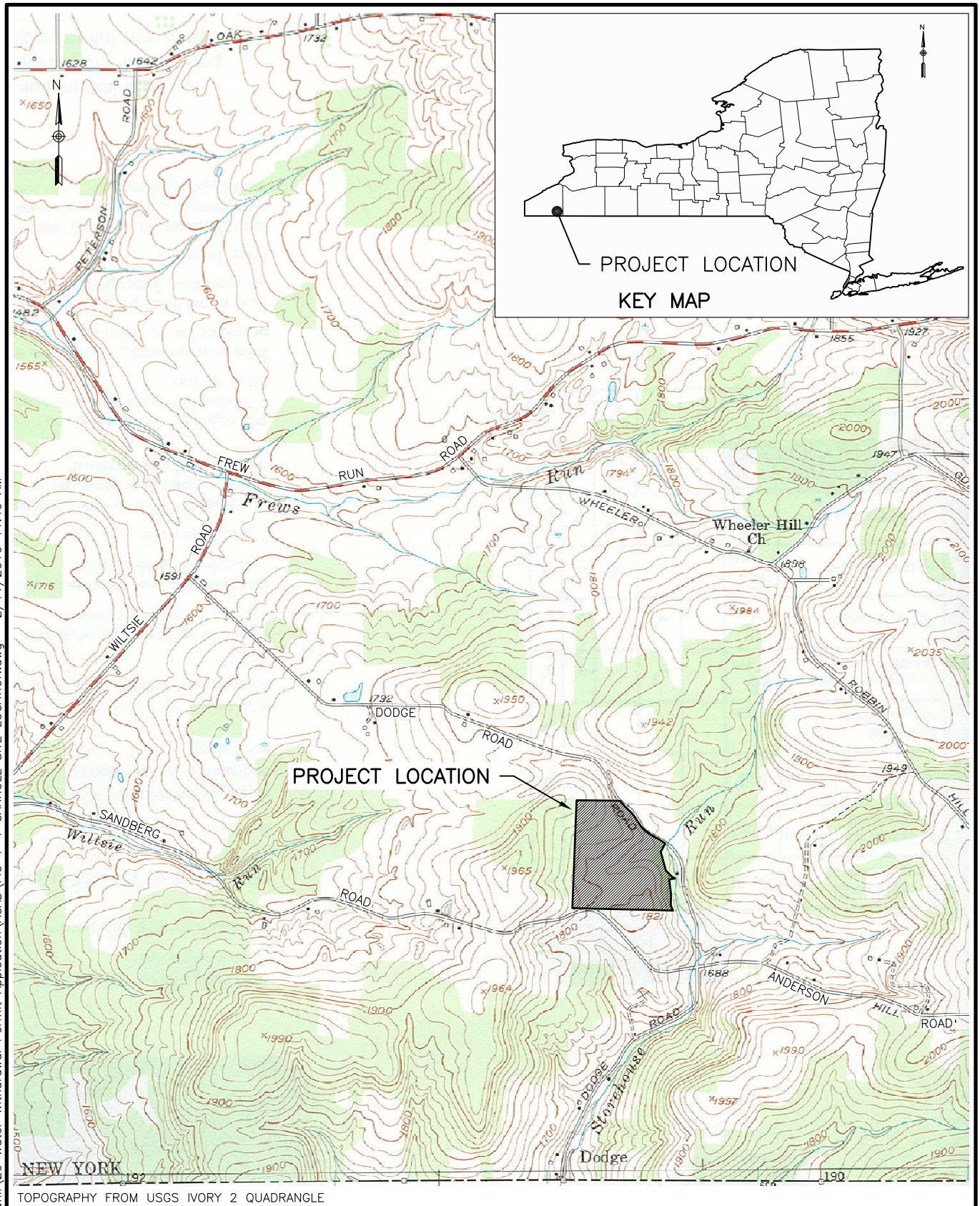
1 GENERAL DESCRIPTION & HISTORY OF PROPOSED PROJECT

1.1 PROJECT DESCRIPTION

Sealand Waste, LLC (Sealand), a private enterprise headquartered in Rush, New York, is proposing to purchase the 53.9-acre parcel of land containing the existing Jones Carroll Construction and Demolition (C&D) Debris Landfill. The site is located on Dodge Road in the Town of Carroll, Chautauqua County, New York, approximately one-mile north of the New York/Pennsylvania State line, as shown in Figure 1-1.

The project site has been the location of mining, recycling, or landfilling activity since the 1960's. In June of 1984, Donald and Carol Jones purchased the parcel for the purpose of continuing the gravel mining operation that was underway at the time. The original permit obtained by the Jones' mining operation was issued October 29, 1985. Jones continued to mine the gravel until 1989, by which time the readily extracted gravel resource had been exhausted. In July 1989, the Town of Carroll issued a Use Variance that allows the continued development of the property as a multi-phased C&D landfill on the entire property.

Under the Company name Jones-Carroll, Inc., Jones applied for a Title 6 New York Codes, Rules and Regulations (6 NYCRR) Part 360 C&D landfill permit. In December 1989, the permit was issued for a two-acre cell, and in January 1996 an expansion permit was issued by the New York State Department of Environmental Conservation (NYSDEC) allowing Jones to enlarge the landfill to three acres. In February 2004, Jones entered into an agreement with Sealand that allowed Sealand to complete the investigations, studies, and designs necessary to pursue the permits required to continue operating beyond the three-acre landfill which had operated in accordance with recent (NYSDEC) Part 360 Permit #9-0624-00025/00002-0, expired October 31, 2007. In July 2004, Sealand submitted an application to the NYSDEC for the purpose of expanding the facility in accordance with the planned development of the site. In support of the land disposal operation, the facility will also include stormwater, leachate and landfill gas management infrastructure, C&D waste recycling and yard waste composting operations.



TOPOGRAPHY FROM USGS IVORY 2 QUADRANGLE

Q:\Sealand\02-0104 Carroll Landfill\20 Water Withdrawal Permit Appication\ACAD\FIG 1-1 CARROLL SITE LOCATION.dwg 2/11/2016 11:40 AM

DAIGLER ENGINEERING, P.C.
CIVIL & GEO-ENVIRONMENTAL ENGINEERING
2620 GRAND ISLAND BLVD. GRAND ISLAND, NEW YORK 14072
(716) 773-6872 (716) 773-6873 FAX

LOCATION MAP

CARROLL LANDFILL WATER WITHDRAWAL PERMIT APPLICATION

SEALAND WASTE, LLC			
TOWN OF CARROLL	CHAUTAUQUA COUNTY	NEW YORK	FIGURE 1-1
January 2016	SCALE: NOT TO SCALE	REVISION # 0	

The proposed landfill subgrade purposefully extends below the water table in the lowermost areas, creating an "intragradient" condition. Where the liner system is intragradient, hydrostatic pressure induces an inward hydraulic gradient, thereby preventing the migration of leachate out of the landfill. Therefore, the landfill design provides added groundwater protection by affording hydraulic control of potential seepage.

To achieve the desired intragradient condition, dewatering the excavation for each landfill cell is necessary. Excavation dewatering will be accomplished via eight groundwater wells, a trench drain, and a porewater drain. Sheet 1 in Attachment 1 illustrates the dewatering system. The eight groundwater wells and trench drain will be operational at different periods of landfill development, and will provide sufficient groundwater drawdown for the safe excavation of landfill cells in the dry.

Untreated groundwater extracted from the east side of the site will be discharged to the unnamed tributary to Storehouse Run along the eastern property boundary. Groundwater wells installed along the western perimeter berm will discharge to the site wide surface water system then to the Sandberg Road drainage channel, which eventually empties into Storehouse Run south of the site. Following the construction of Cell 1, the porewater drain will become operable and passively divert infiltrating groundwater to a sump located in the southeast corner of the landfill. From that sump, groundwater will be pumped to the surface and introduced to the site wide surface water drainage system before being conveyed to Sediment Basin 1, Graded Filter 1, and discharged to Storehouse Run.

6 NYCRR Part 601 requires all water withdrawal systems with a capacity to withdraw 100,000 gallons per day (gpd) or more to obtain a water withdrawal permit from the NYSDEC. This report is intended to meet the requirements of Part 601 for an Engineer's Report for non-potable water withdrawals, and describes the water sources and system capacities.

2 GENERAL MAP OF PROJECT

Sheet 1 provided in Attachment 1 shows a site map with the proposed sources of groundwater withdrawal and the locations where groundwater will be discharged to offsite surface water. The location of onsite wetlands are also shown.

The results of a residential water well survey performed in 2012 are also shown on Sheet 1. Private drinking water well locations were identified through the survey process, which included some visual identification of well locations during door-to-door visits and some located via gps. Information about well depth and construction was largely unavailable. When reported, most wells were said to be installed to depths greater than 100 feet.

Extensive groundwater modeling efforts completed as part of the hydrogeological analysis indicate the true upgradient and downgradient groundwatershed, as shown on Sheet 1, is much smaller than the arbitrary one mile downgradient and one-quarter mile upgradient limits specified in paragraph 360-2.11(a)(5). Based on the groundwater flow patterns, there are a minimum of one upgradient, six cross-gradient, and seven truly downgradient private water wells within the site's groundwatershed.

3 WATER SOURCE CAPACITIES & SYSTEM DEMAND CALCULATIONS

Well and trench drain design and withdrawal rates are based largely on seepage modeling completed by P. J. Carey & Associates, PC (PJCA) of Sugar Hill, Georgia. The water bearing zone affected by the water withdrawal will replenish as rainfall percolates through the surficial soils, accumulating in the upper till and glacio-fluvial deposits found on site. Groundwater becomes perched within the upper till or glacio-fluvial deposits and either flows down slope toward the discharge zone along Storehouse Run near the site, or percolates downward through the lower till and residuum in a primarily vertical flow direction entering the highly weathered shale (HWS) and underlying shale bedrock, where it can continue to flow down slope toward the discharge zone at lower elevations in Storehouse Run.

During excavation and landfill liner construction activities, the dewatering wells, trench drain, and porewater drain will be constructed and operational to promote dry, stable working conditions and to provide groundwater control against baseliner uplift. After initial waste placement operations, groundwater control against baseliner uplift will be afforded by the porewater drain system.

Routine monitoring activities during construction and excavation of the landfill cells will include daily flow readings at all flow meters and water level measurements at the pumps. Groundwater level readings from select wells and piezometers across the site and visual inspection of areas being dewatered will help confirm the adequacy of the dewatering activities in maintaining appropriate groundwater levels. Pumps and control systems for the dewatering wells, trench drain, and porewater drain will be powered through the site wide electrical system. In the event of a power outage, a standby auto-start diesel generator will provide continuous operation of the system. Spare pumps, piping and control system components will be stored in the Maintenance Shop.

3.1 WATER SOURCES

3.1.1 Dewatering Wells

The purpose of the dewatering wells is to temporarily lower groundwater sufficiently to construct the Trench Drain. Wells will be six-inch diameter steel casings with wetted screen

lengths between 10 to 20 feet in service. Wells will be installed in the locations identified by PJCA and as shown on the drawings provided in Attachment 1. Pumped groundwater heads and a withdrawal rate summary by PJCA are provided in Attachment 2. Well pumping controls will consist of pressure transducers to measure liquid levels and a programmable logic controller (PLC) to turn the submersible pumps on and off. The NYSDEC pump test procedure for water supply applications will be followed in accordance with Technical and Operational Guidance Standards (TOGS) 3.2.1 Appendix 10 for the installation of the dewatering wells.

Excavation for the initial construction of Cell 1 will proceed to within five feet of the water table before the installation of dewatering wells DW-1, DW-2 and DW-3 along the alignment of Trench Drain Reach 1 (TDR1). The combined discharge rate for these three wells is computed to be 285 gallons per minute (gpm); 105 gpm from DW-1, 95 gpm from DW-2, and 85 gpm from DW-3. The wells will allow for continued excavation and construction of TDR1. Once TDR1 is operational, the wells will be shut down and abandoned in accordance with Part 360 requirements.

Wells DW-4, DW-5 and DW-6 placed at the southwestern extent of the landfill footprint will draw down the water table to allow for the excavation of Cell 2 in the dry. The initial combined discharge rate for these three wells is 160 gpm; 54 gpm each, divided equally among the three. Long term combined steady state rates are expected to be about 80 gpm; 27 gpm each. Once the porewater drain in Cell 2 is operational, the wells will be shut down and abandoned in accordance with Part 360 requirements.

Trench Drain Reach 2 (TDR2) is the extension of TDR1 and will be installed to control groundwater heads during the excavation and subgrade replacement material placement in portions of Cells 3 and 4. To accommodate the installation of TDR2, wells DW-7 and DW-8 will be installed along the TDR2 alignment. The initial discharge rate for these wells is 130 gpm; 65 gpm each. Once TDR2 is operational, the wells will be shut down and abandoned in accordance with Part 360 requirements.

Groundwater will be pumped from wells DW-1, DW-2, DW-3, DW-7, and DW-8 through three-inch reinforced hose over the top of the well casing where it will be connected to a three-inch SDR-17 HDPE discharge pipe. This pipe will discharge to a six-inch SDR-17 HDPE pipe

manifold, and into a wet well atop the landfill's perimeter embankment. At each connection of the HDPE pipe to the manifold, a check valve will be installed to prevent backflow into the wells, and a gate valve will be installed to isolate the well from the manifold. A magnetic flow meter (MAG meter) will be installed in-line of the manifold prior to discharging into the wet well to measure the amount of groundwater withdrawn from the dewatering wells.

The wet well will discharge by gravity through an eight-inch SDR-17 HDPE drain pipe to the unnamed tributary to Storehouse Run. A riprap apron 17.5 feet long, 18.8 feet wide and 2.4 feet deep consisting of Medium Stone Filling Type III with a D_{50} of 5.1 inches will be installed at the outlet to the unnamed tributary to reduce the flow rate and prevent erosion at the outlet.

Groundwater from wells DW-4, DW-5, and DW-6 will be discharged to a six-inch SDR-17 HDPE pipe manifold and meter pit similarly to DW-1, DW-2, DW-3, DW-7, and DW-8. Check valves and gate valves will be installed at the connection of the well pipes to the manifold. From the meter pit, groundwater will discharge to the site wide non-contact surface water drainage system, and eventually into the Sandberg Road drainage channel. The discharge structure in Sandberg Road drainage channel will consist of a riprap apron 12.5 feet long, 13 feet wide, and 2.4 feet deep consisting of Medium Stone Filling Type III with a D_{50} of 12 inches installed at the outlet to Sandberg Road drainage channel. From here, withdrawn water will flow south eventually conveyed to Storehouse Run.

3.1.2 Trench Drain

The purpose of the trench drain, TDR1 and TDR2 combined, is to allow for the temporary lowering of the water table to accommodate excavation and backfilling activities for landfill subgrade construction. Reach 1 will be used to construct Cells 1 and 2. Once Reach 2 is installed, the entire trench drain will be operational in support of excavation and liner construction in Cells 3 and 4. The estimated pumping rate for the entire trench drain in support of subgrade excavation and backfilling is 210 gpm. The trench drain will slope down to the trench drain sump, where pressure transducers will measure liquid levels, and a PLC will be employed to turn a submersible pump on and off. Once baseliner system construction is complete, groundwater seepage will be managed by the porewater drain, and the pump in the trench drain sump will be de-activated.

Groundwater from TDR1 and TDR2 will enter a sump and be pumped through a 36-inch HDPE SDR-17 sideriser to the wet well at the top of the landfill perimeter embankment. From the wet well, water will discharge into the unnamed tributary to Storehouse Run through the same 8-inch SDR-17 HDPE drain pipe as DW-1, DW-2, DW-3, DW-7, and DW-8. A MAG meter will be installed in the sideriser to measure the amount of groundwater being withdrawn from the trench drain sump.

3.1.3 Porewater Drain

To help prevent baseliner uplift and to meet Part 360 requirements for an additional groundwater drain with respect to groundwater separation, a porewater drain system will be installed in areas where the subgrade lies less than five feet above the pre-development high groundwater heads. Groundwater originating below the liner system will be conveyed by gravity through a geocomposite to the porewater drain pipe network, and eventually to the porewater drain sump where it will be pumped to the site wide contact water drainage system. The flowrate for the entire porewater drain system installed is calculated at 6.9 gpm. A plan of the proposed porewater drain system is shown on Sheet 1 in Attachment 1.

3.2 Dewatering Calculations

Flowrates to dewater each landfill cell for the construction of the baseliner system were determined by PJCA, the basis for determining each dewatering well and trench drain reach withdrawal rate is summarized in Section 3.1 Supporting calculations for water withdrawal volumes are provided in Attachment 2 and further described herein.

3.2.1 Dewatering Withdrawal Rates and System Volumes

To calculate the daily average water withdrawal requirement, assumptions regarding the time to construct each cell and accept adequate waste volumes were made. The intragradient design of the landfill places a portion of all cells below the groundwater table. Once the combined weight of the liner system and waste exceed the hydrostatic uplift forces by a factor of safety of 1.3, the porewater drain will be de-activated. A five-month construction period for Cell 1, 2, and 4 and a seven-month construction period for Cell 3 was estimated. Over this time, each cell will be excavated to proposed grades and the baseliner system will be constructed. A summary of cell

timing information is provided in Table 3-1. Supporting calculations for the time needed to receive sufficient waste is provided in Attachment 2.

TABLE 3-1: CELL CONSTRUCTION TIME

Cell	Size (Acres)	Time to Construct (Months)	Waste Needed (Tons)	Time to Receive Waste (Working Days)
1	7.9	5	20,573	64
2	5.1	5	9,335	10
3	14.2	7	15,056	16
4	7.7	5	6,948	7

A summary of the groundwater withdrawal rates and operating times are illustrated in Table 3-2. Supporting calculations are provided in Attachment 2.

TABLE 3-2: DEWATERING WELL WITHDRAWAL RATES & OPERATING TIMES

Source[1]	Earliest Start-Up Date	Withdrawal (gpm)		Operating Time for Cell Construction and Waste Placement (Days)			
		Steady State Daily Rate	Maximum Daily Rate	Cell 1	Cell 2	Cell 3	Cell 4
DW-1	2017	105	105	60			
DW-2	2017	95	95	60			
DW-3	2017	85	85	60			
TDR1	2017	210	210	90	150	210	150
PWD	2017	6.9	6.9	64	10	16	7
DW-4	2019	27	54		150		
DW-5	2019	27	54		150		
DW-6	2019	27	54		150		
DW-7	2020	65	65			60	
DW-8	2020	65	65			60	
TDR2	2020	210	210			150	150

Notes:

[1]DW = Dewatering Well; TDR = Trench Drain Reach; PWD = Porewater Drain

Required daily average, daily maximum, and 30-day maximum water volumes for each dewatering source is illustrated on Table 3-3. The daily average required water volume to be pumped from each well was calculated by assuming the first two days of water withdrawal for each cell was at the maximum daily rate and the remaining operating time is pumped at the steady state daily rate. This value was divided by 365 days per year to obtain the daily average required water volume.

The daily maximum required water volume is simply the maximum withdrawal rate applied over the course of 24 hours. The 30-day maximum was calculated by assuming each well will be operating at the proposed maximum daily withdrawal rate for two days and at the steady state withdrawal rate for 28 days. One month was assumed to be 30 days. For wells in which the maximum daily rate is the same as the instantaneous rate, the 30-day maximum value becomes the daily maximum required water volume applied over 30 days.

TABLE 3-3: REQUIRED WATER VOLUMES FOR DEWATERING SOURCES

Source	Required Water Volume (gal)					
	Daily Average				Daily Maximum	30-Day Maximum
	Cell 1	Cell 2	Cell 3	Cell 4		
DW-1	24,855				151,200	4,536,000
DW-2	22,488				136,800	4,104,000
DW-3	20,121				122,400	3,672,000
TDR1	74,564	124,274	173,984	124,274	302,400	9,072,000
PWD	1,742	272	436	191	9,936	298,080
DW-4		16,191			77,760	1,244,160
DW-5		16,191			77,760	1,244,160
DW-6		16,191			77,760	1,244,160
DW-7			15,386		93,600	2,808,000
DW-8			15,386		93,600	2,808,000
TDR2			124,274	124,274	302,400	9,072,000

The wells and trench drain will operate at different times as a result of the phased construction of landfill development. As such, five operating scenarios were developed to determine the water demand on the system.

Scenario 1 involves operating DW-1, DW-2, and DW-3 simultaneously to drawdown the groundwater table for the installation of TDR1. After the installation of TDR1, DW-1, DW-2, and DW-3 will no longer operate and be decommissioned.

Scenario 2 involves the operation of TDR1 for the remaining excavation of Cell 1.

In Scenario 3, TDR1 will operate in addition to DW-4, DW-5, and DW-6 for the construction of Cell 2.

Scenario 4 involves operating DW-7, DW-8, and TDR1 while TDR2 is installed.

Once TDR2 is installed, Scenario 5 includes operating TDR1 and TDR2 simultaneously to draw down heads for the construction of Cell 3 and 4.

The porewater drain will be operational following the construction of each cell and shutdown of the respective dewatering wells and trench drain. This demand was applied to run in Scenario 2, 3, 4, and 5 only.

TABLE 3-4: TOTAL WATER DEMAND FOR DEWATERING SCENARIOS

Dewatering Scenario	Source	Totals (gal)		
		Daily Average	Daily Maximum	30-Day Maximum
1	DW-1+DW-2+DW-3	67,463	410,400	12,312,000
2	TDR1+PWD	76,307	312,336	9,370,080
3	DW-4+DW-5+DW-6+TDR1+PWD	173,120	535,680	12,804,480
4	DW-7+DW-8+TDR1+PWD	205,192	499,536	14,986,080
5	TDR1+TDR2+PWD	248,738	614,736	18,442,080

4 EVALUATION OF ALTERNATIVES AND PROJECT JUSTIFICATION

4.1 EVALUATION OF ALTERNATIVES

Withdrawal of groundwater at the site is necessary to aid in the safe construction of the intragradient landfill baseliner system. There are no feasible alternatives to pumping groundwater for construction of the landfill baseliner system. The pumped groundwater will be returned to surface water.

4.2 PROJECT JUSTIFICATION

The recommended Engineer's Report format requires a discussion of the following eight questions.

1. **Why was the proposed project selected from the evaluated alternatives?**

There are no alternatives to pumping groundwater for the construction of the landfill baseliner system and baseliner uplift control.

2. **Why can increased water conservation or efficiency measures not negate or reduce the need for the proposed water withdrawals?**

Efficiency measures include constant monitoring of the groundwater heads such that no additional groundwater than is required is pumped, metering the withdrawals of groundwater as described in Section 5, and pumping only when needed for the construction of the landfill liner system and prevention of baseliner uplift. These measures can reduce, but not negate, the need for the proposed water withdrawals at the site.

3. **Why is the proposed water withdrawal quantity reasonable for the proposed use?**

The proposed withdrawal rates were conservatively modeled and are sufficient to provide safe working conditions during the construction of the landfill liner system.

4. **Why are the proposed water conservation measures environmentally sound and economically feasible?**

By metering the withdrawals of groundwater and monitoring the groundwater heads, over pumping will be minimized or eliminated. Excess pumping of groundwater would decrease groundwater heads more than is required and increase the area of impact surrounding the pumps. Also, the additional pumping would increase the cost of operation and maintenance of the pumps.

5. **Is the proposed water supply adequate?**

The groundwater withdrawals will not be used as a water supply. The groundwater will be pumped and discharged to surface water.

6. **Is the proposed project just and equitable to other municipalities and their inhabitants in regard to present and future needs for sources of potable water?**

The proposed withdrawal of groundwater is a non-potable water withdrawal. The proposed withdrawals will not impact other municipalities or their inhabitants, however, residents near the site utilize groundwater as their source of potable water.

Intake intervals for the downgradient residential wells near the eastern property boundary are sufficiently deep to ensure considerable water column and yield during excavation dewatering activity. The drains will lower groundwater to elevations near the ground surface, in this area (water column of 30 feet or more in downgradient wells) and will not impact the performance of residential wells.

The intake interval of the residential well near the southern property boundary at 400 Sandberg Road is reported to lie between 120 to 130 feet below the ground surface, or between approximate elevations 1,680 feet above mean sea level (famsl) to 1,670 famsl. As seen in the model output in Attachment 2, groundwater drains will lower groundwater heads to approximately elevation 1,730 famsl at this location (50 to 60 feet above the open rock intake) and will not impact the performance of that well.

Flow patterns subsequent to liner construction also will remain similar to those that exist in the pre-development condition. Forward flow traces predict flow direction to be the same and

discharge locations to be east and south of the landfill, within the area covered by the groundwater monitoring well array.

7. **Does the proposed withdrawal result in significant individual or cumulative adverse environmental impacts on the quantity or quality of the water source and water dependent natural resources?**

The modeling of groundwater drawdown as a result of dewatering demonstrates only a slight reduction in groundwater heads along Storehouse Run; however, the model does not account for the significant amount of recharge from upland areas east of Storehouse Run, and does not account for the return of groundwater to Storehouse Run. As a result, the model understates groundwater heads in the valley. Based on the groundwater model simulations without recharge, construction of the landfill liner system will produce only a slight reduction in groundwater levels within the underlying geologic units directly below the baseliner. Predicted groundwater velocities will remain unchanged and no measureable difference is expected in groundwater levels within the discharge zones along Storehouse Run east and south of the site. As such, impacts to groundwater quantity under the site is minimal and temporary. Water quantity for water dependent resources such as Storehouse Run will not be affected.

In general, HWS and shallow bedrock water quality in the upland areas is of acceptable quality for direct household use. The deeper the well into bedrock, the more likely the well will encounter water with high concentrations of chloride, dissolved solids, iron, hydrogen sulfide and/or natural gas. As seen in Attachment 2, Sheet PD-3 of the 2015 Permit Drawings illustrates the contours of the Cattaraugus Shale Bedrock (CSB) surface. Using DW well depth information from Sheet 2 and 3 in attachment 1, it was determined that a portion of all eight DW well screens are installed within the CSB. The trench train was not found to reside within the CSB layer.

A review of the groundwater quality sampling round one in October 2011 and round two in March 2013 (Environmental Monitoring Report October 2015 Revision) was conducted. There were no 6 NYCRR Part 703 GA standard exceedances for chloride or dissolved solids in deep wells monitoring the CSB layer. A total of three exceedances were recorded for iron ranging

from 350 to 450 ug/L, slightly higher than the 300 ug/L standard. Hydrogen sulfide and/or natural gas was not measured.

Groundwater withdrawn from under the site will eventually be reintroduced to the same groundwater table further downstream of Storehouse Run as seen on Sheet 1. Due to this, the relatively low levels of iron, and the proposed discharges to unclassified streams, water quality of the water dependent natural resources in the area is not expected to be impacted.

8. Will the proposed withdrawal be consistent with all applicable municipal, state and federal laws as well as regional interstate and international agreements?

The water withdrawal effort described in this application is consistent with all applicable municipal, state, and federal laws as well as regional and international agreements.

Water withdrawal with a design capacity over 100,000 gpd in the State of New York requires a Water Withdrawal Permit; this Engineer's Report is part of said permit application.

A Protection of Waters Permit, and an Outfall Structures and Associated Intake Structures Nationwide Permit Seven, as further detailed in Section 6, is needed.

The NYSDEC pump test procedure for water supply applications will be followed in accordance with Technical and Operational Guidance Standards (TOGS) 3.2.1 Appendix 10 for the installation of all dewatering wells.

5 WATER CONSERVATION

All groundwater from dewatering wells, trench drain, and porewater drain will be introduced back into the hydrogeologic system after its withdrawal. Therefore, water conservation is fundamental to the dewatering system. Groundwater from the dewatering sources will be discharged directly to the unnamed tributary to Storehouse Run or enter the Sandberg Road drainage channel, eventually joining with Storehouse Run further downstream (Sheet 1). Storehouse Run is hydraulically connected to the groundwater table downstream of the withdrawal point, thus conserving groundwater with no net loss to the water bearing zone.

Various additional water conservation practices to increase system efficiency are provided below.

5.1 HEAD MONITORING

The routine monitoring of groundwater heads at select piezometers and wells will aid in minimizing unnecessary groundwater withdrawal volumes. Dewatering wells will operate at the minimum withdrawal rates necessary for the safe excavation of cells and prevention of baseliner uplift.

5.2 FLOW METERING

Four MAG meters capable of recording instantaneous flow rates and totalized flow will be used. Table 5-1 specifies the sources monitored by each MAG meter. This best practice will aid in identifying potential leaks when metered flow rates are less than expected in processes corresponding to cell dewatering, and will also provide sufficient data for use in the yearly water audit. Daily readings will be recorded automatically by the MAG meter for download by the project manager. Each MAG meter will be calibrated annually.

TABLE 5-1: MAGNETIC FLOW METER LOCATIONS

Meter Location	Sources Monitored
Southeast Meter Pit	DW-1, DW-2, DW-3, DW-7, DW-8
Southwest Meter Pit	DW-4, DW-5, DW-6
Top of Trench Drain Sideriser	TDR1, TDR2
Top of Porewater Sideriser	Porewater Geocomposite Drain

5.3 LEAK DETECTION

Daily readings (working days) from the MAG meters may indicate atypical flows. If the readings indicate flows less than expected, staff will investigate sump hoses which connect each well to the manifold and the manifold reach leading to the wet well. In addition, visually observed leaks will be documented on the daily logs and repaired as soon as practicable to prevent any further decreased efficiency within the pumping system.

6 OTHER APPROVALS OR REQUIREMENTS

Discharge to the unnamed tributary to Storehouse Run will occur via pipe outlet. The pipe will discharge to an outlet structure to prevent erosion at the outlet. DW-4, DW-5, and DW-6 will discharge onsite via pipe to a channel along the western property boundary and to an outlet structure in the Sandberg Road drainage channel. Outlet structures are detailed in Section 3.1.1. All discharge points are identified under the facility's SPDES permit. The porewater drain discharges via Outfall 01/02A, the east side dewatering wells and trench drain discharge via Outfall 007, and the west side dewatering wells discharge via Outfall 003.

A Protection of Waters Permit (Stream Disturbance Permit) is required as discharge to the unnamed tributary requires an outlet structure within 50 feet horizontally from the mean high water line of Storehouse Run which is classified as a Class C(t) stream per 6 NYCRR 800.6. The unnamed tributary to Storehouse Run is a U.S Army Corps of Engineers jurisdictional intermittent drainage way and will require a Nationwide Permit to construct the outlet structure. The Nationwide permit will be filed jointly with the Protection of Waters Permit at a later date.

Many documents have been prepared to regulatory agencies in support of the development of the entire site. The required environmental permits or registrations and the relevant documents include the following:

6 NYCRR Part 201 - Air State Facility Permit:

- Air Emissions Inventory/Supplemental Air Emissions Inventory;
- Air Quality Modeling Report;
- Air State Facility Permit Application; and,
- Air Quality Monitoring Plan.

6 NYCRR Part 360 – Solid Waste Management Facility Permit

- Site Investigation Plan;
- Site Investigation Report;
- Engineering Report;
- Operations and Maintenance Manual;
- Contingency Plan;
- Construction Quality Assurance/Construction Quality Control Plan;
- Environmental Monitoring Plan;

- Site Analytical Plan; and,
- Permit Drawings.

6 NYCRR Part 617 – State Environmental Quality Review

- Draft Environmental Impact Statement and Supporting Specialty Studies; including:
    - Cultural Resources Survey Report;
    - Evaluation of Potential Impacts on the Martz Observatory;
    - Noise Assessment;
    - Traffic Impact Study;
    - Vegetation and Wildlife Survey and Part 182 Takings Determination; and,
    - Visual Resource Assessment.

6 NYCRR Part 750 – Stormwater Discharge and Stream Disturbance Permit

- Stream Disturbance Permit;
- SPDES Individual Permit Application; and,
- Stormwater Pollution Prevention Plan.

6 NYCRR Part 601 – Water Withdrawal Permit

- Water Withdrawal Permit Application.

Clean Water Act Section 404 – Federal Freshwater Wetland Disturbance Permit

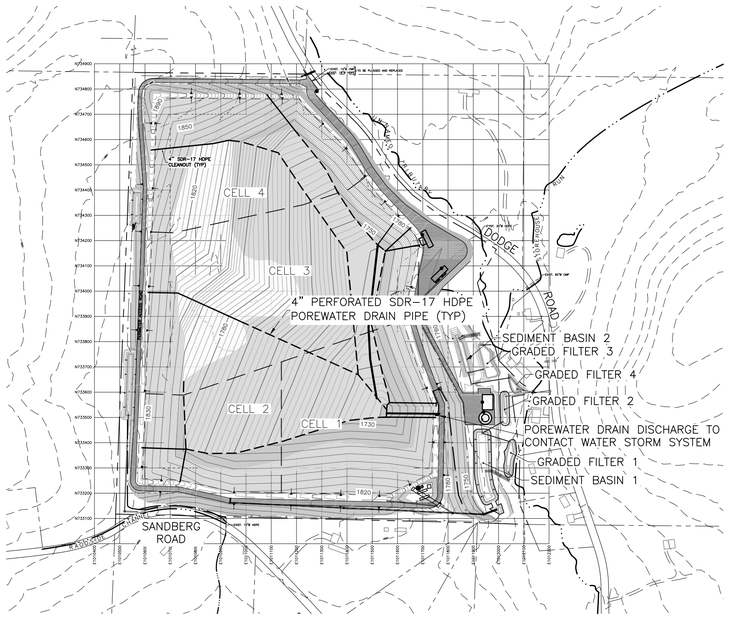
- Wetland Delineation Report;
- Alternatives Analysis
- Supplemental Alternatives Analysis; and,
- Wetland and Drainageway Mitigation Plan.

6 NYCRR Parts 612-614 – Bulk Petroleum Storage Facility Registration

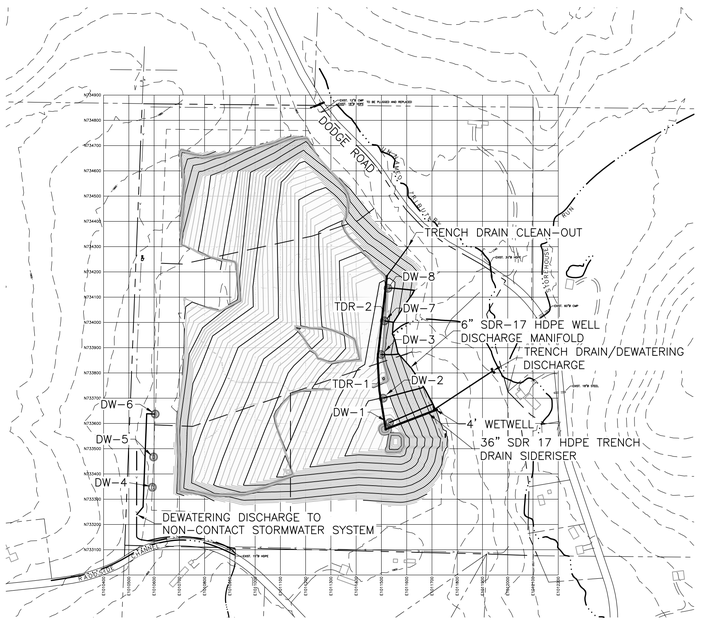
- Bulk Petroleum Storage Registration Application; and,
- Spill Prevention, Control, and Countermeasures Plan.

ATTACHMENT 1

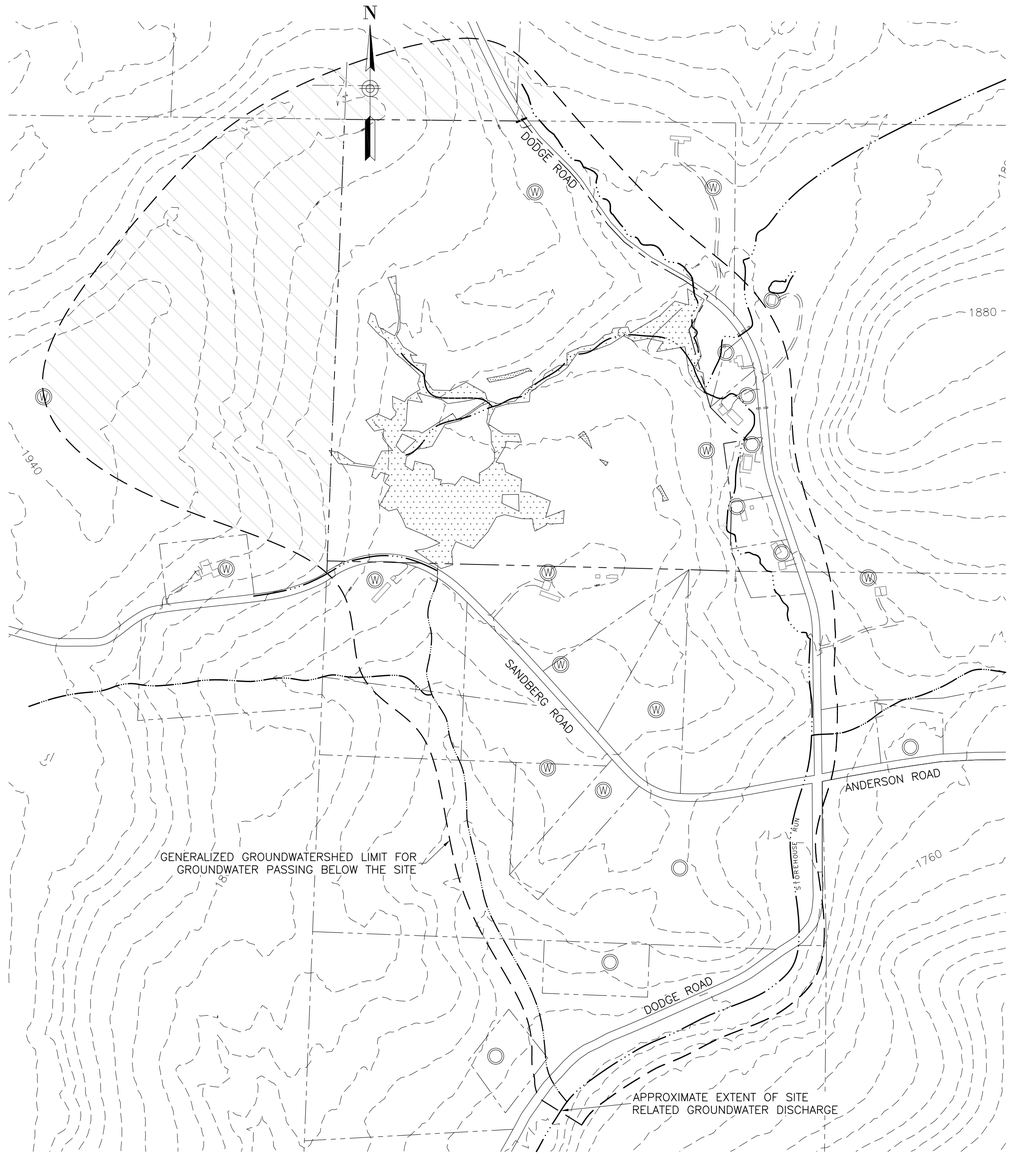
Concept Plans



POREWATER DRAIN PLAN
SCALE: 1"=300'



EXCAVATION DEWATERING PLAN
SCALE: 1"=300'



GROUNDWATERSHED MAP
SCALE: 1"=300'

LEGEND

- EXISTING GROUND CONTOUR
- PROPOSED CONTOUR
- LIMIT OF WASTE
- PROPERTY BOUNDARY
- PERFORATED POREWATER DRAIN PIPE
- NON-PERFORATED POREWATER DRAIN/CLEAN-OUT
- DRAINAGE CHANNEL AND FLOW DIRECTION
- GRAVEL SURFACE
- LIMIT OF GEOCOMPOSITE POREWATER DRAIN
- WATER COURSE
- SLOPE INDICATOR
- SURVEYED PRIVATE WATER WELL LOCATION
- DEWATERING WELL
- ESTIMATED PRIVATE WATER WELL LOCATION
- AREA UPGRADIENT OF SITE
- WETLANDS

GENERAL NOTES:

1. THE SUBGRADE SURFACE SHOWN HEREON REPRESENTS THE SURFACE ON WHICH THE GEOCOMPOSITE POREWATER DRAIN OR SOIL LINER WILL BE CONSTRUCTED.
2. WELL HEAD AND INTAKE COORDINATES

	NORTHING	EASTING
DW-1	733603.4664	1011532.4511
DW-2	733700.0048	1011506.9220
DW-3	733872.8347	1011498.6776
DW-4	733347.3993	1010592.9982
DW-5	733467.3063	1010597.7225
DW-6	733637.1745	1010604.4153
DW-7	734006.2076	1011511.8294
DW-8	734135.3892	1011526.3939
TRENCH DRAIN	733577.2923	1011517.1493
POREWATER	733516.4530	1011555.8110

3. SITE GRID IS NEW YORK STATE PLANE NAD 83

NO.	REVISION	BY	DATE

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GRAND ISLAND, NEW YORK 14072 (716) 773-6873 FAX

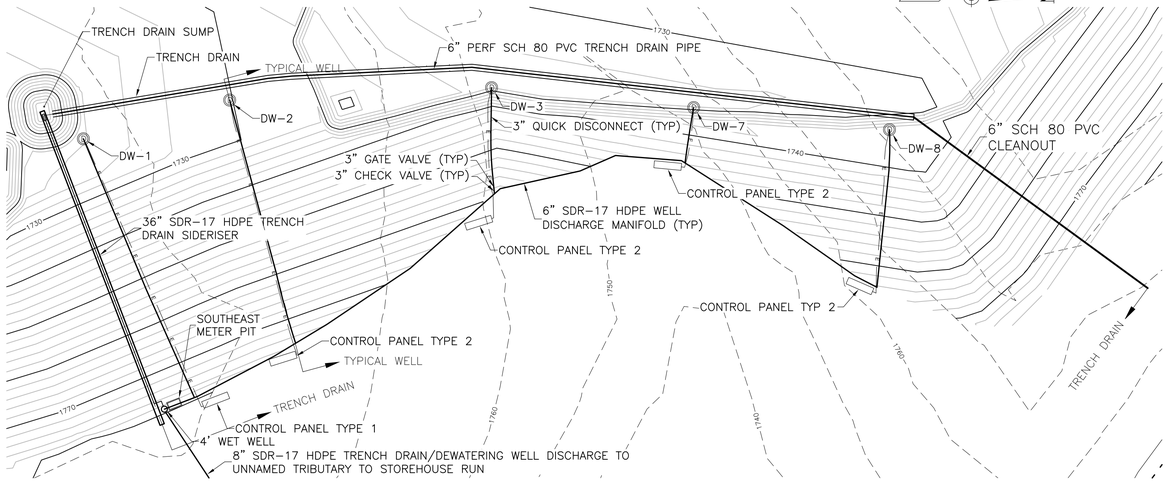
JAMES A. DAIGLER, P.E.
NYSPE NO. 061689

DATE: February 2016

SCALE: NOTED

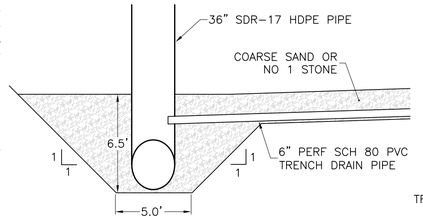
PREPARED FOR: SEALAND WASTE, LLC			POREWATER DRAIN PLAN, EXCAVATION PLAN, AND GROUNDWATERSHED MAP CARROLL LANDFILL WATER WITHDRAWAL PERMIT APPLICATION
DES. BY:	DRW. BY:	CHK. BY:	SHEET 1
DWG. SUBGRADE AND POREWATER DRAIN PLAN.dwg	TOWN OF CARROLL	CHAUTAUQUA COUNTY	STATE OF NEW YORK

G:\Sealand\02-0104 Carroll Landfill\20 Water Withdrawal Permit Application\ACAD\SUBGRADE AND POREWATER DRAIN PLAN.dwg 2/26/2016 11:54 AM



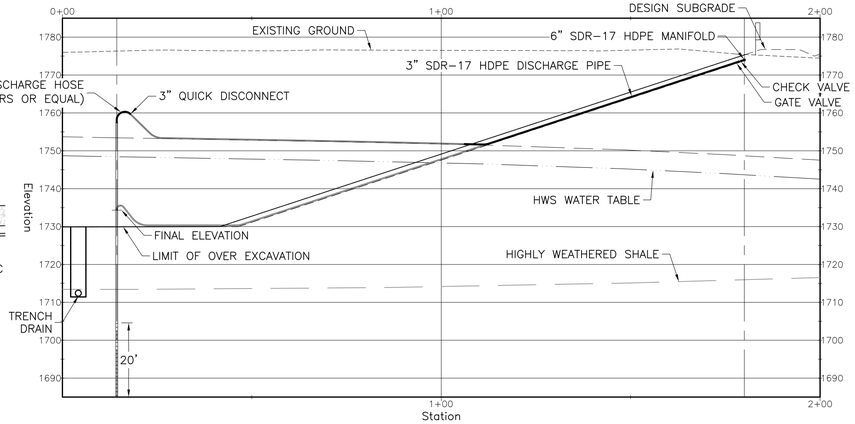
PLAN

SCALE: 1"=50'



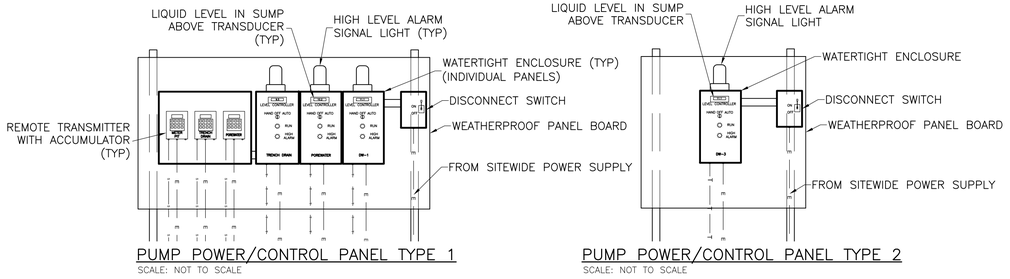
TRENCH DRAIN SUMP ELEVATION

SCALE: 1"=5'



PROFILE VIEW OF TYPICAL WELL (DW-2 SHOWN)

SCALE: 1"=20' HORIZONTAL
1"=20' VERTICAL

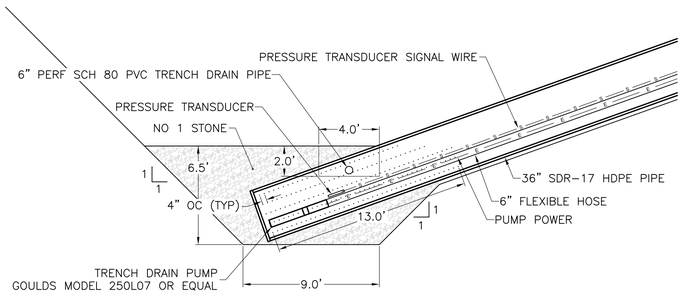


PUMP POWER/CONTROL PANEL TYPE 1

SCALE: NOT TO SCALE

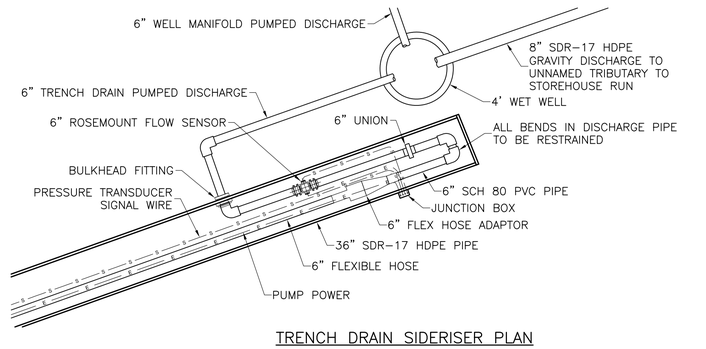
PUMP POWER/CONTROL PANEL TYPE 2

SCALE: NOT TO SCALE



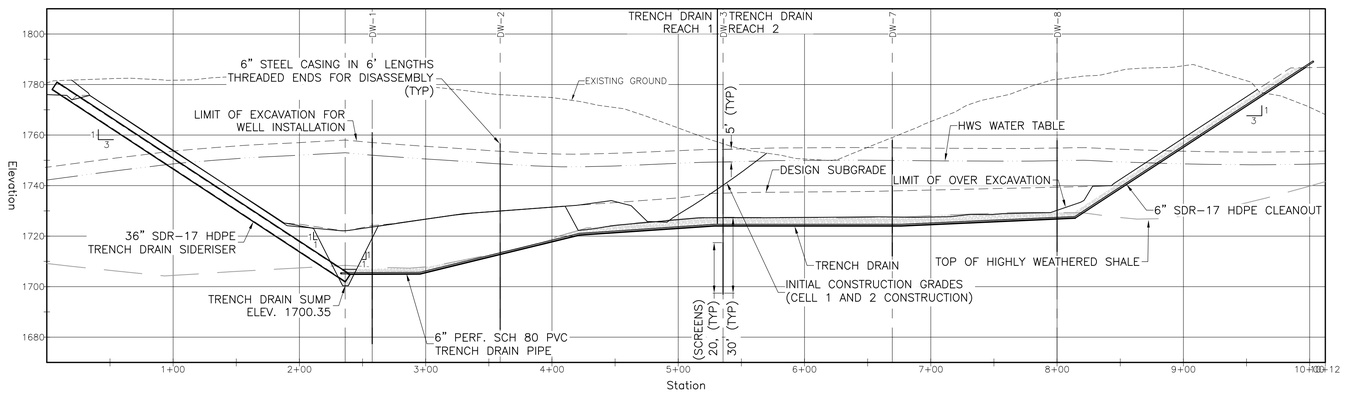
TRENCH DRAIN SUMP SECTION

SCALE: 1"=5'



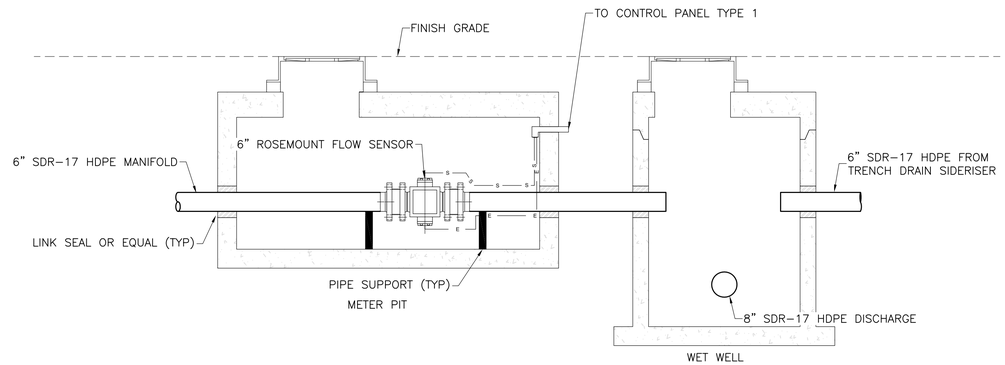
TRENCH DRAIN SIDERISER PLAN

SCALE: 1"=5'



PROFILE VIEW OF TRENCH DRAIN

SCALE: 1"=60' HORIZONTAL
1"=30' VERTICAL



METER PIT AND WET WELL DETAIL

SCALE: 1"=2'

NOTES:

1. THE TRENCH DRAIN MUST BE INSTALLED PRIOR TO COMPLETING THE EXCAVATION TO SUBGRADE.
2. SEE SECTION 3.1, OF THE WATER WITHDRAWAL ENGINEERING REPORT FOR A DISCUSSION OF THE GROUNDWATER DRAIN DESIGN.

NO.	REVISION	BY	DATE

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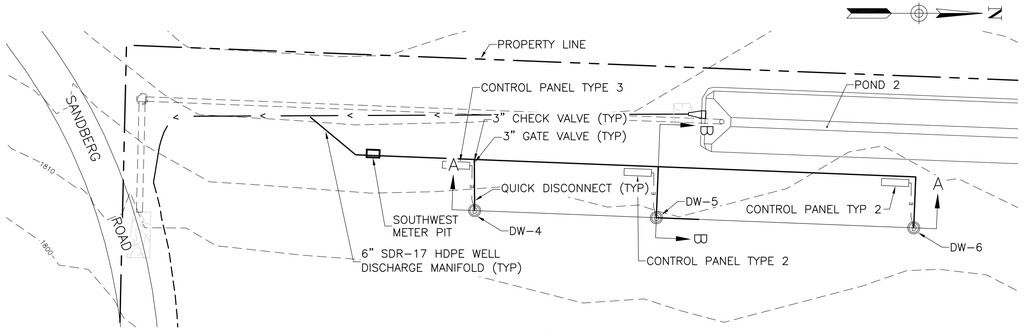
JAMES A. DAIGLER, P.E.
NYSPE NO. 061689

DATE: February 2016

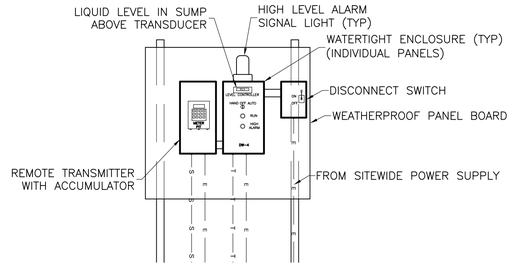
SCALE: NOTED

PREPARED FOR: SEALAND WASTE, LLC			EAST SIDE GROUNDWATER PUMPING PLAN, TRENCH DRAIN PLAN, PROFILE AND DETAILS CARROLL LANDFILL WATER WITHDRAWAL PERMIT APPLICATION	SHEET 2
DES. BY:	DRW. BY:	CHK. BY:		
DWG. GW PUMP PLAN AND PROFILE.dwg			TOWN OF CARROLL	CHAUTAUQUA COUNTY / STATE OF NEW YORK



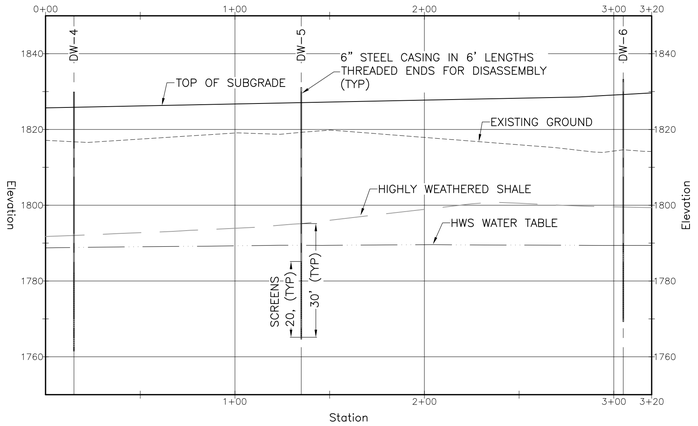
PLAN

SCALE: 1"=50'



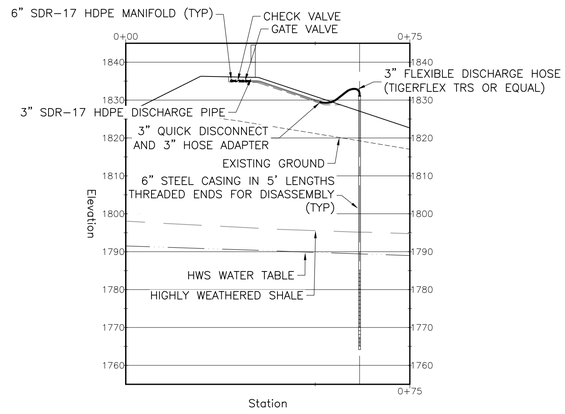
PUMP POWER/CONTROL PANEL TYPE 3

SCALE: NOT TO SCALE



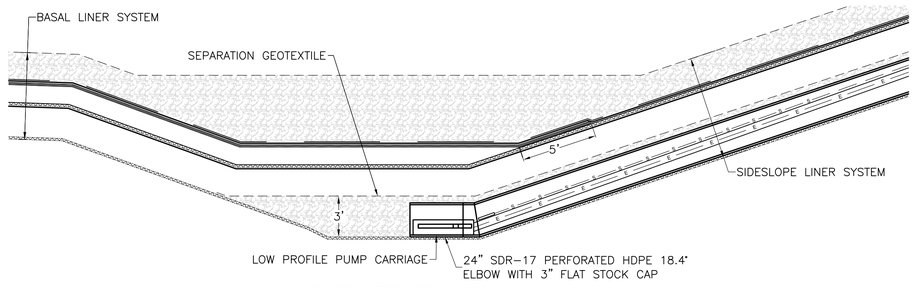
PROFILE VIEW A–A

SCALE: 1"=40' HORIZONTAL
1"=20' VERTICAL



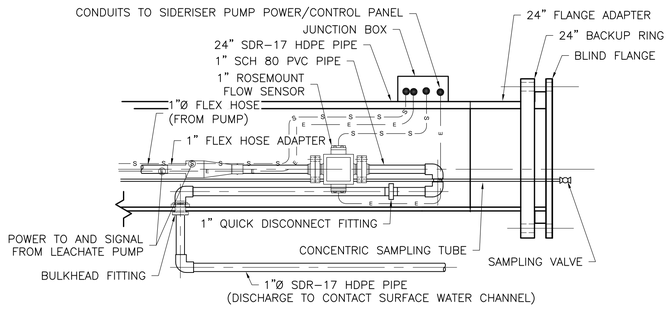
PROFILE VIEW B–B

SCALE: 1"=20' HORIZONTAL
1"=20' VERTICAL



POREWATER DRAIN SUMP

SCALE: 1"=5'



POREWATER METER/CONTROL DETAIL

SCALE: 1"=1'

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NYSPE NO. 061689

DATE: February 2016

SCALE: NOTED

PREPARED FOR:	SEALAND WASTE, LLC		WEST SIDE GROUNDWATER PUMPING PLAN, PROFILE AND POREWATER DETAILS CARROLL LANDFILL WATER WITHDRAWAL PERMIT APPLICATION	SHEET 3
DES. BY:	DRW. BY:	CHK. BY:		
DWG.	GW PUMP PLAN AND PROFILE.dwg		TOWN OF CARROLL / CHAUTAUQUA COUNTY / STATE OF NEW YORK	

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ATTACHMENT 2

Supporting Calculations

BY JPR DATE 2/11/16
CHKD. BY [illegible] DATE 2/11/16

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SUBJECT DEWATERING PUMP TIMING - WASTE NEEDED

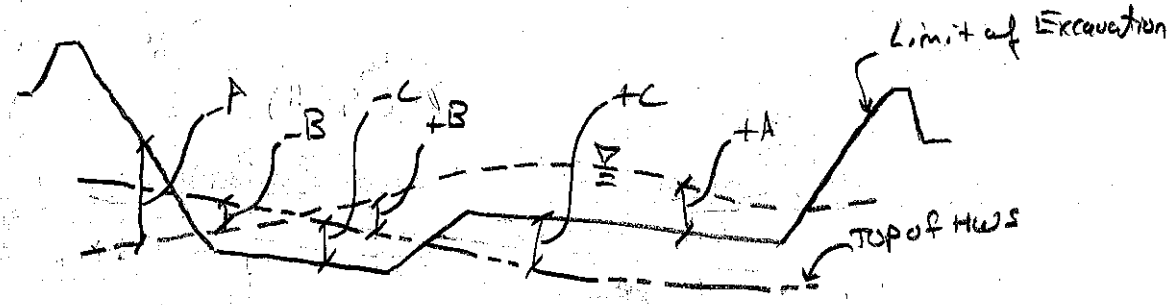
Find: Determine minimum time DW wells and TDR need to be operating

Method: Determine ammount of waste needed to be placed above each cell to offset porewater pressure from groundwater

Source: "Calculation" Review uplift Considerations For Carroll Landfill Liner System"

- Figure A – Isopach for Limit of Excavation and PDGH
- Figure B – Isopach for HWS and PDGH
- Figure C – Isopach for HWS and limit of excavation.

Solution: From Calculation "Review uplift considerations for Carroll Landfill Liner system: Groundwater heads greater than 15.4 ft need to be Controlled with waste placement CFS used = 1.3)



=> A minimum of 10' must separate HWS and Limit of excavation in all cases, therefore the subgrade replacement material will provide 10' of pressure head on porewater system in areas of overexcavation.

$$FS = \frac{\text{Weight of SRM}\left(\frac{lb}{ft^2}\right) \cdot \text{Height of SRM (ft)}}{\text{Weight of water}\left(\frac{lb}{ft^2}\right) \cdot \text{Height of water (ft)}} \Rightarrow 1.3 = \frac{\left(125\frac{lb}{ft^3}\right)(10ft)}{\left(62.4\frac{lb}{ft^3}\right) H_{water}}$$

→ $H_{water} = 15.4 \Rightarrow > 15.4$ ft of waterhead above excavation needs to be controlled with waste placement (Excel: Remaining Pressure head above excavation)

BY JPR DATE 2/11/16

CHKD. BY AB DATE 2/11/16

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JOB NO. 01-0204-20

SHEET NO. 2 OF 2

SUBJECT DEWATERING PUMP TIMING – WASTE NEEDED

- Specific weight of CBD waste = 0.75 T/cy

$\Rightarrow \frac{0.75\ T}{cy}\left(\frac{1\ cy}{27\ cf}\right)\left(\frac{2000\ lb}{1\ T}\right) = 55.6\ lb/ft^3$ ✓

- Determine ammount of waste needed in 50'x50' Grid:

→ Pressure of water Remaining $\left(\frac{lb}{ft^2}\right)$ = Pressure of waste needed $\left(\frac{lb}{ft^2}\right)$

→ Weight of water $\left(\frac{lb}{cf}\right)$ · height of water (ft) = Weight of waste $\left(\frac{lb}{cf}\right)$ · height of waste (ft)

→ $\frac{62.4\ lb/cf \cdot H_{water}}{55.6\ lb/cf}$ = height of waste needed (Excel: "waste needed to prevent uplift" Calculation – height of waste needed")

Volume = height of waste needed $(50' \cdot 50') = h(2500\ ft^2)$ (Excel: "waste needed to prevent uplift" Calculation – Volume of waste needed)

Weight of waste needed = $55.6\ \frac{lb}{cf}$ (Volume) (Excel: "waste needed to prevent uplift" Calculation – weight of waste needed)

- Separate each cell to determine weight of waste needed by coordinates found on Figures A, B, C.

Cell 1 Area: East of 1011200 and South of 733800

Cell 2 Area: West of 1011200 and South of 733700.

Cell 3 Area: Between 734300 and 733700 East of 1011200 and between 734300 and 733800 West of 1011200.

Cell 4 Area: North of 734300.

⇒ See Attached Spreadsheet: "Waste Needed TO Prevent Uplift"

RESULTS
- Cell 1 = 20,573 TONS
- Cell 2 = 9335 TONS
- Cell 3 = 15056 TONS
- Cell 4 = 6948 TONS

l1 (ft)	8
l2 (ft)	2
L (ft)	10
A (sf)	2500
Q	**6.89**

	cm/s		gpd/sf
k1	1.00E-05	k1	2.12E-01
k2	1.00E-07	k2	2.12E-03
kv	4.81E-07	kv	1.02E-02

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733300	1010700	2.36						
733300	1010750	5.60						
733300	1010800	8.77						
733300	1010850	11.76	18.26	18.26	0.00	0.00	0.00	0.00
733300	1010900	14.37	19.06	19.06	0.00	0.00	0.00	0.00
733300	1010950	16.77	19.82	19.82	0.00	0.00	0.00	0.00
733300	1011000	18.98	24.96	24.96	0.00	0.00	0.00	0.00
733300	1011050	22.43	31.52	31.52	0.00	0.00	0.00	0.00
733300	1011100	26.57	39.34	39.34	0.00	0.00	0.00	0.00
733300	1011150	28.68	47.27	47.27	0.00	0.00	0.00	0.00
733300	1011200	30.16	56.44	56.44	0.00	0.00	0.00	0.00
733300	1011250	31.45	65.20	65.20	0.00	0.00	0.00	0.00
733300	1011300	30.68	71.79	71.79	0.00	0.00	0.00	0.00
733300	1011350	31.17	77.06	77.06	0.00	0.00	0.00	0.00
733300	1011400	33.39	79.96	79.96	0.00	0.00	0.00	0.00
733300	1011450	35.66	80.09	80.09	0.00	0.00	0.00	0.00
733300	1011500	37.23	79.25	79.25	0.00	0.00	0.00	0.00
733300	1011550	37.98	78.18	78.18	0.00	0.00	0.00	0.00
733300	1011600	36.90	78.65	78.65	0.00	0.00	0.00	0.00
733300	1011650	34.23	83.48	83.48	0.00	0.00	0.00	0.00
733300	1011700	30.69						
733300	1011750	26.73						
733300	1011800	22.76						
733300	1011850	18.71						
733300	1011900	10.36						
733350	1010700	1.44	7.17	10.00	0.00	0.00	0.00	0.00
733350	1010750	4.83	-4.76	10.00	9.59	0.96	24.43	0.02
733350	1010800	7.79	-6.84	10.00	14.62	1.46	37.24	0.03
733350	1010850	10.51	-9.19	10.00	19.70	1.97	50.17	0.03
733350	1010900	12.95	-8.34	10.00	21.29	2.13	54.20	0.04
733350	1010950	15.14	-7.53	10.00	22.66	2.27	57.71	0.04
733350	1011000	17.23	-3.01	10.00	20.24	2.02	51.55	0.04
733350	1011050	20.71	10.13	10.13	10.58	1.04	26.60	0.02
733350	1011100	25.29	21.95	21.95	3.34	0.15	3.87	0.00
733350	1011150	28.27	29.84	29.84	0.00	0.00	0.00	0.00
733350	1011200	30.22	38.94	38.94	0.00	0.00	0.00	0.00

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733350	1011250	31.90	47.86	47.86	0.00	0.00	0.00	0.00
733350	1011300	31.27	53.48	53.48	0.00	0.00	0.00	0.00
733350	1011350	31.42	57.71	57.71	0.00	0.00	0.00	0.00
733350	1011400	33.70	60.49	60.49	0.00	0.00	0.00	0.00
733350	1011450	36.22	60.63	60.63	0.00	0.00	0.00	0.00
733350	1011500	38.74	59.95	59.95	0.00	0.00	0.00	0.00
733350	1011550	41.49	59.11	59.11	0.00	0.00	0.00	0.00
733350	1011600	40.41	59.99	59.99	0.00	0.00	0.00	0.00
733350	1011650	37.45	66.39	66.39	0.00	0.00	0.00	0.00
733350	1011700	33.62	76.73	76.73	0.00	0.00	0.00	0.00
733350	1011750	29.57						
733350	1011800	25.42						
733350	1011850	21.46						
733350	1011900	14.71						
733400	1010700	0.36	7.92	10.00	0.00	0.00	0.00	0.00
733400	1010750	3.73	-9.58	10.00	13.32	1.33	33.91	0.02
733400	1010800	6.54	-10.78	10.00	17.31	1.73	44.08	0.03
733400	1010850	9.14	-10.04	10.00	19.18	1.92	48.84	0.03
733400	1010900	11.46	-9.40	10.00	20.86	2.09	53.12	0.04
733400	1010950	13.54	-8.69	10.00	22.23	2.22	56.60	0.04
733400	1011000	15.58	-7.95	10.00	23.52	2.35	59.90	0.04
733400	1011050	18.99	-6.01	10.00	25.00	2.50	63.66	0.04
733400	1011100	23.70	-2.80	10.00	26.49	2.65	67.46	0.05
733400	1011150	27.57	8.24	10.00	19.33	1.93	49.22	0.03
733400	1011200	30.04	21.52	21.52	8.52	0.40	10.08	0.01
733400	1011250	32.10	30.56	30.56	1.54	0.05	1.29	0.00
733400	1011300	32.68	35.82	35.82	0.00	0.00	0.00	0.00
733400	1011350	31.83	38.45	38.45	0.00	0.00	0.00	0.00
733400	1011400	34.10	41.17	41.17	0.00	0.00	0.00	0.00
733400	1011450	36.81	41.20	41.20	0.00	0.00	0.00	0.00
733400	1011500	39.99	40.63	40.63	0.00	0.00	0.00	0.00
733400	1011550	43.65	39.99	39.99	3.66	0.09	2.33	0.00
733400	1011600	44.11	41.44	41.44	2.68	0.06	1.65	0.00
733400	1011650	40.66	51.12	51.12	0.00	0.00	0.00	0.00
733400	1011700	37.29	65.48	65.48	0.00	0.00	0.00	0.00
733400	1011750	33.46						
733400	1011800	29.62						
733400	1011850	23.25						
733400	1011900	15.62						
733450	1010700	-1.14	7.10	10.00	0.00	0.00	0.00	0.00
733450	1010750	2.19	-9.78	10.00	11.96	1.20	30.46	0.02

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733450	1010800	5.02	-10.27	10.00	15.29	1.53	38.93	0.03
733450	1010850	7.64	-9.36	10.00	17.00	1.70	43.28	0.03
733450	1010900	9.92	-8.59	10.00	18.51	1.85	47.13	0.03
733450	1010950	11.93	-7.75	10.00	19.69	1.97	50.13	0.03
733450	1011000	13.94	-6.93	10.00	20.87	2.09	53.13	0.04
733450	1011050	17.29	-5.01	10.00	22.30	2.23	56.79	0.04
733450	1011100	22.09	-1.77	10.00	23.86	2.39	60.76	0.04
733450	1011150	26.47	11.24	11.24	15.23	1.36	34.52	0.02
733450	1011200	29.65	14.48	14.48	15.17	1.05	26.67	0.02
733450	1011250	32.35	17.69	17.69	14.66	0.83	21.10	0.01
733450	1011300	33.12	17.87	17.87	15.25	0.85	21.74	0.02
733450	1011350	33.59	20.53	20.53	13.06	0.64	16.20	0.01
733450	1011400	35.57	23.17	23.17	12.40	0.54	13.63	0.01
733450	1011450	38.40	23.49	23.49	14.90	0.63	16.16	0.01
733450	1011500	42.44	23.54	23.54	18.89	0.80	20.43	0.01
733450	1011550	45.14	23.51	23.51	21.63	0.92	23.43	0.02
733450	1011600	46.28	27.34	27.34	18.94	0.69	17.64	0.01
733450	1011650	43.89	42.18	42.18	1.71	0.04	1.03	0.00
733450	1011700	40.51	60.84	60.84	0.00	0.00	0.00	0.00
733450	1011750	36.76	77.01	77.01	0.00	0.00	0.00	0.00
733450	1011800	31.06						
733450	1011850	23.56						
733450	1011900	16.25						
733500	1010700	-2.94	4.99	10.00	0.00	0.00	0.00	0.00
733500	1010750	0.06	-10.52	10.00	10.58	1.06	26.94	0.02
733500	1010800	3.09	-10.09	10.00	13.18	1.32	33.56	0.02
733500	1010850	5.88	-8.83	10.00	14.71	1.47	37.46	0.03
733500	1010900	8.23	-7.75	10.00	15.98	1.60	40.69	0.03
733500	1010950	10.33	-6.82	10.00	17.14	1.71	43.65	0.03
733500	1011000	12.34	-5.96	10.00	18.31	1.83	46.62	0.03
733500	1011050	15.66	-3.93	10.00	19.60	1.96	49.91	0.03
733500	1011100	20.45	-0.70	10.00	21.14	2.11	53.83	0.04
733500	1011150	25.30	12.57	12.57	12.73	1.01	25.77	0.02
733500	1011200	29.34	16.08	16.08	13.26	0.83	21.01	0.01
733500	1011250	33.44	19.94	19.94	13.50	0.68	17.23	0.01
733500	1011300	34.99	19.71	19.71	15.28	0.78	19.74	0.01
733500	1011350	36.48	16.94	16.94	19.54	1.15	29.38	0.02
733500	1011400	38.71	14.02	14.02	24.69	1.76	44.83	0.03
733500	1011450	42.16	11.59	11.59	30.57	2.64	67.14	0.05
733500	1011500	44.71	9.74	10.00	34.97	3.50	89.05	0.06
733500	1011550	45.91	-1.58	10.00	47.49	4.75	#####	0.08

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733500	1011600	46.24	20.87	20.87	25.37	1.22	30.96	0.02
733500	1011650	44.83	38.69	38.69	6.15	0.16	4.05	0.00
733500	1011700	42.49	56.95	56.95	0.00	0.00	0.00	0.00
733500	1011750	38.44	73.87	73.87	0.00	0.00	0.00	0.00
733500	1011800	31.09						
733500	1011850	23.62						
733500	1011900	16.06						
733550	1010700	-5.06	1.53	10.00	0.00	0.00	0.00	0.00
733550	1010750	-2.31	-11.56	10.00	9.25	0.92	23.55	0.02
733550	1010800	0.80	-10.30	10.00	11.11	1.11	28.28	0.02
733550	1010850	3.84	-8.63	10.00	12.47	1.25	31.76	0.02
733550	1010900	6.48	-7.14	10.00	13.62	1.36	34.69	0.02
733550	1010950	8.61	-5.99	10.00	14.60	1.46	37.17	0.03
733550	1011000	10.74	-5.02	10.00	15.76	1.58	40.13	0.03
733550	1011050	13.97	-2.98	10.00	16.95	1.70	43.17	0.03
733550	1011100	18.94	7.69	10.00	11.25	1.12	28.64	0.02
733550	1011150	24.19	14.15	14.15	10.05	0.71	18.08	0.01
733550	1011200	29.24	18.23	18.23	11.01	0.60	15.38	0.01
733550	1011250	34.77	22.75	22.75	12.02	0.53	13.45	0.01
733550	1011300	37.44	23.73	23.73	13.71	0.58	14.71	0.01
733550	1011350	38.97	21.27	21.27	17.70	0.83	21.20	0.01
733550	1011400	41.62	17.88	17.88	23.74	1.33	33.80	0.02
733550	1011450	43.57	15.14	15.14	28.44	1.88	47.84	0.03
733550	1011500	44.68	12.84	12.84	31.84	2.48	63.16	0.04
733550	1011550	45.31	-0.75	10.00	46.06	4.61	#####	0.08
733550	1011600	45.35	21.61	21.61	23.74	1.10	27.98	0.02
733550	1011650	44.68	39.13	39.13	5.55	0.14	3.61	0.00
733550	1011700	43.12	56.98	56.98	0.00	0.00	0.00	0.00
733550	1011750	37.30	70.93	70.93	0.00	0.00	0.00	0.00
733550	1011800	30.59						
733550	1011850	23.31						
733550	1011900	15.87						
733600	1010700	-7.24	-0.64	10.00	0.00	0.00	0.00	0.00
733600	1010750	-4.62	-12.25	10.00	7.63	0.76	19.43	0.01
733600	1010800	-1.82	-10.77	10.00	8.94	0.89	22.77	0.02
733600	1010850	1.21	-8.99	10.00	10.20	1.02	25.98	0.02
733600	1010900	4.05	-7.17	10.00	11.23	1.12	28.59	0.02
733600	1010950	6.78	-5.40	10.00	12.18	1.22	31.03	0.02
733600	1011000	9.06	-4.10	10.00	13.16	1.32	33.51	0.02
733600	1011050	12.27	-2.05	10.00	14.32	1.43	36.48	0.03
733600	1011100	17.37	11.61	11.61	5.76	0.50	12.63	0.01

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733600	1011150	23.09	15.76	15.76	7.33	0.46	11.84	0.01
733600	1011200	28.95	20.29	20.29	8.66	0.43	10.87	0.01
733600	1011250	35.67	25.34	25.34	10.33	0.41	10.38	0.01
733600	1011300	40.73	28.53	28.53	12.21	0.43	10.90	0.01
733600	1011350	40.30	24.87	24.87	15.43	0.62	15.80	0.01
733600	1011400	41.70	20.69	20.69	21.01	1.02	25.85	0.02
733600	1011450	42.98	17.83	17.83	25.15	1.41	35.92	0.02
733600	1011500	44.00	15.87	15.87	28.13	1.77	45.13	0.03
733600	1011550	44.54	17.52	17.52	27.02	1.54	39.27	0.03
733600	1011600	44.67	30.89	30.89	13.77	0.45	11.35	0.01
733600	1011650	44.24	47.13	47.13	0.00	0.00	0.00	0.00
733600	1011700	40.77	61.78	61.78	0.00	0.00	0.00	0.00
733600	1011750	35.24						
733600	1011800	29.26						
733600	1011850	22.73						
733600	1011900	15.53						
733650	1010700	-9.59	-0.54	10.00	0.00	0.00	0.00	0.00
733650	1010750	-7.25	-12.55	10.00	5.30	0.53	13.49	0.01
733650	1010800	-4.62	-11.25	10.00	6.63	0.66	16.89	0.01
733650	1010850	-1.71	-9.55	10.00	7.84	0.78	19.97	0.01
733650	1010900	0.96	-7.68	10.00	8.64	0.86	21.99	0.02
733650	1010950	3.79	-5.81	10.00	9.59	0.96	24.43	0.02
733650	1011000	6.62	-3.94	10.00	10.55	1.06	26.87	0.02
733650	1011050	9.59	-2.01	10.00	11.59	1.16	29.52	0.02
733650	1011100	14.27	11.30	11.30	2.97	0.26	6.68	0.00
733650	1011150	19.87	15.34	15.34	4.53	0.30	7.52	0.01
733650	1011200	25.65	19.43	19.43	6.22	0.32	8.15	0.01
733650	1011250	31.04	22.63	22.63	8.41	0.37	9.46	0.01
733650	1011300	35.34	24.40	24.40	10.94	0.45	11.42	0.01
733650	1011350	38.50	24.50	24.50	14.01	0.57	14.56	0.01
733650	1011400	39.14	21.13	21.13	18.01	0.85	21.71	0.02
733650	1011450	40.30	18.13	18.13	22.16	1.22	31.12	0.02
733650	1011500	41.52	18.72	18.72	22.80	1.22	31.02	0.02
733650	1011550	42.60	21.32	21.32	21.28	1.00	25.42	0.02
733650	1011600	43.35	37.95	37.95	5.40	0.14	3.62	0.00
733650	1011650	42.63	53.69	53.69	0.00	0.00	0.00	0.00
733650	1011700	37.81	66.87	66.87	0.00	0.00	0.00	0.00
733650	1011750	32.48						
733650	1011800	27.09						
733650	1011850	21.38						
733650	1011900	14.91						

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733700	1010700	-10.17	3.91	10.00	0.00	0.00	0.00	0.00
733700	1010750	-9.44	-12.41	10.00	2.97	0.30	7.55	0.01
733700	1010800	-7.10	-11.71	10.00	4.61	0.46	11.73	0.01
733700	1010850	-4.54	-10.25	10.00	5.71	0.57	14.55	0.01
733700	1010900	-1.96	-8.45	10.00	6.49	0.65	16.53	0.01
733700	1010950	0.58	-6.66	10.00	7.24	0.72	18.44	0.01
733700	1011000	3.06	-5.00	10.00	8.05	0.81	20.50	0.01
733700	1011050	5.54	-3.57	10.00	9.10	0.91	23.18	0.02
733700	1011100	8.72	-1.54	10.00	10.26	1.03	26.12	0.02
733700	1011150	13.63	11.86	11.86	1.77	0.15	3.81	0.00
733700	1011200	18.12	14.12	14.12	4.00	0.28	7.22	0.01
733700	1011250	21.97	15.30	15.30	6.67	0.44	11.09	0.01
733700	1011300	25.30	15.75	15.75	9.55	0.61	15.45	0.01
733700	1011350	28.48	16.40	16.40	12.08	0.74	18.76	0.01
733700	1011400	31.38	15.88	15.88	15.50	0.98	24.85	0.02
733700	1011450	34.06	15.26	15.26	18.81	1.23	31.39	0.02
733700	1011500	34.87	16.35	16.35	18.52	1.13	28.85	0.02
733700	1011550	35.51	21.87	21.87	13.64	0.62	15.88	0.01
733700	1011600	35.67	38.20	38.20	0.00	0.00	0.00	0.00
733700	1011650	34.52	53.91	53.91	0.00	0.00	0.00	0.00
733700	1011700	31.80						
733700	1011750	27.90						
733700	1011800	23.40						
733700	1011850	18.39						
733700	1011900	12.95						
733750	1010700	-10.05						
733750	1010750	-10.15	-10.77	10.00	0.61	0.06	1.56	0.00
733750	1010800	-9.50	-12.07	10.00	2.56	0.26	6.53	0.00
733750	1010850	-7.36	-10.94	10.00	3.58	0.36	9.13	0.01
733750	1010900	-4.98	-9.35	10.00	4.38	0.44	11.15	0.01
733750	1010950	-2.51	-7.69	10.00	5.18	0.52	13.18	0.01
733750	1011000	-0.12	-6.17	10.00	6.06	0.61	15.42	0.01
733750	1011050	2.14	-4.80	10.00	6.94	0.69	17.67	0.01
733750	1011100	4.39	-3.43	10.00	7.83	0.78	19.93	0.01
733750	1011150	7.32	-1.82	10.00	9.13	0.91	23.26	0.02
733750	1011200	10.55	-1.14	10.00	11.69	1.17	29.76	0.02
733750	1011250	13.93	-1.32	10.00	15.25	1.53	38.84	0.03
733750	1011300	17.23	-0.71	10.00	17.94	1.79	45.67	0.03
733750	1011350	20.21	-0.09	10.00	20.30	2.03	51.69	0.04
733750	1011400	23.18	6.91	10.00	16.27	1.63	41.44	0.03
733750	1011450	25.39	5.67	10.00	19.72	1.97	50.23	0.03

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733750	1011500	26.87	11.44	11.44	15.42	1.35	34.33	0.02
733750	1011550	28.73	22.15	22.15	6.57	0.30	7.55	0.01
733750	1011600	29.10	38.64	38.64	0.00	0.00	0.00	0.00
733750	1011650	27.78	54.31	54.31	0.00	0.00	0.00	0.00
733750	1011700	25.03						
733750	1011750	21.59						
733750	1011800	17.74						
733750	1011850	13.43						
733750	1011900	10.21						
733800	1010700	-10.20						
733800	1010750	-9.97	-8.83	10.00	0.00	0.00	0.00	0.00
733800	1010800	-10.11	-11.33	10.00	1.22	0.12	3.11	0.00
733800	1010850	-9.39	-11.65	10.00	2.26	0.23	5.77	0.00
733800	1010900	-7.24	-10.39	10.00	3.15	0.32	8.03	0.01
733800	1010950	-4.83	-8.83	10.00	4.00	0.40	10.19	0.01
733800	1011000	-2.40	-7.37	10.00	4.97	0.50	12.66	0.01
733800	1011050	0.04	-6.05	10.00	6.09	0.61	15.50	0.01
733800	1011100	2.78	-4.77	10.00	7.54	0.75	19.21	0.01
733800	1011150	5.41	-3.11	10.00	8.52	0.85	21.70	0.02
733800	1011200	8.17	-1.84	10.00	10.01	1.00	25.50	0.02
733800	1011250	11.20	-1.68	10.00	12.89	1.29	32.81	0.02
733800	1011300	13.66	-1.67	10.00	15.33	1.53	39.03	0.03
733800	1011350	16.24	-1.62	10.00	17.86	1.79	45.48	0.03
733800	1011400	18.69	-1.99	10.00	20.67	2.07	52.64	0.04
733800	1011450	21.23	-1.00	10.00	22.23	2.22	56.62	0.04
733800	1011500	23.28	-0.04	10.00	23.32	2.33	59.39	0.04
733800	1011550	23.71	22.74	22.74	0.97	0.04	1.08	0.00
733800	1011600	24.20	40.16	40.16	0.00	0.00	0.00	0.00
733800	1011650	22.84						
733800	1011700	20.49						
733800	1011750	18.26						
733800	1011800	15.84						
733800	1011850	13.32						
733800	1011900	10.64						
733850	1010700	-10.56						
733850	1010750	-10.36	-7.73	10.00	0.00	0.00	0.00	0.00
733850	1010800	-10.07	-10.35	10.00	0.28	0.03	0.71	0.00
733850	1010850	-9.80	-11.29	10.00	1.49	0.15	3.79	0.00
733850	1010900	-8.67	-11.30	10.00	2.63	0.26	6.69	0.00
733850	1010950	-6.25	-10.00	10.00	3.74	0.37	9.53	0.01
733850	1011000	-3.47	-8.61	10.00	5.14	0.51	13.10	0.01

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733850	1011050	-0.61	-7.26	10.00	6.64	0.66	16.91	0.01
733850	1011100	2.13	-4.95	10.00	7.08	0.71	18.03	0.01
733850	1011150	4.24	-3.05	10.00	7.29	0.73	18.55	0.01
733850	1011200	7.48	-1.27	10.00	8.75	0.88	22.29	0.02
733850	1011250	10.77	-0.05	10.00	10.82	1.08	27.55	0.02
733850	1011300	13.63	10.65	10.65	2.98	0.28	7.12	0.00
733850	1011350	16.13	7.68	10.00	8.46	0.85	21.53	0.01
733850	1011400	18.29	4.20	10.00	14.10	1.41	35.90	0.02
733850	1011450	20.35	-0.56	10.00	20.90	2.09	53.23	0.04
733850	1011500	22.60	-0.02	10.00	22.62	2.26	57.59	0.04
733850	1011550	23.27	27.09	27.09	0.00	0.00	0.00	0.00
733850	1011600	23.63						
733850	1011650	22.67						
733850	1011700	21.06						
733850	1011750	19.26						
733850	1011800	17.10						
733850	1011850	14.93						
733850	1011900	12.17						
733900	1010700	-10.63						
733900	1010750	-10.21	-4.35	10.00	0.00	0.00	0.00	0.00
733900	1010800	-9.75	-9.86	10.00	0.10	0.01	0.26	0.00
733900	1010850	-9.46	-10.85	10.00	1.39	0.14	3.54	0.00
733900	1010900	-8.52	-11.28	10.00	2.76	0.28	7.03	0.00
733900	1010950	-6.80	-10.80	10.00	4.00	0.40	10.19	0.01
733900	1011000	-3.90	-8.48	10.00	4.58	0.46	11.67	0.01
733900	1011050	-1.08	-6.26	10.00	5.17	0.52	13.18	0.01
733900	1011100	1.29	-3.98	10.00	5.27	0.53	13.41	0.01
733900	1011150	2.78	-1.92	10.00	4.70	0.47	11.97	0.01
733900	1011200	6.02	-0.32	10.00	6.34	0.63	16.14	0.01
733900	1011250	9.70	11.13	11.13	0.00	0.00	0.00	0.00
733900	1011300	13.13	12.29	12.29	0.84	0.07	1.75	0.00
733900	1011350	15.98	12.71	12.71	3.26	0.26	6.53	0.00
733900	1011400	18.76	8.68	10.00	10.08	1.01	25.67	0.02
733900	1011450	20.86	-0.49	10.00	21.35	2.14	54.37	0.04
733900	1011500	22.61	-0.02	10.00	22.63	2.26	57.63	0.04
733900	1011550	23.37	28.47	28.47	0.00	0.00	0.00	0.00
733900	1011600	23.72						
733900	1011650	22.67						
733900	1011700	20.67						
733900	1011750	19.31						
733900	1011800	17.98						

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
733900	1011850	16.79						
733900	1011900	12.63						
733950	1010700	-10.46						
733950	1010750	-10.03	-3.31	10.00	0.00	0.00	0.00	0.00
733950	1010800	-9.42	-6.70	10.00	0.00	0.00	0.00	0.00
733950	1010850	-8.55	-9.93	10.00	1.38	0.14	3.52	0.00
733950	1010900	-7.66	-9.49	10.00	1.83	0.18	4.67	0.00
733950	1010950	-6.25	-8.69	10.00	2.44	0.24	6.20	0.00
733950	1011000	-4.08	-7.15	10.00	3.07	0.31	7.81	0.01
733950	1011050	-1.71	-5.00	10.00	3.30	0.33	8.39	0.01
733950	1011100	0.15	-2.95	10.00	3.10	0.31	7.89	0.01
733950	1011150	1.46	-0.75	10.00	2.20	0.22	5.61	0.00
733950	1011200	4.44	10.72	10.72	0.00	0.00	0.00	0.00
733950	1011250	8.58	12.30	12.30	0.00	0.00	0.00	0.00
733950	1011300	12.20	11.53	11.53	0.67	0.06	1.48	0.00
733950	1011350	15.51	9.52	10.00	5.98	0.60	15.24	0.01
733950	1011400	18.68	-0.23	10.00	18.91	1.89	48.16	0.03
733950	1011450	21.24	-0.23	10.00	21.46	2.15	54.65	0.04
733950	1011500	22.79	0.17	10.00	22.62	2.26	57.59	0.04
733950	1011550	23.82						
733950	1011600	24.09						
733950	1011650	22.79						
733950	1011700	20.30						
733950	1011750	18.64						
733950	1011800	17.56						
733950	1011850	14.21						
733950	1011900	9.99						
734000	1010700	-10.15						
734000	1010750	-9.29	-2.88	10.00	0.00	0.00	0.00	0.00
734000	1010800	-8.43	-2.85	10.00	0.00	0.00	0.00	0.00
734000	1010850	-7.58	-4.68	10.00	0.00	0.00	0.00	0.00
734000	1010900	-6.43	-6.83	10.00	0.40	0.04	1.02	0.00
734000	1010950	-5.19	-6.32	10.00	1.13	0.11	2.89	0.00
734000	1011000	-4.09	-5.70	10.00	1.61	0.16	4.09	0.00
734000	1011050	-2.01	-3.70	10.00	1.68	0.17	4.29	0.00
734000	1011100	-0.96	-1.55	10.00	0.59	0.06	1.50	0.00
734000	1011150	0.12	-0.70	10.00	0.82	0.08	2.08	0.00
734000	1011200	2.87	-1.01	10.00	3.87	0.39	9.86	0.01
734000	1011250	7.03	-1.27	10.00	8.30	0.83	21.14	0.01
734000	1011300	11.04	-1.57	10.00	12.61	1.26	32.10	0.02
734000	1011350	14.55	-2.28	10.00	16.83	1.68	42.87	0.03

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
734000	1011400	17.60	-2.85	10.00	20.45	2.05	52.08	0.04
734000	1011450	20.43	-0.77	10.00	21.21	2.12	54.00	0.04
734000	1011500	22.42	0.11	10.00	22.31	2.23	56.81	0.04
734000	1011550	23.86						
734000	1011600	24.41						
734000	1011650	23.10						
734000	1011700	20.23						
734000	1011750	17.07						
734000	1011800	12.65						
734000	1011850	10.17						
734000	1011900	8.56						
734050	1010700	-9.25						
734050	1010750	-8.32	-1.23	10.00	0.00	0.00	0.00	0.00
734050	1010800	-7.47	-0.43	10.00	0.00	0.00	0.00	0.00
734050	1010850	-6.23	6.13	10.00	0.00	0.00	0.00	0.00
734050	1010900	-4.99	-1.31	10.00	0.00	0.00	0.00	0.00
734050	1010950	-3.89	-3.76	10.00	0.00	0.00	0.00	0.00
734050	1011000	-2.85	-3.20	10.00	0.35	0.04	0.90	0.00
734050	1011050	-2.12	-3.13	10.00	1.01	0.10	2.56	0.00
734050	1011100	-1.66	-3.63	10.00	1.98	0.20	5.03	0.00
734050	1011150	-1.23	-4.05	10.00	2.82	0.28	7.18	0.00
734050	1011200	1.24	-4.37	10.00	5.61	0.56	14.29	0.01
734050	1011250	5.43	-4.58	10.00	10.01	1.00	25.48	0.02
734050	1011300	10.07	-4.48	10.00	14.56	1.46	37.06	0.03
734050	1011350	13.49	-5.00	10.00	18.48	1.85	47.06	0.03
734050	1011400	16.41	-5.55	10.00	21.96	2.20	55.92	0.04
734050	1011450	18.85	-2.04	10.00	20.89	2.09	53.19	0.04
734050	1011500	21.13	-0.88	10.00	22.01	2.20	56.06	0.04
734050	1011550	23.14	19.68	19.68	3.45	0.18	4.47	0.00
734050	1011600	24.66						
734050	1011650	23.78						
734050	1011700	18.69						
734050	1011750	13.91						
734100	1010700	-8.79						
734100	1010750	-7.41						
734100	1010800	-6.05						
734100	1010850	-4.78						
734100	1010900	-3.45						
734100	1010950	-2.22	-0.56	10.00	0.00	0.00	0.00	0.00
734100	1011000	-1.55	-4.17	10.00	2.62	0.26	6.67	0.00
734100	1011050	-1.71	-5.54	10.00	3.83	0.38	9.76	0.01

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
734100	1011100	-2.45	-6.47	10.00	4.02	0.40	10.24	0.01
734100	1011150	-2.58	-7.41	10.00	4.82	0.48	12.28	0.01
734100	1011200	-0.38	-7.71	10.00	7.33	0.73	18.66	0.01
734100	1011250	3.82	-7.71	10.00	11.53	1.15	29.36	0.02
734100	1011300	8.72	-7.25	10.00	15.97	1.60	40.67	0.03
734100	1011350	12.49	-7.45	10.00	19.94	1.99	50.78	0.04
734100	1011400	15.41	-7.74	10.00	23.15	2.31	58.94	0.04
734100	1011450	17.76	-3.79	10.00	21.55	2.15	54.87	0.04
734100	1011500	19.92	-1.74	10.00	21.66	2.17	55.16	0.04
734100	1011550	21.98	15.84	15.84	6.14	0.39	9.88	0.01
734100	1011600	24.43	36.26	36.26	0.00	0.00	0.00	0.00
734100	1011650	20.78						
734100	1011700	15.33						
734100	1011750	11.28						
734150	1010700	-8.46						
734150	1010750	-6.47						
734150	1010800	-4.75						
734150	1010850	-3.29						
734150	1010900	-1.84						
734150	1010950	-0.45	-1.16	10.00	0.70	0.07	1.79	0.00
734150	1011000	-0.20	-5.94	10.00	5.74	0.57	14.63	0.01
734150	1011050	-1.03	-7.36	10.00	6.33	0.63	16.11	0.01
734150	1011100	-2.39	-8.62	10.00	6.23	0.62	15.86	0.01
734150	1011150	-3.72	-10.57	10.00	6.85	0.68	17.44	0.01
734150	1011200	-2.09	-11.00	10.00	8.91	0.89	22.69	0.02
734150	1011250	2.43	-10.54	10.00	12.97	1.30	33.02	0.02
734150	1011300	6.92	-10.02	10.00	16.94	1.69	43.13	0.03
734150	1011350	11.32	-9.38	10.00	20.70	2.07	52.71	0.04
734150	1011400	14.64	-9.69	10.00	24.33	2.43	61.95	0.04
734150	1011450	17.30	-5.40	10.00	22.70	2.27	57.80	0.04
734150	1011500	19.81	-1.35	10.00	21.16	2.12	53.88	0.04
734150	1011550	22.24	13.32	13.32	8.93	0.67	17.06	0.01
734150	1011600	22.82	31.48	31.48	0.00	0.00	0.00	0.00
734150	1011650	16.64						
734150	1011700	11.66						
734150	1011750	8.39						
734200	1010700	-9.03						
734200	1010750	-6.58						
734200	1010800	-4.43						
734200	1010850	-1.99						
734200	1010900	-0.02						

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
734200	1010950	1.41	-1.79	10.00	3.20	0.32	8.14	0.01
734200	1011000	1.01	-7.05	10.00	8.06	0.81	20.53	0.01
734200	1011050	-0.41	-9.29	10.00	8.88	0.89	22.62	0.02
734200	1011100	-2.37	-10.65	10.00	8.27	0.83	21.06	0.01
734200	1011150	-4.29	-13.08	10.00	8.79	0.88	22.39	0.02
734200	1011200	-3.83	-14.33	10.00	10.51	1.05	26.76	0.02
734200	1011250	0.92	-12.94	10.00	13.86	1.39	35.30	0.02
734200	1011300	6.02	-11.61	10.00	17.63	1.76	44.89	0.03
734200	1011350	10.81	-10.64	10.00	21.45	2.15	54.63	0.04
734200	1011400	14.76	-7.10	10.00	21.86	2.19	55.67	0.04
734200	1011450	17.63	-3.06	10.00	20.69	2.07	52.68	0.04
734200	1011500	20.48	8.51	10.00	11.98	1.20	30.50	0.02
734200	1011550	22.16	23.31	23.31	0.00	0.00	0.00	0.00
734200	1011600	19.12	32.35	32.35	0.00	0.00	0.00	0.00
734200	1011650	13.00	40.30	40.30	0.00	0.00	0.00	0.00
734200	1011700	7.98						
734200	1011750	4.30						
734250	1010700	-11.72						
734250	1010750	-9.30						
734250	1010800	-6.71						
734250	1010850	-4.03	6.64	10.00	0.00	0.00	0.00	0.00
734250	1010900	-0.71	-0.14	10.00	0.00	0.00	0.00	0.00
734250	1010950	3.37	-2.86	10.00	6.23	0.62	15.86	0.01
734250	1011000	1.14	-8.73	10.00	9.86	0.99	25.12	0.02
734250	1011050	-1.18	-12.24	10.00	11.05	1.11	28.15	0.02
734250	1011100	-3.02	-13.45	10.00	10.43	1.04	26.55	0.02
734250	1011150	-5.03	-15.85	10.00	10.81	1.08	27.54	0.02
734250	1011200	-5.47	-17.39	10.00	11.92	1.19	30.36	0.02
734250	1011250	0.81	-14.24	10.00	15.05	1.50	38.32	0.03
734250	1011300	6.18	-12.56	10.00	18.74	1.87	47.72	0.03
734250	1011350	11.36	-9.03	10.00	20.39	2.04	51.93	0.04
734250	1011400	15.32	-3.91	10.00	19.23	1.92	48.96	0.03
734250	1011450	18.54	2.14	10.00	16.41	1.64	41.78	0.03
734250	1011500	20.99	22.03	22.03	0.00	0.00	0.00	0.00
734250	1011550	19.95	33.44	33.44	0.00	0.00	0.00	0.00
734250	1011600	15.38	40.53	40.53	0.00	0.00	0.00	0.00
734250	1011650	9.48						
734250	1011700	3.73						
734250	1011750	-0.68						
734300	1010700	-14.02						
734300	1010750	-11.67	-0.33	10.00	0.00	0.00	0.00	0.00

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
734300	1010800	-9.44	-1.62	10.00	0.00	0.00	0.00	0.00
734300	1010850	-7.16	-3.04	10.00	0.00	0.00	0.00	0.00
734300	1010900	-4.79	-4.34	10.00	0.00	0.00	0.00	0.00
734300	1010950	-2.59	-8.32	10.00	5.74	0.57	14.61	0.01
734300	1011000	-1.72	-12.85	10.00	11.13	1.11	28.34	0.02
734300	1011050	-3.00	-16.28	10.00	13.28	1.33	33.82	0.02
734300	1011100	-4.70	-17.30	10.00	12.61	1.26	32.10	0.02
734300	1011150	-6.43	-19.36	10.00	12.92	1.29	32.91	0.02
734300	1011200	-6.68	-20.98	10.00	14.30	1.43	36.42	0.03
734300	1011250	0.44	-16.60	10.00	17.04	1.70	43.38	0.03
734300	1011300	7.32	-12.18	10.00	19.51	1.95	49.67	0.03
734300	1011350	12.82	-5.29	10.00	18.11	1.81	46.13	0.03
734300	1011400	16.72	-0.10	10.00	16.82	1.68	42.83	0.03
734300	1011450	19.12	19.88	19.88	0.00	0.00	0.00	0.00
734300	1011500	19.62	32.62	32.62	0.00	0.00	0.00	0.00
734300	1011550	16.83	42.04	42.04	0.00	0.00	0.00	0.00
734300	1011600	11.83						
734300	1011650	5.90						
734300	1011700	-1.26						
734300	1011750	-0.69						
734350	1010700	-16.29						
734350	1010750	-13.80	-3.15	10.00	0.00	0.00	0.00	0.00
734350	1010800	-11.61	-4.23	10.00	0.00	0.00	0.00	0.00
734350	1010850	-9.56	-5.61	10.00	0.00	0.00	0.00	0.00
734350	1010900	-7.23	-6.83	10.00	0.00	0.00	0.00	0.00
734350	1010950	-4.74	-10.19	10.00	5.45	0.54	13.87	0.01
734350	1011000	-2.90	-14.78	10.00	11.89	1.19	30.26	0.02
734350	1011050	-4.30	-18.86	10.00	14.57	1.46	37.10	0.03
734350	1011100	-6.19	-20.99	10.00	14.80	1.48	37.69	0.03
734350	1011150	-7.77	-22.86	10.00	15.09	1.51	38.42	0.03
734350	1011200	-8.49	-25.04	10.00	16.54	1.65	42.12	0.03
734350	1011250	-3.90	-22.98	10.00	19.08	1.91	48.58	0.03
734350	1011300	7.71	-10.24	10.00	17.95	1.79	45.70	0.03
734350	1011350	15.32	-1.11	10.00	16.43	1.64	41.84	0.03
734350	1011400	18.35	16.09	16.09	2.26	0.14	3.58	0.00
734350	1011450	18.52	30.68	30.68	0.00	0.00	0.00	0.00
734350	1011500	17.08	42.66	42.66	0.00	0.00	0.00	0.00
734350	1011550	13.48						
734350	1011600	8.69						
734350	1011650	2.92						
734400	1010700	-17.97						

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
734400	1010750	-15.95	-6.00	10.00	0.00	0.00	0.00	0.00
734400	1010800	-13.65	-6.89	10.00	0.00	0.00	0.00	0.00
734400	1010850	-11.40	-7.95	10.00	0.00	0.00	0.00	0.00
734400	1010900	-9.42	-9.11	10.00	0.00	0.00	0.00	0.00
734400	1010950	-6.99	-12.20	10.00	5.22	0.52	13.28	0.01
734400	1011000	-4.07	-16.02	10.00	11.96	1.20	30.45	0.02
734400	1011050	-3.76	-19.50	10.00	15.73	1.57	40.06	0.03
734400	1011100	-6.34	-23.36	10.00	17.02	1.70	43.34	0.03
734400	1011150	-8.88	-26.10	10.00	17.22	1.72	43.85	0.03
734400	1011200	-9.95	-28.63	10.00	18.69	1.87	47.58	0.03
734400	1011250	-8.42	-27.33	10.00	18.90	1.89	48.14	0.03
734400	1011300	2.87	-13.97	10.00	16.84	1.68	42.88	0.03
734400	1011350	16.50	6.65	10.00	9.85	0.98	25.08	0.02
734400	1011400	18.68	26.68	26.68	0.00	0.00	0.00	0.00
734400	1011450	16.96	39.40	39.40	0.00	0.00	0.00	0.00
734400	1011500	14.70						
734400	1011550	11.36						
734400	1011600	6.86						
734450	1010700	-20.09	16.12	16.12	0.00	0.00	0.00	0.00
734450	1010750	-17.53	-7.29	10.00	0.00	0.00	0.00	0.00
734450	1010800	-15.54	-9.54	10.00	0.00	0.00	0.00	0.00
734450	1010850	-13.35	-10.36	10.00	0.00	0.00	0.00	0.00
734450	1010900	-11.44	-11.29	10.00	0.00	0.00	0.00	0.00
734450	1010950	-9.15	-14.21	10.00	5.07	0.51	12.90	0.01
734450	1011000	-6.22	-18.11	10.00	11.89	1.19	30.28	0.02
734450	1011050	-4.11	-20.81	10.00	16.69	1.67	42.51	0.03
734450	1011100	-5.61	-24.77	10.00	19.16	1.92	48.78	0.03
734450	1011150	-8.56	-27.88	10.00	19.32	1.93	49.21	0.03
734450	1011200	-10.71	-31.00	10.00	20.30	2.03	51.69	0.04
734450	1011250	-10.85	-28.88	10.00	18.03	1.80	45.91	0.03
734450	1011300	-4.84	-20.61	10.00	15.77	1.58	40.16	0.03
734450	1011350	4.89	-4.54	10.00	9.43	0.94	24.02	0.02
734450	1011400	10.48	27.78	27.78	0.00	0.00	0.00	0.00
734450	1011450	11.43						
734450	1011500	11.98						
734500	1010700	-22.13						
734500	1010750	-19.46	-6.60	10.00	0.00	0.00	0.00	0.00
734500	1010800	-17.09	-11.91	10.00	0.00	0.00	0.00	0.00
734500	1010850	-15.24	-12.77	10.00	0.00	0.00	0.00	0.00
734500	1010900	-13.35	-13.51	10.00	0.16	0.02	0.40	0.00
734500	1010950	-11.25	-16.30	10.00	5.05	0.50	12.85	0.01

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
734500	1011000	-8.59	-20.38	10.00	11.80	1.18	30.04	0.02
734500	1011050	-5.61	-22.68	10.00	17.07	1.71	43.47	0.03
734500	1011100	-4.95	-25.29	10.00	20.33	2.03	51.77	0.04
734500	1011150	-7.87	-29.31	10.00	21.44	2.14	54.60	0.04
734500	1011200	-9.96	-29.42	10.00	19.46	1.95	49.55	0.03
734500	1011250	-11.44	-28.55	10.00	17.11	1.71	43.57	0.03
734500	1011300	-10.09	-24.92	10.00	14.83	1.48	37.77	0.03
734500	1011350	-4.22	-4.45	10.00	0.23	0.02	0.60	0.00
734500	1011400	3.62	30.63	30.63	0.00	0.00	0.00	0.00
734500	1011450	7.20						
734550	1010700	-24.67						
734550	1010750	-21.50	-5.99	10.00	0.00	0.00	0.00	0.00
734550	1010800	-18.96	-14.59	10.00	0.00	0.00	0.00	0.00
734550	1010850	-17.08	-15.13	10.00	0.00	0.00	0.00	0.00
734550	1010900	-15.18	-15.81	10.00	0.63	0.06	1.61	0.00
734550	1010950	-13.32	-18.38	10.00	5.05	0.51	12.87	0.01
734550	1011000	-10.90	-22.66	10.00	11.76	1.18	29.94	0.02
734550	1011050	-7.90	-24.97	10.00	17.07	1.71	43.47	0.03
734550	1011100	-5.67	-27.15	10.00	21.48	2.15	54.69	0.04
734550	1011150	-7.11	-28.90	10.00	21.78	2.18	55.47	0.04
734550	1011200	-8.94	-27.21	10.00	18.27	1.83	46.52	0.03
734550	1011250	-10.34	-25.93	10.00	15.59	1.56	39.70	0.03
734550	1011300	-9.68	-14.81	10.00	5.13	0.51	13.06	0.01
734550	1011350	-1.99	17.64	17.64	0.00	0.00	0.00	0.00
734550	1011400	5.52						
734550	1011450	8.66						
734600	1010700	-29.14						
734600	1010750	-24.78	-6.50	10.00	0.00	0.00	0.00	0.00
734600	1010800	-21.39	-10.98	10.00	0.00	0.00	0.00	0.00
734600	1010850	-19.07	-12.78	10.00	0.00	0.00	0.00	0.00
734600	1010900	-17.17	-15.81	10.00	0.00	0.00	0.00	0.00
734600	1010950	-15.39	-19.74	10.00	4.35	0.44	11.09	0.01
734600	1011000	-13.22	-23.29	10.00	10.08	1.01	25.66	0.02
734600	1011050	-10.25	-24.33	10.00	14.08	1.41	35.85	0.02
734600	1011100	-7.37	-24.51	10.00	17.13	1.71	43.63	0.03
734600	1011150	-6.48	-25.47	10.00	18.98	1.90	48.34	0.03
734600	1011200	-8.26	-24.85	10.00	16.58	1.66	42.22	0.03
734600	1011250	-8.88	-17.32	10.00	8.43	0.84	21.48	0.01
734600	1011300	-1.84	9.68	10.00	0.00	0.00	0.00	0.00
734600	1011350	4.38						
734600	1011400	8.57						

BX	BY	Water Height Above HWS - B (ft)	Excavation Above HWS - C (ft)	L (ft)	h	i	Q (gpd)	Q (gpm)
734650	1010700	-34.02	9.67	10.00	0.00	0.00	0.00	0.00
734650	1010750	-29.34	-1.95	10.00	0.00	0.00	0.00	0.00
734650	1010800	-24.99	3.24	10.00	0.00	0.00	0.00	0.00
734650	1010850	-21.85	-0.06	10.00	0.00	0.00	0.00	0.00
734650	1010900	-19.38	-2.45	10.00	0.00	0.00	0.00	0.00
734650	1010950	-17.46	-6.21	10.00	0.00	0.00	0.00	0.00
734650	1011000	-15.46	-9.87	10.00	0.00	0.00	0.00	0.00
734650	1011050	-12.53	-12.52	10.00	0.00	0.00	0.00	0.00
734650	1011100	-9.44	-15.81	10.00	6.38	0.64	16.24	0.01
734650	1011150	-7.52	-20.36	10.00	12.84	1.28	32.70	0.02
734650	1011200	-7.58	-19.35	10.00	11.77	1.18	29.97	0.02
734650	1011250	-2.99	-0.42	10.00	0.00	0.00	0.00	0.00
734650	1011300	6.53						
734650	1011350	10.25						
734650	1011400	10.31						
734700	1010700	-39.03						
734700	1010750	-34.59						
734700	1010800	-28.89						
734700	1010850	-24.71						
734700	1010900	-21.88						
734700	1010950	-19.59						
734700	1011000	-17.67						
734700	1011050	-14.67	3.47	10.00	0.00	0.00	0.00	0.00
734700	1011100	-11.38	-2.07	10.00	0.00	0.00	0.00	0.00
734700	1011150	-8.48	-6.25	10.00	0.00	0.00	0.00	0.00
734700	1011200	-5.25	-6.81	10.00	1.56	0.16	3.98	0.00

Source: Carroll Landfill Expansion Engineering Report October 2015 Revision

BY JAD DATE 7-21-15
CHKD. BY JJR DATE 8-12-15

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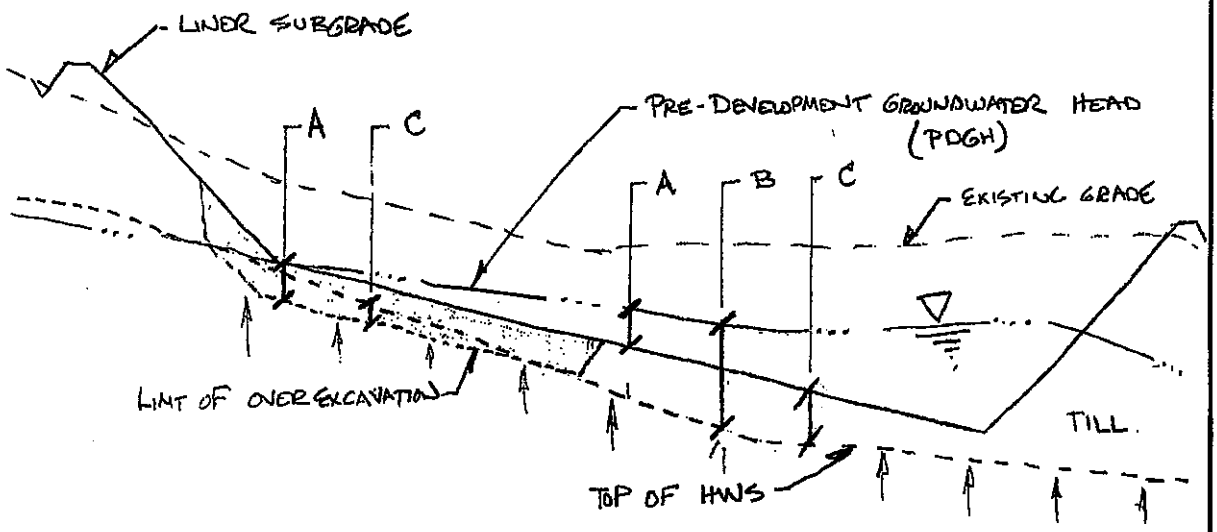
JOB NO. 02-0104
SHEET NO. 1 OF 2

SUBJECT REVIEW UPLIFT CONSIDERATIONS FOR CARROLL LANDFILL LINER SYSTEM

EVALUATE POTENTIAL FOR UPLIFT DUE TO HYDROSTATIC PRESSURE AT BASE OF LINER SYSTEM AND APPLY F.S. OF 1.3 FOR THIS TEMPORARY CONDITION. ASSUME HYDROSTATIC PRESSURE IS APPLIED AT THE TOP OF THE HWS.



A = VERTICAL DISTANCE BETWEEN LIMIT OF EXCAVATION & PDGH

B = VERTICAL DISTANCE BETWEEN TOP OF HWS & PDGH

C = VERTICAL DISTANCE BETWEEN TOP OF HWS & LIMIT OF EXCAVATION

- WHERE C IS POSITIVE, TILL REMAINS BELOW THE LIMIT OF EXCAVATION

TILL UNIT WEIGHT = 125 pcf = SRM UNIT WEIGHT

$$\text{F.S. AGAINST UPLIFT} = \frac{(125\ lb/ft^3)\ C\ ft}{(62.4\ lb/ft^3)\ B\ ft}$$

C MINIMUM = 10 ft ∴ FOR F.S. ≥ 1.3

$$\frac{(125\ lb/ft^3)(10\ ft)}{(62.4\ lb/ft^3)(B\ ft)} = 1.3$$

$$1.3(62.4\ lb/ft^3)\ B = 1250\ lb/ft^2$$

$$B = 1250\ lb/ft^2 \,/\, 1.3(62.4\ lb/ft^3) = 15.4\ ft$$

CONCLUSION: WHERE B ≥ 15.4 ft AND C IS POSITIVE (AREA OUT OF OVEREXCAVATION) UPLIFT MUST BE CONTROLLED

Source: Carroll Landfill Expansion Engineering Report October 2015 Revision

BY JAD DATE 7-22-15
CHKD. BY JPR DATE 8-12-15

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JOB NO. 02-0104
SHEET NO. 2 OF 2

SUBJECT UPLIFT FOR CARROLL LANDFILL LINER SYSTEM / Groundwater Drains

- WHERE C IS NEGATIVE (OVEREXCAVATION AREA) 10 FEET OF SRM WILL BE PLACED ABOVE HWS

$$\text{F.S. AGAINST UPLIFT} = \frac{(125\ \text{lb/ft}^3)\ 10\text{-ft}}{(62.4\ \text{lb/ft}^3)\ A}$$

FOR F.S. $\geq$ 1.3

$$\frac{(1250\ \text{lb/ft}^2)}{(62.4\ \text{lb/ft}^3)\ A\ \text{ft}} = 1.3$$

$$1.3\ (62.4\ \text{lb/ft}^3)(A\ \text{ft}) = 1250$$

$$81A\ \text{ft} = 1250\ \text{lb/ft}^2$$

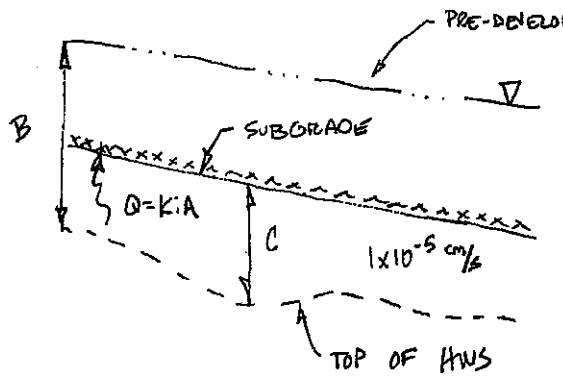
$$A \geq 15.4\ \text{ft}$$

CONCLUSION: WHERE A $\geq$ 15.4 ft AND C IS NEGATIVE (OVEREXCATION AREA) UPLIFT MUST BE CONTROLLED

- SEE PLCA GROUNDWATER MODEL OUTPUT FOR DESIGN OF WELLS & TRENCH DRAIN TO CONTROL GROUNDWATER & UPLIFT DURING CONSTRUCTION.

  FOR UPLIFT CONTROL DURING OPERATIONS – USE PORE WATER DRAIN SYSTEM

FLOW TO PORE WATER DRAIN



$Q = KiA$

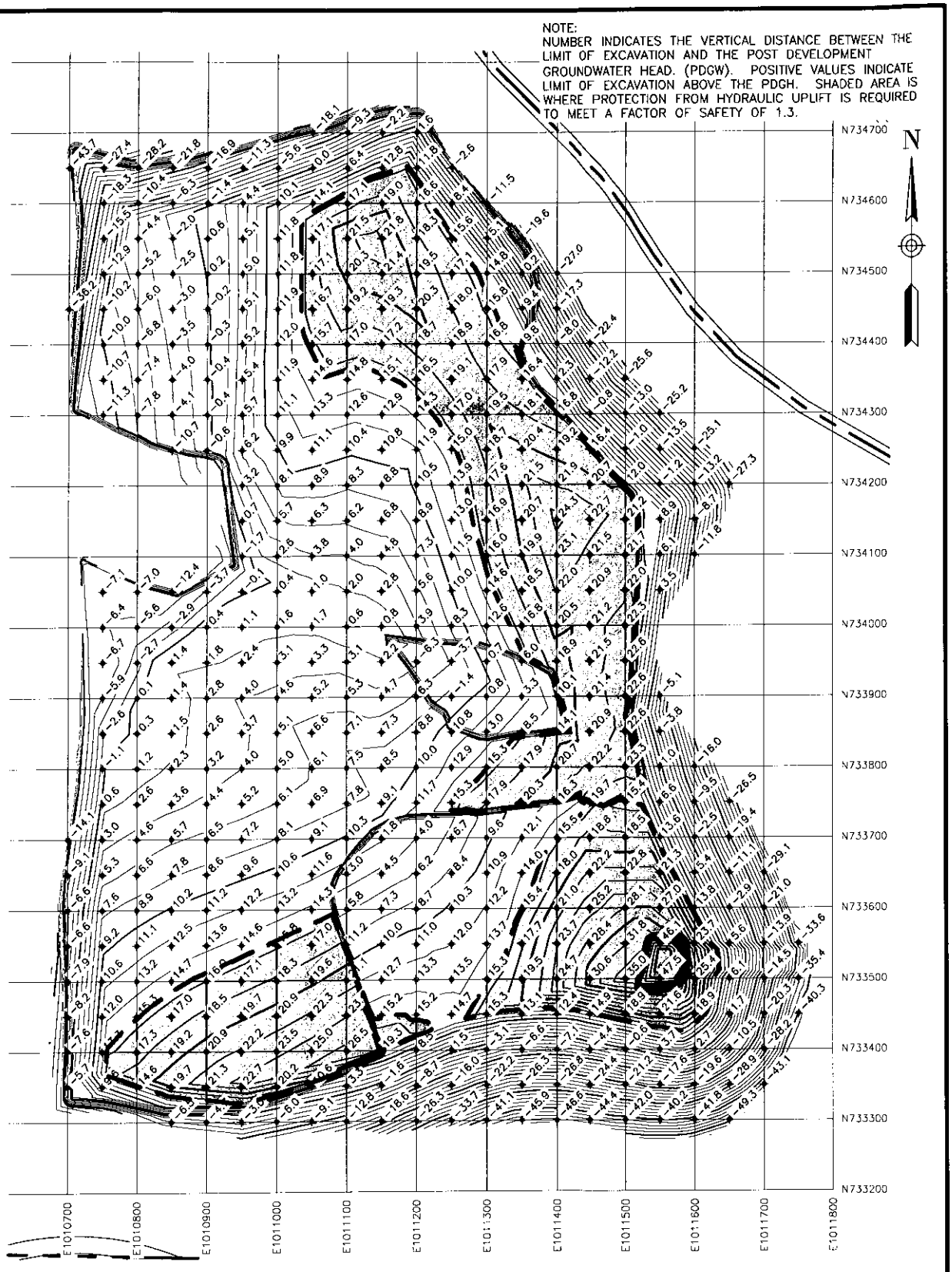
K_1 1x10⁻⁵ cm/s = 0.212 gpd/ft²
K_2 1x10⁻⁷ cm/s = .00212 gpd/ft²
$i = \frac{\Delta h}{l} = B/C$

A = 50' x 50' = 2500 ft² (FIFTY FOOT GRID)

EQUIVALENT VERT K FOR LAYERS:

$$K_V = \frac{L}{\frac{l_1}{K_1} + \frac{l_2}{K_2}}$$

(see attached spreadsheet calculation)



ISOPAC FOR LIMIT OF EXCAVATION AND PDGH

CARROLL LANDFILL PERMIT APPLICATION

SEALAND WASTE, LLC

TOWN OF CARROLL	CHAUTAUQUA COUNTY	NEW YORK
July 2015	SCALE: 1" = 200'	REVISION # 0

FIGURE A

DAIGLER ENGINEERING, P.C.
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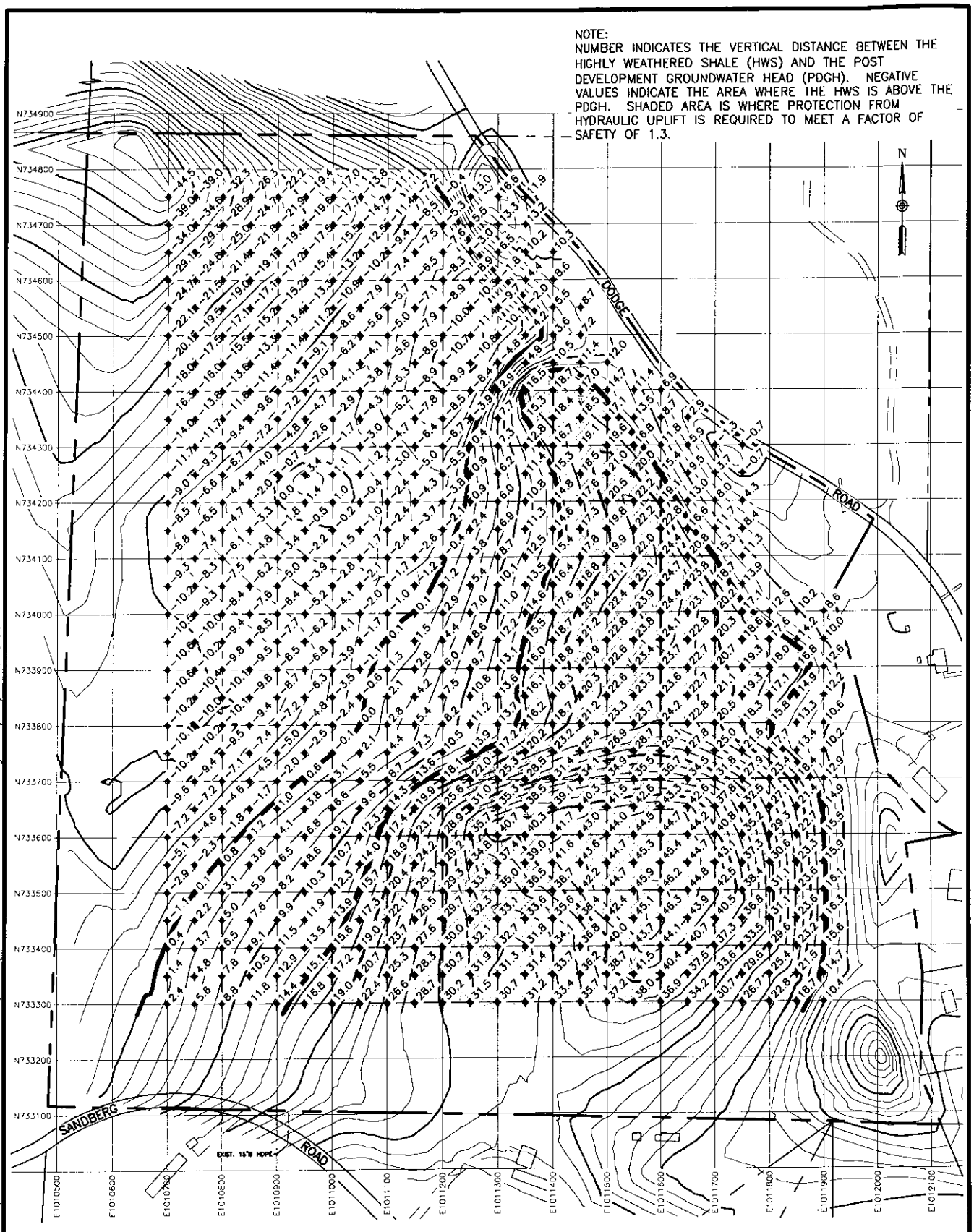
Q:\Sealand\02-0104 Carroll Landfill\WORKING DRAWINGS-REDESIGN\ACAD\ISO-PAC LIMIT OVER EXCAV AND HWSWT.dwg 10/12/2015 12:18 PM



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ISOPACH FOR HWS AND PDGH

CARROLL LANDFILL PERMIT APPLICATION

SEALAND WASTE, LLC			
TOWN OF CARROLL	CHAUTAUQUA COUNTY	NEW YORK	FIGURE B
July 2015	SCALE: 1" = 250'	REVISION # 0	

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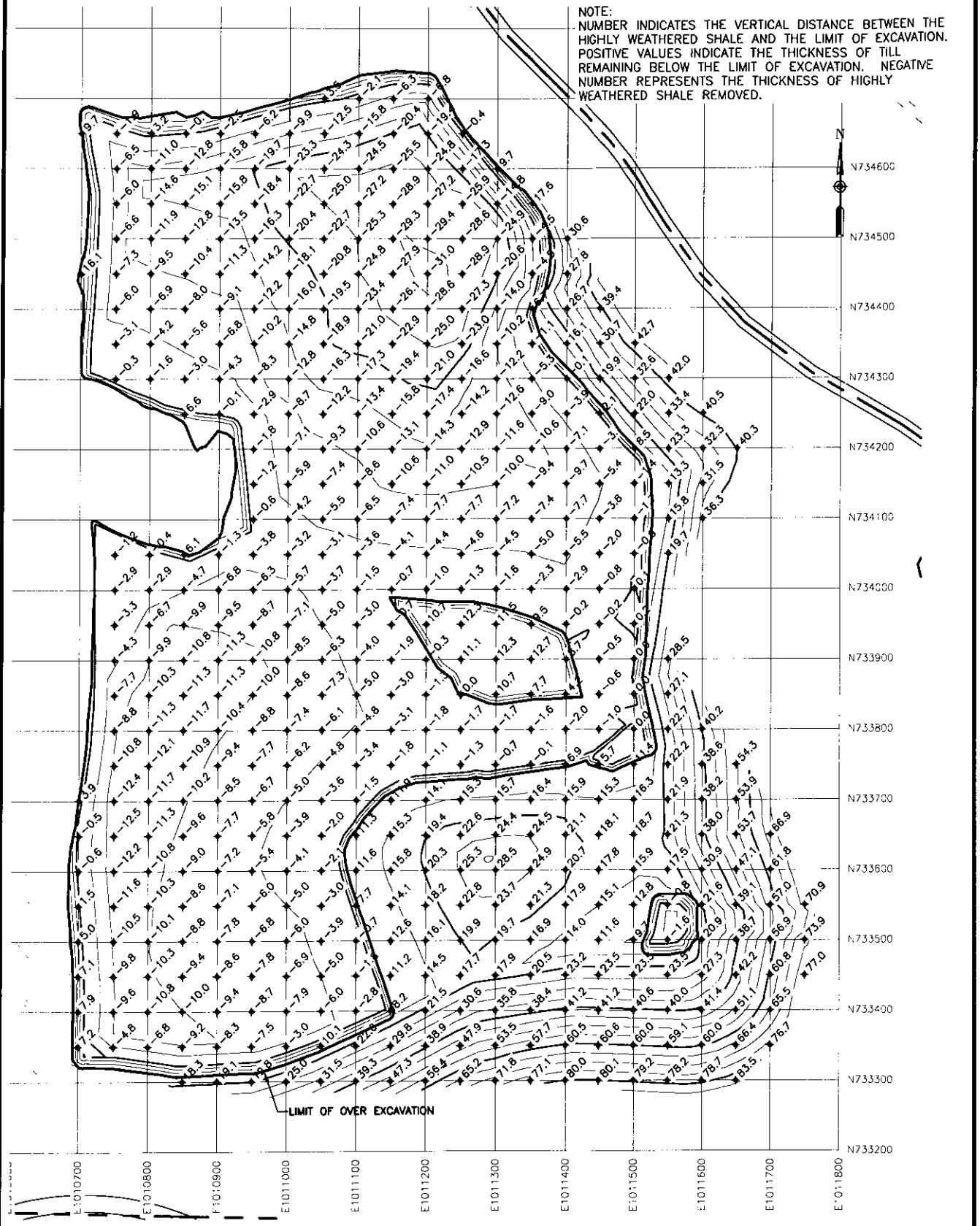

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ISOPACH FOR HWS AND LIMIT OF EXCAVATION

CARROLL LANDFILL PERMIT APPLICATION

SEALAND WASTE, LLC			
TOWN OF CARROLL	CHAUTAUQUA COUNTY	NEW YORK	FIGURE C
July 2015	SCALE: 1" = 200'	REVISION # 0	

SUMMARY OF FLOW RATES FOR VARIOUS CONDITIONS At Carroll C&D Landfill

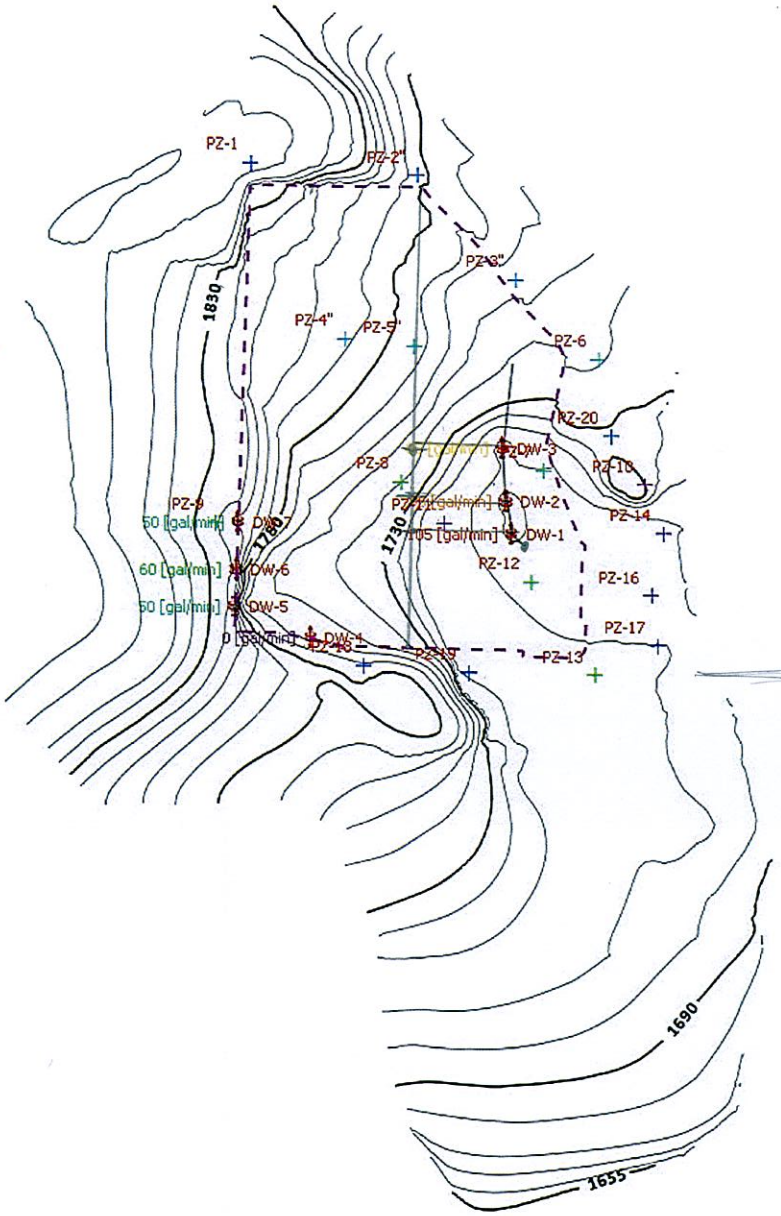
- Installation and operation of wells for first section of drain line
    - Need 3 wells as shown, flow rate estimated to be 105,95 and 85 gpm for wells DW-1 through DW-3
    - Purpose of wells is to draw down heads in HWS/Upper shale to allow TDR1 installation
    - The wells can be abandoned properly when TDR1 is installed and operational
- Operation of Phase 1 of the drain
    - With TDR1 installed and initial backfill around and in sump, the sump of the drain can be operated at elevation 1715 and maintain heads below the drainage line levels. Once backfilling is complete, the operational level may be raised to elevation 1720 or 1721. Pumping rates to maintain head of 1715 is 210 gpm under high water level conditions. Although not modeled, lowering the operational level in the sump will reduce the flow rate needed.
- Installation of wells along south west edge
    - These wells depress the water level in the HWS/upper rock to allow the overexcavation of Cell 2 to occur. Three wells are likely as shown in the figure depicting this condition. Flow rates are estimated to be 160 gpm or less. This work can be done simultaneously with TDR1 installation or after it. Total flow rates in phase 1 are additive.

Phase 2

- Install two additional wells along the alignment of the trench drain to be extended
- Lower the operational head in the trench drain sump temporally to 1710
- Turn on the wells – approximately 65 gpm each – the TRD1 flow rate should drop to 135 gpm as a result of these wells
- Install TRD2 and initially operate sump at 1721 – approximate flow rate of 210 gpm after the wells are turned off

During initial operations of the landfill when temporary liner terminations are in play, the sump can be allowed to rise in head to the elevation of the liner base at the end of the upper end of the drain line to reduce the flow rate until such time the liner system is completed.

Carroll - Initial Phase Dewatering for Drain Construction



All 6 m?

∞ [d]
TOTAL HEAD IN LAYER 6 (HWS UPPER ZONE IN EXCAVATION)
WELL PUMP RATES SHOWN BY WELL

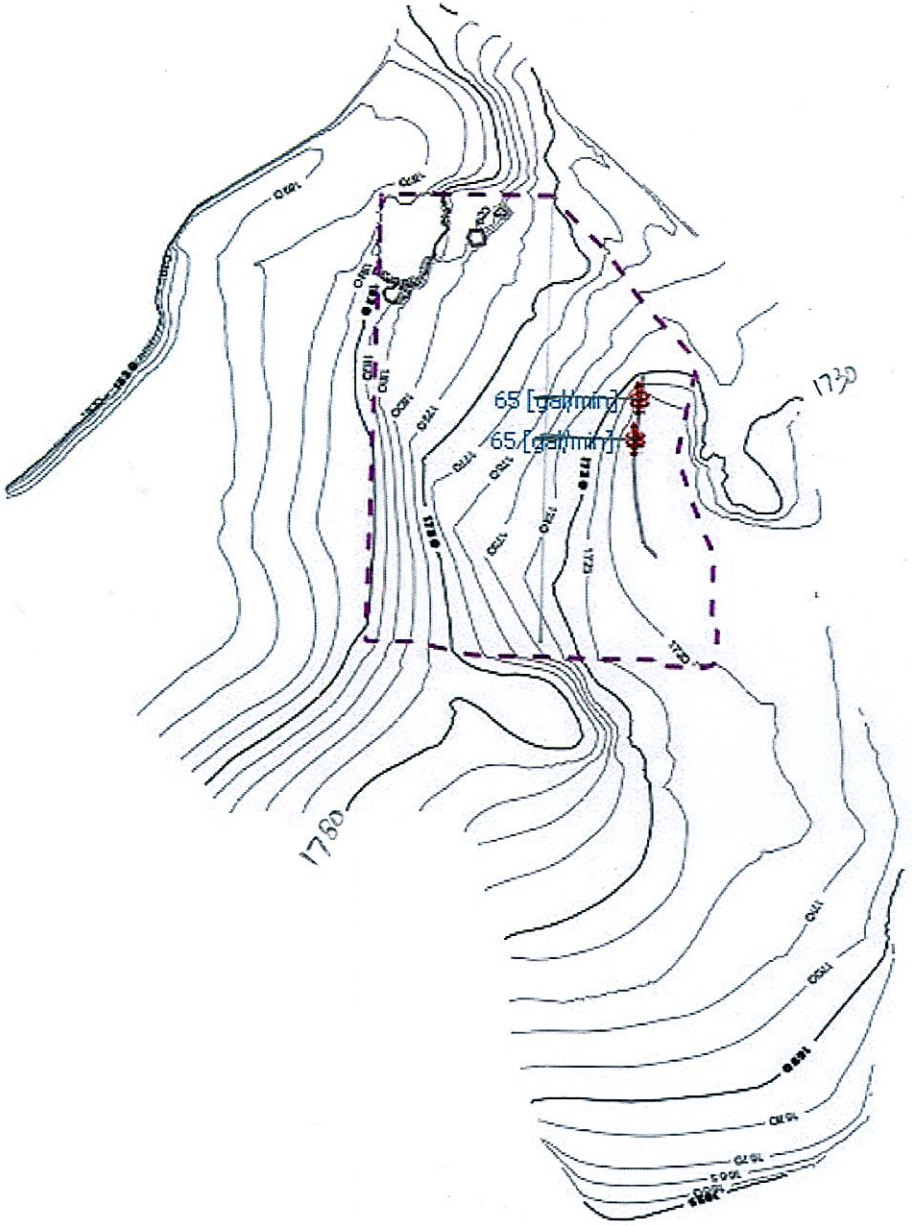
0 200 400
[ft]

CARROLL LANDFILL

SIMULATION WITH DRAIN INSTALLED FOR PHASE 1 Operated at el 1710 +2 WELLS

Well

1



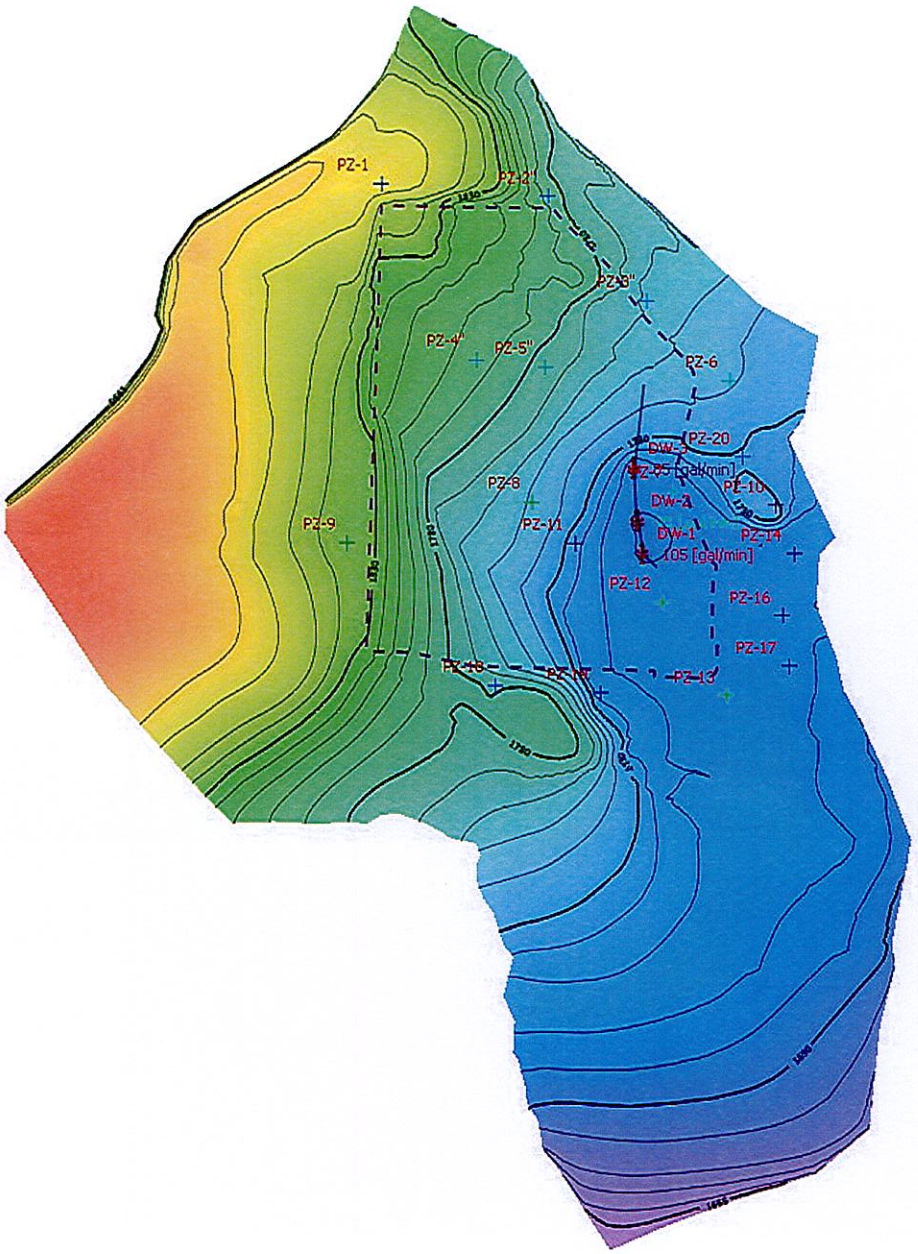
0 300 600

[ft]

∞ [d]

DEPICTION OF TOTAL HEAD SLICE 5 - HWS - FOR INSTALLATION OF PHASE 2 DRAIN

Carroll - Initial Phase Dewatering for Drain Construction



0 200 400

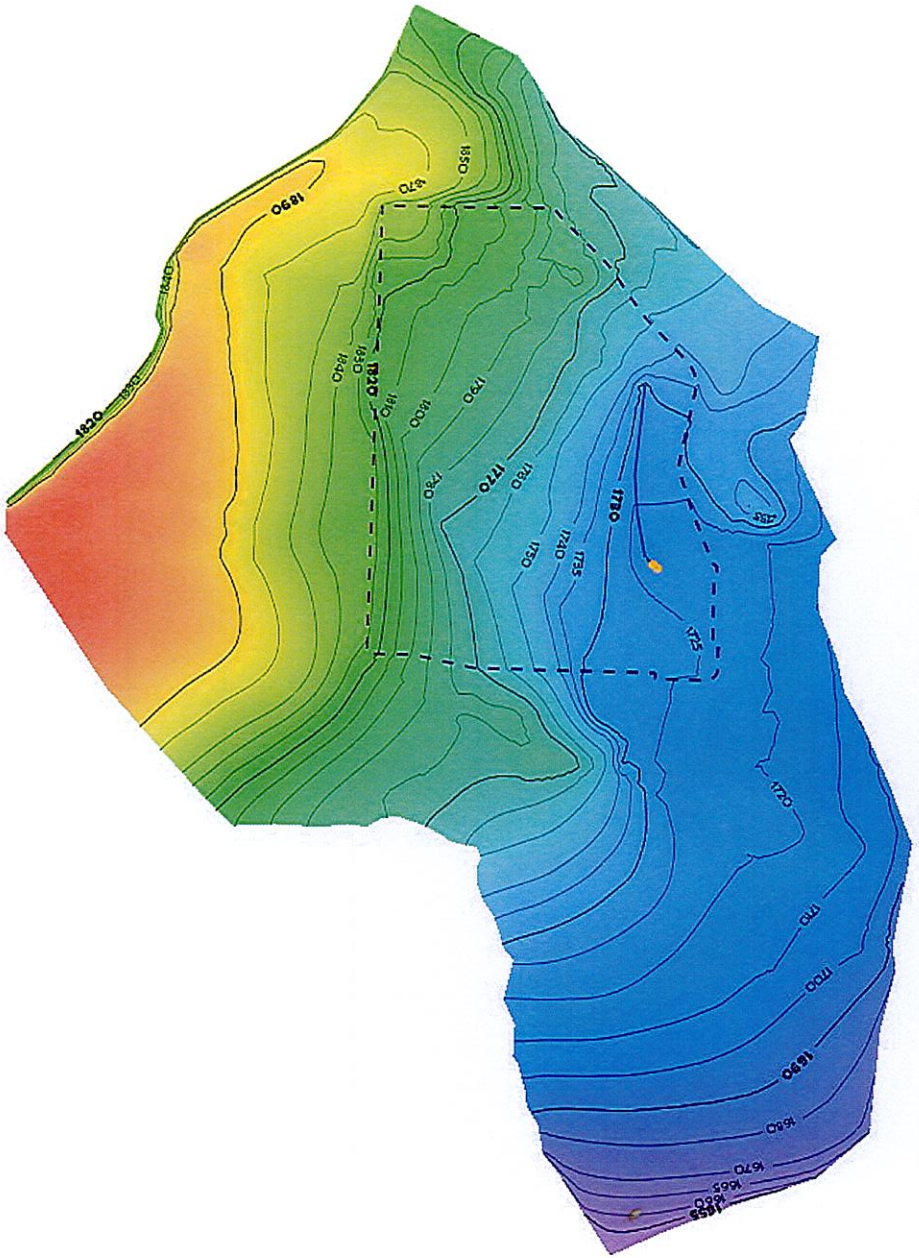
[ft]

∞ [d]

TOTAL HEAD IN LAYER 5 (HWS UPPER ZONE) WELL PUMP RATES SHOWN BY WELL

CARROLL LANDFILL

SIMULATION WITH DRAIN INSTALLED FOR PHASE 2 Operated at el 1721



2 nodes selected

∞ [d]

DEPICTION OF TOTAL HEAD SLICE 5 - HWS - BOTTOM OF REPLACEMENT FILL

0 300 600

[ft]

BY JFR DATE 2/11/16

CHKD. BY PJ DATE 2/11/16

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JOB NO. 01-0204-20

SHEET NO. 1 OF 2

SUBJECT Minimum Operating Time for Dewatering pumps

Find: Determine length of time Porewater drain MUST run before sufficient waste to prevent uplift is placed.

Solution: Waste Needed: Cell 1 = 20,573 TONS
Cell 2 = 9,335 TONS
Cell 3 = 15,056 TONS
Cell 4 = 6,948 TONS
} "Waste Needed to Prevent Uplift" Calculation

Cell 1: Assume 5 month construction time and initial waste receipt rate of 100,000 Ton/year

$[100{,}000\ T/year]\left[\frac{1\ year}{60.52\ weeks + 5\ holiday}\right] = 326\ Ton/Day$ ✓

↑ Low rate first year.

Estimated 20,573 Ton needed to prevent uplift on completed cell 1

$[20{,}573\ T]\left[\frac{1\ D}{326\ T}\right] = 64$ Days before PWD for Cell 1 can be turned off.

Approximate 2 months needed to install TDR1 and 3 months for construction for remainder of Cell 1.

DW-1, DW-2, DW-3 = 2 months (30 Days) = ≈ 60 Days

TDR1 = 3 months (30 Days) ≈ 90 Days

PWD = 64 Days

Cell 2: Assume 5 month construction time and waste rate of 307,000 T/year

$[307{,}000\ T/year]\left[\frac{1\ year}{60.52\ weeks - 5\ holidays}\right] = 1000\ T/Day$ ✓

Estimated 9,335 Ton needed to prevent uplift on completed cell 2.

$[9{,}335\ T]\left[\frac{1\ D}{1000\ T}\right] = 10$ Days before PWD for cell 2 can be turned off. ✓

DW-4, DW-5, DW-6 = 5 months (30 Days) = 150 Days ✓

TDR1 = 5 months (30 Days) = 150 Days

PWD = 10 Days

BY JPR DATE 2/11/16

CHKD. BY (JPR) DATE 2/11/16

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JOB NO. 01-0204-20

SHEET NO. 2 OF 2

SUBJECT Minimum Operating Time For Dewatering Pumps

Cell 3: Assume 7 month construction time and waste rate of 307,000 Ton/year = 1000T/Day

Estimated 15,056 Tons needed to prevent uplift in completed cell 3.

$[15{,}056\,T]\left[\frac{1\,D}{1000\,T}\right] \approx 16$ Days before PWD in cell 3 can be turned off.

2 months needed to install TDR2 and 5 months for the construction of remainder of cell 3.

DW-7, DW-8, TDR1 = 2 months (30 Days) = 60 Days
TDR-1, TDR-2 = 5 Months (30 Days) = 150 Days
PWD ≈ 16 Days

Cell 4: Assume 5 month construction time and waste rate of 307,000 Ton/year = 1000 T/Day

Estimated 6,948 Tons needed to prevent uplift in Completed cell 4

$[6{,}948\,T]\left[\frac{1\,D}{1000\,T}\right] = 7$ Days before PWD for Cell 4 can be turned off.

TDR1, TDR2 = 5 months (30 Days) ≈ 150 Days
PWD = 7 Days

Total operating times

DW-1 : 60 Days
DW-2 : 60 Days
DW-3 : 60 Days
DW-4 : 150 Days
DW-5 : 150 Days
DW-6 : 150 Days
DW-7 : 60 Days
DW-8: 60 Days

TDR1 : 90 Days + 150 Days + 60 Days + 150 Days + 150 Days = 600 Days ✓
TDR2 : 150 Days + 150 days = 300 Days ✓
PWD = 64 Days + 10 Days + 16 Days + 7 Days = 97 Days ✓

BY JPR DATE 2/10/16
CHKD. BY RB DATE 2/10/16

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JOB NO. 02-0104-20
SHEET NO. 1 OF 2

SUBJECT WATER WITHDRAWAL SYSTEM DEMAND

Find: Determine proposed instantaneous and maximum daily rates of withdrawal, the projected daily average, daily maximum, and 30-Day maximum water demands of the water withdrawal system, and dates of operation

Source: Section 4/04 Individual Wetland Permit Alternatives Analysis: Supplimental Information (cell timing information)
- Summary of Flowrates for various conditions at Carroll Landfill
- Carroll Landfill Engineering Report

Solution: * See attached spreadsheet for daily average, maximum, and * 30-Day Maximum Proposed withdrawal calculated

- For Phase 1; Dw-1, Dw-2, and Dw-3 will draw down heads for installation of TDR-1.

Required flows: Dw-1 = 105 gpm
Dw-2 = 95 gpm
Dw-3 = 85 gpm
} Proposed instantaneous daily rates and maximum daily rates of withdrawal

- After installation of TDR-1, Dw-1 - Dw-3 are abandoned and TDR-1 begins operation

Required flows: TDR-1: 210 gpm = Proposed instantaneous daily rate and maximum daily rate of withdrawal.

- All 3 wells will be installed prior to excavation to grade of Cell 1. Therefore, Startup date is within the first year of permit acquisition assumed to be 2017.

- For excavation of Cell 2; Dw-4, Dw-5 and Dw-6 will be used in tandem with either TDR-1 or Dw-1, Dw-2 and Dw-3 System.

Initial Discharge rate (in order to draw down heads): Dw-4, Dw-5, Dw-6 } 160 gpm / 3 wells = { Dw-4 = 54 gpm, Dw-5 = 54 gpm, Dw-6 = 54 gpm } max Daily Rate

Long term Steady State: Dw-4, Dw-5, Dw-6 } 80 gpm / 3 wells = { Dw-4 = 27 gpm, Dw-5 = 27 gpm, Dw-6 = 27 gpm } Instantaneous Daily Rate

- Excavation for Cell 2 occurs when Cell 1 is nearing capacity estimated to occur 3 years after filling begins. Allowing 1 year for Cell 2 Construction, startup date for Dw-4, Dw-5 and Dw-6 is estimated to be 2019.

BY JPR DATE 2/10/16

CHKD. BY RG DATE 2/10/16

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JOB NO. 02-0104-20

SHEET NO. 2 OF 2

SUBJECT WATER WITHDRAWAL SYSTEM DEMAND

- For excavation of Cell 3 and 4, TPR-2 will be installed and operated in tandum with TDR-1. For installation of TDR-2, Dw-7 and Dw-8 will be installed and operated with TDR-1 to draw down heads.

  Required flows { Dw-7 = 65 gpm, Dw-8 = 65 gpm } Instantaneous and max daily rate.

  TDR-1 = 135 gpm = Instantaneous daily rate

After TDR-2 is installed:

Required flows { TDR-2 = 210 gpm, TDR-1 = 210 gpm } Instantaneous and max daily rate.

- Excavation of Cell 3 occurs when Cell 2 is nearing capacity estimated to occur 2 years after initial filling of Cell 2. Allowing 1 year for Cell 3 construction. Start-up date for Dw-7, Dw-8, and TDR-2 is estimated at 2020.

=> See Table 3-4 for excel calculation for Proposed average, max, and max 30-Day withdrawal demand

- Perimeter Drain estimated to begin operation in limited ammount after Cell 1 construction and at max rate after Cell 3 is complete. Conservatively assume max rate of 6.99 gpm in 2018. (Year after Cell 1 construction)

(Source: Review uplift considerations for Carroll Landfill liner system

Source: Section 404 Individual Wetland Permit Alternatives Analysis: Supplemented Information: September 2015

BY JPR DATE 6/5/15
CHKD. BY DL DATE 9/4/15

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JOB NO. 02-0104
SHEET NO. 1 OF 2

SUBJECT Rate of Return For option 4

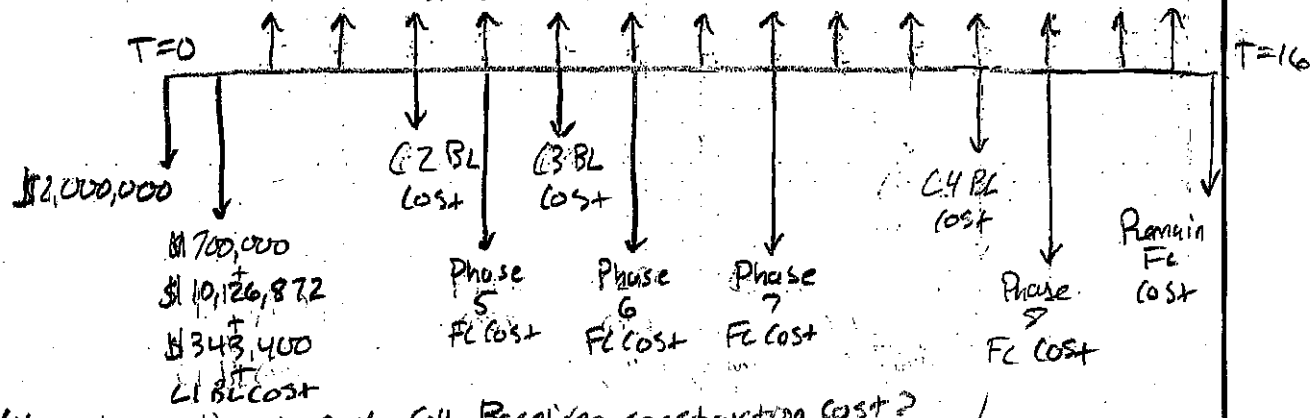
Find: Rate of Return for option 4
Method: Present worth analysis - Interpolate value of i that gives a zero present worth

Single payment present worth from future worth: $(P/F, i, n) = (1+i)^{-n}$

P = Present worth F = Future worth
i = Interest Rate n = life of asset (years)

Present Worth From annual Amount: $(P/A, i, n) = \frac{(1+i)^n - 1}{i(1+i)^n}$, A = annual amount.

Given: Site Life: 13.1 years, Design/Permit = $2,000,000
Baseliner construction = $25,273,255
Final Cover construction = $3,972,946, Wetland Mitigation Cost = $343,400 → Pd.
Post-Closure Fund = $10,126,872, Annual Revenue = $7,722,000
Waste Relocation = $700,000, Operational Cost = $3,599,414
$7,722,000 - $3,599,414



When to implement each Cell Baseliner construction cost?

(Attached PD-9)

Cell 1 Area = 7.92 ac → % = 7.92/34.9 = 22.7% (14.0 y) = 3.18 ≈ 3 year life
Cell 2 Area = 5.11 ac → % = 5.11/34.9 = 14.6% (14.0 y) = 2.04 ≈ 2 year life
Cell 3 Area = 14.18 ac → % = 14.18/34.9 = 40.6% (14.0 y) = 5.68 ≈ 6 year life
Cell 4 Area = 7.68 ac → % = 7.68/34.9 = 22.0% (14.0 y) = 3.08 ≈ 3 year life

C1 BL cost = 0.227 ($25,273,255) = $ 5,737,028
C2 BL cost = 0.146 ($25,273,255) = $ 3,688,895
C3 BL cost = 0.406 ($25,273,255) = $ 10,260,941
C4 BL cost = 0.220 ($25,273,255) = $ 5,560,116

Waste Needed	lbs	Tons
Cell 1	41,146,162	20,573
Cell 2	18,669,021	9,335
Cell 3	30,112,388	15,056
Cell 4	13,895,841	6,948

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733300	1010700					1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1010750					1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1010800					1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1010850	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1010900	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1010950	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1011000	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1011050	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1011100	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1011150	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733300	1011200	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0
733300	1011250	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011300	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011350	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011400	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011450	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011500	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011550	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011600	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011650	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011700					1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011750					1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011800					1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011850					1	1	0	1	0	0	0	0	0	1	0	0	0
733300	1011900					1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1010700	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733350	1010750	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733350	1010800	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733350	1010850	4.30	4.82	12043	669564	1	0	0	1	1	669564	0	1	0	0	0	0	0
733350	1010900	5.89	6.59	16479	916239	1	0	0	1	1	916239	0	1	0	0	0	0	0
733350	1010950	7.26	8.14	20339	1130828	1	0	0	1	1	1130828	0	1	0	0	0	0	0
733350	1011000	4.84	5.43	13565	754238	1	0	0	1	1	754238	0	1	0	0	0	0	0
733350	1011050	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733350	1011100	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733350	1011150	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733350	1011200	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733350	1011250	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011300	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011350	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011400	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011450	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011500	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011550	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011600	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011650	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011700	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011750					1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011800					1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011850					1	1	0	1	0	0	0	0	0	1	0	0	0
733350	1011900					1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1010700	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733400	1010750	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733400	1010800	1.91	2.14	5350	297442	1	0	0	1	1	297442	0	1	0	0	0	0	0
733400	1010850	3.78	4.23	10586	588564	1	0	0	1	1	588564	0	1	0	0	0	0	0
733400	1010900	5.46	6.12	15292	850246	1	0	0	1	1	850246	0	1	0	0	0	0	0
733400	1010950	6.83	7.65	19113	1062703	1	0	0	1	1	1062703	0	1	0	0	0	0	0
733400	1011000	8.12	9.10	22744	1264558	1	0	0	1	1	1264558	0	1	0	0	0	0	0
733400	1011050	9.60	10.75	26881	1494575	1	0	0	1	1	1494575	0	1	0	0	0	0	0
733400	1011100	11.09	12.43	31063	1727114	1	0	0	1	1	1727114	0	1	0	0	0	0	0
733400	1011150	3.93	4.40	11006	611916	1	0	0	1	1	611916	0	1	0	0	0	0	0
733400	1011200	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0
733400	1011250	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011300	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011350	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011400	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011450	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011500	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011550	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011600	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011650	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011700	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011750					1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011800					1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011850					1	1	0	1	0	0	0	0	0	1	0	0	0
733400	1011900					1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1010700	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733450	1010750	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733450	1010800	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733450	1010850	1.60	1.79	4469	248481	1	0	0	1	1	248481	0	1	0	0	0	0	0
733450	1010900	3.11	3.48	8704	483947	1	0	0	1	1	483947	0	1	0	0	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733450	1010950	4.29	4.80	11999	667136	1	0	0	1	1	667136	0	1	0	0	0	0	0
733450	1011000	5.47	6.12	15305	850962	1	0	0	1	1	850962	0	1	0	0	0	0	0
733450	1011050	6.90	7.73	19321	1074270	1	0	0	1	1	1074270	0	1	0	0	0	0	0
733450	1011100	8.46	9.48	23690	1317162	1	0	0	1	1	1317162	0	1	0	0	0	0	0
733450	1011150	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733450	1011200	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0
733450	1011250	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011300	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011350	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011400	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011450	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011500	3.49	3.91	9779	543697	1	1	543697	1	0	0	0	0	0	1	0	0	0
733450	1011550	6.23	6.98	17454	970447	1	1	970447	1	0	0	0	0	0	1	0	0	0
733450	1011600	3.54	3.96	9910	551014	1	1	551014	1	0	0	0	0	0	1	0	0	0
733450	1011650	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011700	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011750	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011800					1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011850					1	1	0	1	0	0	0	0	0	1	0	0	0
733450	1011900					1	1	0	1	0	0	0	0	0	1	0	0	0
733500	1010700	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733500	1010750	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733500	1010800	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733500	1010850	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733500	1010900	0.58	0.65	1621	90123	1	0	0	1	1	90123	0	1	0	0	0	0	0
733500	1010950	1.74	1.95	4877	271148	1	0	0	1	1	271148	0	1	0	0	0	0	0
733500	1011000	2.91	3.26	8145	452873	1	0	0	1	1	452873	0	1	0	0	0	0	0
733500	1011050	4.20	4.70	11756	653607	1	0	0	1	1	653607	0	1	0	0	0	0	0
733500	1011100	5.74	6.43	16075	893759	1	0	0	1	1	893759	0	1	0	0	0	0	0
733500	1011150	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733500	1011200	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0
733500	1011250	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733500	1011300	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733500	1011350	4.14	4.64	11593	644577	1	1	644577	1	0	0	0	0	0	1	0	0	0
733500	1011400	9.29	10.40	26006	1445956	1	1	1445956	1	0	0	0	0	0	1	0	0	0
733500	1011450	15.17	16.99	42475	2361603	1	1	2361603	1	0	0	0	0	0	1	0	0	0
733500	1011500	19.57	21.92	54797	3046735	1	1	3046735	1	0	0	0	0	0	1	0	0	0
733500	1011550	32.09	35.94	89858	4996098	1	1	4996098	1	0	0	0	0	0	1	0	0	0
733500	1011600	9.97	11.17	27915	1552098	1	1	1552098	1	0	0	0	0	0	1	0	0	0
733500	1011650	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733500	1011700	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733500	1011750	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733500	1011800					1	1	0	1	0	0	0	0	0	1	0	0	0
733500	1011850					1	1	0	1	0	0	0	0	0	1	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733500	1011900					1	1	0	1	0	0	0	0	0	1	0	0	0
733550	1010700	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733550	1010750	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733550	1010800	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733550	1010850	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733550	1010900	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733550	1010950	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733550	1011000	0.36	0.40	1006	55951	1	0	0	1	1	55951	0	1	0	0	0	0	0
733550	1011050	1.55	1.74	4346	241615	1	0	0	1	1	241615	0	1	0	0	0	0	0
733550	1011100	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733550	1011150	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733550	1011200	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0
733550	1011250	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733550	1011300	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733550	1011350	2.30	2.58	6447	358438	1	1	358438	1	0	0	0	0	0	1	0	0	0
733550	1011400	8.34	9.34	23339	1297655	1	1	1297655	1	0	0	0	0	0	1	0	0	0
733550	1011450	13.04	14.60	36508	2029834	1	1	2029834	1	0	0	0	0	0	1	0	0	0
733550	1011500	16.44	18.42	46039	2559768	1	1	2559768	1	0	0	0	0	0	1	0	0	0
733550	1011550	30.66	34.34	85856	4773616	1	1	4773616	1	0	0	0	0	0	1	0	0	0
733550	1011600	8.34	9.34	23359	1298776	1	1	1298776	1	0	0	0	0	0	1	0	0	0
733550	1011650	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733550	1011700	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733550	1011750	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733550	1011800					1	1	0	1	0	0	0	0	0	1	0	0	0
733550	1011850					1	1	0	1	0	0	0	0	0	1	0	0	0
733550	1011900					1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1010700	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1010750	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1010800	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1010850	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1010900	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1010950	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1011000	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1011050	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1011100	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1011150	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733600	1011200	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0
733600	1011250	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1011300	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1011350	0.03	0.04	95	5278	1	1	5278	1	0	0	0	0	0	1	0	0	0
733600	1011400	5.61	6.28	15703	873069	1	1	873069	1	0	0	0	0	0	1	0	0	0
733600	1011450	9.75	10.93	27313	1518581	1	1	1518581	1	0	0	0	0	0	1	0	0	0
733600	1011500	12.73	14.26	35645	1981853	1	1	1981853	1	0	0	0	0	0	1	0	0	0
733600	1011550	11.62	13.01	32528	1808550	1	1	1808550	1	0	0	0	0	0	1	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733600	1011600	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1011650	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1011700	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1011750					1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1011800					1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1011850					1	1	0	1	0	0	0	0	0	1	0	0	0
733600	1011900					1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1010700	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1010750	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1010800	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1010850	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1010900	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1010950	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1011000	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1011050	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1011100	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1011150	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0
733650	1011200	0	0	0	0	1	1	0	1	0	0	0	1	0	0	0	0	0
733650	1011250	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011300	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011350	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011400	2.61	2.92	7310	406449	1	1	406449	1	0	0	0	0	0	1	0	0	0
733650	1011450	6.76	7.57	18932	1052630	1	1	1052630	1	0	0	0	0	0	1	0	0	0
733650	1011500	7.40	8.29	20727	1152421	1	1	1152421	1	0	0	0	0	0	1	0	0	0
733650	1011550	5.88	6.59	16468	915601	1	1	915601	1	0	0	0	0	0	1	0	0	0
733650	1011600	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011650	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011700	0	0	0	0	1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011750					1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011800					1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011850					1	1	0	1	0	0	0	0	0	1	0	0	0
733650	1011900					1	1	0	1	0	0	0	0	0	1	0	0	0
733700	1010700	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1010750	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1010800	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1010850	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1010900	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1010950	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1011000	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1011050	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1011100	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1011150	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733700	1011200	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0
733700	1011250	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733700	1011300	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011350	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011400	0.10	0.11	268	14883	1	1	14883	0	0	0	1	0	0	1	0	0	0
733700	1011450	3.41	3.81	9536	530199	1	1	530199	0	0	0	1	0	0	1	0	0	0
733700	1011500	3.12	3.50	8739	485862	1	1	485862	0	0	0	1	0	0	1	0	0	0
733700	1011550	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011600	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011650	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011700					1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011750					1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011800					1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011850					1	1	0	0	0	0	1	0	0	1	0	0	0
733700	1011900					1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1010700					1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1010750	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1010800	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1010850	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1010900	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1010950	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1011000	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1011050	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1011100	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1011150	0	0	0	0	1	0	0	0	1	0	1	1	0	0	0	0	0
733750	1011200	0	0	0	0	1	1	0	0	0	0	1	1	0	0	0	0	0
733750	1011250	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1011300	2.54	2.84	7100	394758	1	1	394758	0	0	0	1	0	0	1	0	0	0
733750	1011350	4.90	5.49	13721	762863	1	1	762863	0	0	0	1	0	0	1	0	0	0
733750	1011400	0.87	0.98	2444	135893	1	1	135893	0	0	0	1	0	0	1	0	0	0
733750	1011450	4.32	4.84	12107	673160	1	1	673160	0	0	0	1	0	0	1	0	0	0
733750	1011500	0.02	0.03	68	3799	1	1	3799	0	0	0	1	0	0	1	0	0	0
733750	1011550	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1011600	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1011650	0	0	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1011700					1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1011750					1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1011800					1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1011850					1	1	0	0	0	0	1	0	0	1	0	0	0
733750	1011900					1	1	0	0	0	0	1	0	0	1	0	0	0
733800	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1010750	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1010800	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1010850	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1010900	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733800	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733800	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
733800	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011300	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011350	2.46	2.76	6892	383191	0	1	0	0	0	0	1	0	1	1	383191	0	0
733800	1011400	5.27	5.90	14762	820792	0	1	0	0	0	0	1	0	1	1	820792	0	0
733800	1011450	6.83	7.65	19136	1063964	0	1	0	0	0	0	1	0	1	1	1063964	0	0
733800	1011500	7.92	8.88	22188	1233639	0	1	0	0	0	0	1	0	1	1	1233639	0	0
733800	1011550	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011600	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011800					0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011850					0	1	0	0	0	0	1	0	1	1	0	0	0
733800	1011900					0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1010750	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1010800	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1010850	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1010900	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733850	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
733850	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011300	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011350	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011400	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011450	5.50	6.16	15410	856800	0	1	0	0	0	0	1	0	1	1	856800	0	0
733850	1011500	7.22	8.08	20205	1123387	0	1	0	0	0	0	1	0	1	1	1123387	0	0
733850	1011550	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011600					0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011800					0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011850					0	1	0	0	0	0	1	0	1	1	0	0	0
733850	1011900					0	1	0	0	0	0	1	0	1	1	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733900	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1010750	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1010800	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1010850	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1010900	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733900	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
733900	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011300	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011350	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011400	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011450	5.95	6.67	16665	926561	0	1	0	0	0	0	1	0	1	1	926561	0	0
733900	1011500	7.23	8.10	20247	1125722	0	1	0	0	0	0	1	0	1	1	1125722	0	0
733900	1011550	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011600					0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011800					0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011850					0	1	0	0	0	0	1	0	1	1	0	0	0
733900	1011900					0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1010750	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1010800	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1010850	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1010900	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
733950	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
733950	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011300	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011350	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011400	3.51	3.93	9834	546795	0	1	0	0	0	0	1	0	1	1	546795	0	0
733950	1011450	6.06	6.79	16972	943623	0	1	0	0	0	0	1	0	1	1	943623	0	0
733950	1011500	7.22	8.08	20203	1123309	0	1	0	0	0	0	1	0	1	1	1123309	0	0
733950	1011550					0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011600					0	1	0	0	0	0	1	0	1	1	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
733950	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011800					0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011850					0	1	0	0	0	0	1	0	1	1	0	0	0
733950	1011900					0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1010750	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1010800	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1010850	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1010900	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734000	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
734000	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011300	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011350	1.43	1.61	4017	223323	0	1	0	0	0	0	1	0	1	1	223323	0	0
734000	1011400	5.05	5.66	14152	786853	0	1	0	0	0	0	1	0	1	1	786853	0	0
734000	1011450	5.81	6.50	16260	904049	0	1	0	0	0	0	1	0	1	1	904049	0	0
734000	1011500	6.91	7.74	19350	1075858	0	1	0	0	0	0	1	0	1	1	1075858	0	0
734000	1011550					0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011600					0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011800					0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011850					0	1	0	0	0	0	1	0	1	1	0	0	0
734000	1011900					0	1	0	0	0	0	1	0	1	1	0	0	0
734050	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1010750	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1010800	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1010850	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1010900	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734050	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
734050	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734050	1011300	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
734050	1011350	3.08	3.45	8627	479650	0	1	0	0	0	0	1	0	1	1	479650	0	0
734050	1011400	6.56	7.35	18365	1021074	0	1	0	0	0	0	1	0	1	1	1021074	0	0
734050	1011450	5.49	6.15	15372	854668	0	1	0	0	0	0	1	0	1	1	854668	0	0
734050	1011500	6.61	7.41	18519	1029652	0	1	0	0	0	0	1	0	1	1	1029652	0	0
734050	1011550	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734050	1011600					0	1	0	0	0	0	1	0	1	1	0	0	0
734050	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
734050	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
734050	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
734100	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1010750					0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1010800					0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1010850					0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1010900					0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734100	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
734100	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734100	1011300	0.57	0.64	1596	88753	0	1	0	0	0	0	1	0	1	1	88753	0	0
734100	1011350	4.54	5.09	12715	706927	0	1	0	0	0	0	1	0	1	1	706927	0	0
734100	1011400	7.75	8.68	21688	1205851	0	1	0	0	0	0	1	0	1	1	1205851	0	0
734100	1011450	6.15	6.89	17219	957385	0	1	0	0	0	0	1	0	1	1	957385	0	0
734100	1011500	6.26	7.01	17536	974993	0	1	0	0	0	0	1	0	1	1	974993	0	0
734100	1011550	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734100	1011600	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734100	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
734100	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
734100	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
734150	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1010750					0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1010800					0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1010850					0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1010900					0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734150	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
734150	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734150	1011300	1.54	1.72	4301	239109	0	1	0	0	0	0	1	0	1	1	239109	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
734150	1011350	5.30	5.94	14839	825026	0	1	0	0	0	0	1	0	1	1	825026	0	0
734150	1011400	8.93	10.00	25003	1390145	0	1	0	0	0	0	1	0	1	1	1390145	0	0
734150	1011450	7.30	8.17	20436	1136215	0	1	0	0	0	0	1	0	1	1	1136215	0	0
734150	1011500	5.76	6.45	16129	896748	0	1	0	0	0	0	1	0	1	1	896748	0	0
734150	1011550	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734150	1011600	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734150	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
734150	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
734150	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
734200	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1010750					0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1010800					0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1010850					0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1010900					0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734200	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
734200	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734200	1011300	2.23	2.49	6237	346762	0	1	0	0	0	0	1	0	1	1	346762	0	0
734200	1011350	6.05	6.78	16950	942393	0	1	0	0	0	0	1	0	1	1	942393	0	0
734200	1011400	6.46	7.24	18092	1005926	0	1	0	0	0	0	1	0	1	1	1005926	0	0
734200	1011450	5.29	5.92	14808	823329	0	1	0	0	0	0	1	0	1	1	823329	0	0
734200	1011500	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734200	1011550	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734200	1011600	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734200	1011650	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734200	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
734200	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
734250	1010700					0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1010750					0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1010800					0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1010850	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1010900	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1010950	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1011000	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1011050	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1011100	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1011150	0	0	0	0	0	0	0	0	1	0	1	1	1	0	0	0	0
734250	1011200	0	0	0	0	0	1	0	0	0	0	1	1	1	0	0	0	0
734250	1011250	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734250	1011300	3.34	3.74	9355	520111	0	1	0	0	0	0	1	0	1	1	520111	0	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
734250	1011350	4.99	5.59	13981	777341	0	1	0	0	0	0	1	0	1	1	777341	0	0
734250	1011400	3.83	4.29	10714	595710	0	1	0	0	0	0	1	0	1	1	595710	0	0
734250	1011450	1.01	1.13	2819	156754	0	1	0	0	0	0	1	0	1	1	156754	0	0
734250	1011500	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734250	1011550	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734250	1011600	0	0	0	0	0	1	0	0	0	0	1	0	1	1	0	0	0
734250	1011650					0	1	0	0	0	0	1	0	1	1	0	0	0
734250	1011700					0	1	0	0	0	0	1	0	1	1	0	0	0
734250	1011750					0	1	0	0	0	0	1	0	1	1	0	0	0
734300	1010700					0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1010750	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1010800	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1010850	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1010900	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1010950	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1011000	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1011050	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1011100	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1011150	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734300	1011200	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0
734300	1011250	1.64	1.83	4582	254786	0	1	0	0	0	0	0	0	0	1	0	1	254786
734300	1011300	4.11	4.60	11502	639487	0	1	0	0	0	0	0	0	0	1	0	1	639487
734300	1011350	2.71	3.04	7601	422593	0	1	0	0	0	0	0	0	0	1	0	1	422593
734300	1011400	1.42	1.59	3980	221284	0	1	0	0	0	0	0	0	0	1	0	1	221284
734300	1011450	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734300	1011500	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734300	1011550	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734300	1011600					0	1	0	0	0	0	0	0	0	1	0	1	0
734300	1011650					0	1	0	0	0	0	0	0	0	1	0	1	0
734300	1011700					0	1	0	0	0	0	0	0	0	1	0	1	0
734300	1011750					0	1	0	0	0	0	0	0	0	1	0	1	0
734350	1010700					0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1010750	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1010800	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1010850	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1010900	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1010950	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1011000	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1011050	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1011100	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1011150	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734350	1011200	1.14	1.28	3198	177833	0	1	0	0	0	0	0	1	0	0	0	1	177833
734350	1011250	3.68	4.12	10301	572762	0	1	0	0	0	0	0	0	0	1	0	1	572762
734350	1011300	2.55	2.85	7134	396657	0	1	0	0	0	0	0	0	0	1	0	1	396657

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
734350	1011350	1.03	1.16	2891	160724	0	1	0	0	0	0	0	0	0	1	0	1	160724
734350	1011400	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734350	1011450	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734350	1011500	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734350	1011550					0	1	0	0	0	0	0	0	0	1	0	1	0
734350	1011600					0	1	0	0	0	0	0	0	0	1	0	1	0
734350	1011650					0	1	0	0	0	0	0	0	0	1	0	1	0
734400	1010700					0	0	0	0	1	0	0	1	0	0	0	1	0
734400	1010750	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734400	1010800	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734400	1010850	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734400	1010900	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734400	1010950	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734400	1011000	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734400	1011050	0.33	0.37	928	51623	0	0	0	0	1	0	0	1	0	0	0	1	51623
734400	1011100	1.62	1.81	4534	252108	0	0	0	0	1	0	0	1	0	0	0	1	252108
734400	1011150	1.82	2.04	5093	283151	0	0	0	0	1	0	0	1	0	0	0	1	283151
734400	1011200	3.29	3.68	9199	511456	0	1	0	0	0	0	0	1	0	0	0	1	511456
734400	1011250	3.50	3.93	9813	545581	0	1	0	0	0	0	0	0	0	1	0	1	545581
734400	1011300	1.44	1.61	4027	223883	0	1	0	0	0	0	0	0	0	1	0	1	223883
734400	1011350	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734400	1011400	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734400	1011450	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734400	1011500					0	1	0	0	0	0	0	0	0	1	0	1	0
734400	1011550					0	1	0	0	0	0	0	0	0	1	0	1	0
734400	1011600					0	1	0	0	0	0	0	0	0	1	0	1	0
734450	1010700	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734450	1010750	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734450	1010800	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734450	1010850	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734450	1010900	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734450	1010950	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734450	1011000	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734450	1011050	1.29	1.45	3619	201201	0	0	0	0	1	0	0	1	0	0	0	1	201201
734450	1011100	3.76	4.21	10523	585092	0	0	0	0	1	0	0	1	0	0	0	1	585092
734450	1011150	3.92	4.39	10987	610904	0	0	0	0	1	0	0	1	0	0	0	1	610904
734450	1011200	4.90	5.49	13714	762474	0	1	0	0	0	0	0	1	0	0	0	1	762474
734450	1011250	2.63	2.95	7366	409532	0	1	0	0	0	0	0	0	0	1	0	1	409532
734450	1011300	0.37	0.41	1037	57664	0	1	0	0	0	0	0	0	0	1	0	1	57664
734450	1011350	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734450	1011400	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734450	1011450					0	1	0	0	0	0	0	0	0	1	0	1	0
734450	1011500					0	1	0	0	0	0	0	0	0	1	0	1	0
734500	1010700					0	0	0	0	1	0	0	1	0	0	0	1	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
734500	1010750	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734500	1010800	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734500	1010850	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734500	1010900	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734500	1010950	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734500	1011000	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734500	1011050	1.67	1.87	4682	260344	0	0	0	0	1	0	0	1	0	0	0	1	260344
734500	1011100	4.93	5.52	13811	767907	0	0	0	0	1	0	0	1	0	0	0	1	767907
734500	1011150	6.04	6.77	16921	940821	0	0	0	0	1	0	0	1	0	0	0	1	940821
734500	1011200	4.06	4.54	11360	631640	0	1	0	0	0	0	0	1	0	0	0	1	631640
734500	1011250	1.71	1.92	4791	266353	0	1	0	0	0	0	0	0	0	1	0	1	266353
734500	1011300	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734500	1011350	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734500	1011400	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734500	1011450					0	1	0	0	0	0	0	0	0	1	0	1	0
734550	1010700					0	0	0	0	1	0	0	1	0	0	0	1	0
734550	1010750	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734550	1010800	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734550	1010850	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734550	1010900	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734550	1010950	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734550	1011000	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734550	1011050	1.67	1.87	4676	259986	0	0	0	0	1	0	0	1	0	0	0	1	259986
734550	1011100	6.08	6.81	17020	946285	0	0	0	0	1	0	0	1	0	0	0	1	946285
734550	1011150	6.38	7.15	17876	993923	0	0	0	0	1	0	0	1	0	0	0	1	993923
734550	1011200	2.87	3.21	8031	446506	0	1	0	0	0	0	0	1	0	0	0	1	446506
734550	1011250	0.19	0.21	534	29688	0	1	0	0	0	0	0	0	0	1	0	1	29688
734550	1011300	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734550	1011350	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734550	1011400					0	1	0	0	0	0	0	0	0	1	0	1	0
734550	1011450					0	1	0	0	0	0	0	0	0	1	0	1	0
734600	1010700					0	0	0	0	1	0	0	1	0	0	0	1	0
734600	1010750	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734600	1010800	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734600	1010850	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734600	1010900	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734600	1010950	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734600	1011000	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734600	1011050	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734600	1011100	1.73	1.94	4854	269902	0	0	0	0	1	0	0	1	0	0	0	1	269902
734600	1011150	3.58	4.01	10032	557755	0	0	0	0	1	0	0	1	0	0	0	1	557755
734600	1011200	1.18	1.32	3308	183936	0	1	0	0	0	0	0	1	0	0	0	1	183936
734600	1011250	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734600	1011300	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0

BX	BY	Remaining Pressure Head of Water Above Excavation (ft)	Height of Waste Needed (ft)	Volume of Waste Needed (cf)	Weight of Waste Needed (lbs)	Cell 1			Cell 2			Cell 3					Cell 4	
						If S of 733800	If E of 1011200	Weight of Waste Needed	If S of 733700	If W of 1011200	Weight of Waste Needed	If Between 734300	If W of 1011200	If Between 734300	If E of 1011200	Weight of Waste Needed	If N of 734300	Weight of Waste Needed
734600	1011350					0	1	0	0	0	0	0	0	0	1	0	1	0
734600	1011400					0	1	0	0	0	0	0	0	0	1	0	1	0
734650	1010700	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1010750	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1010800	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1010850	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1010900	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1010950	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1011000	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1011050	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1011100	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1011150	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734650	1011200	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0
734650	1011250	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	1	0
734650	1011300					0	1	0	0	0	0	0	0	0	1	0	1	0
734650	1011350					0	1	0	0	0	0	0	0	0	1	0	1	0
734650	1011400					0	1	0	0	0	0	0	0	0	1	0	1	0
734700	1010700					0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1010750					0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1010800					0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1010850					0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1010900					0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1010950					0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1011000					0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1011050	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1011100	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1011150	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0
734700	1011200	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	1	0

BY JPR DATE 2/16/15

CHKD. BY DC DATE 2/16/15

DAIGLER ENGINEERING, P.C.
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JOB NO. 02-0104-20

SHEET NO. 1 OF 1

SUBJECT Bedrock VS Depth of DW's

Find: Determine well screens installed within bedrock

Solution: Sheet PD-3 Attached (from 2015 Permit App.) determine depth of bedrock at each well location and determine depth of well screen in bedrock.

Well	Height of bedrock (famsl) (Fig 9)	Bottom of well screen (famsl) (Sheet 2+3)
PW-1	1700 ✓	1676.59
DW-2	1705 (1705)	1683.43
DW-3	1721 (1721 5ft/112.8 = .044 · 91 = 4'; 1725 − 4 = 1721)	1695.61
DW-4	1770 (1770)	1761.51
DW-5	1771.5 (1771.5 5ft/454 = .011 · 315 = 3.5; 1775 − 3.5)	1764.65
DW-6	1773.4 (1773.4 .011 · 145 = 1.6; 1775 − 1.6)	1769.26
DW-7	1722.5 (1722.5 5ft/96.2 = .052 · 49' = 2.5; 1725 − 2.5 = 1722.5)	1695.65
DW-8	1722.5 (1722.5 5ft/91.2 = .055 · 45 = 2.5; 1725 − 2.5 = 1722.5)	1697.30

Trench Drain	Height of bedrock (famsl)	Bottom of Pipe (famsl)
@ DW-1	1700	1705.07
@ DW-2	1705	1712.9
@ DW-3	1721	1724.17
@ DW-7	1722.5	1724.17
@ DW-8	1722.5	1726.94

=> All DWs are installed in the upper bedrock. The trench drain is installed above bedrock

LEGEND

- PZ-1D,S — STANDPIPE PIEZOMETER-CLUSTER
- MW-1M — MONITORING WELL
- TP-18 — TEST PIT
- GTB-6 — GEOTECHNICAL BORING
- 1750 — EXISTING GROUND CONTOUR
- 1750 — TOP OF BEDROCK MAJOR CONTOUR
- TOP OF BEDROCK MINOR CONTOUR
- PROPERTY BOUNDARY
- UNIMPROVED ACCESSWAY
- IMPROVED ROADWAY
- EXISTING BUILDING
- A11 — SECTION ID AND SHEET WHERE SECTION IS LOCATED

NOTES:

1. THE TOPOGRAPHY SHOWN HEREON IS OBTAINED FROM THE UNITED STATES GEOLOGICAL SURVEY (USGS) NATIONAL ELEVATION DATA SET 2009, CONVERTED FROM LATITUDE, LONGITUDE, ELEVATION TO THE NEW YORK STATE PLANE COORDINATE SYSTEM, AND IN CONFORMANCE WITH THE NORTH AMERICAN DATUM OF 1983 (NAD-83).
2. PROPERTY BOUNDARY SHOWN RECEIVED ELECTRONICALLY FROM MICHAEL J. RODGERS (MJR) LAND SURVEYORS OF JAMESTOWN, NEW YORK, DATED OCTOBER 2012.
3. THE LOCATION OF PIEZOMETERS IS APPROXIMATE.
4. TOP OF BEDROCK CONTOURS GENERATED BY PJ CAREY ASSOCIATES, SUGAR HILL, GEORGIA USING INTERPOLATION SOFTWARE ROCK WORKS 15.

NO.	REVISION	BY	DATE
1	REVISED SECTION CALL OUT LABELS	TPP	4/30/14

2620 GRAND ISLAND BLVD. (716) 773-6872
GRAND ISLAND, NEW YORK 14072 (716) 773-6873 FAX
JAMES A. DAIGLER, P.E. NYSPE NO. 061689

DATE: May 2014

SCALE: 1"=120'

PREPARED FOR: SEALAND WASTE, LLC

DES. BY: | DRW. BY: | CHK. BY:

GENERALIZED CONTOURS FOR THE TOP OF BEDROCK

CARROLL LANDFILL EXPANSION APPLICATION

DWG.PD-3 GENERALIZED CONTOURS FOR THE TOP OF BEDROCK.dwg | TOWN OF CARROLL | CHAUTAUQUA COUNTY | STATE OF NEW YORK

SHEET PD-3