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June 24, 2014

Ms. Eleanor Wehner, P.G.
Texas Commission on Environmental Quality
Remediation Division
VCP-CA Section, Mail Code MC-127
Post Office Box 13087
Austin, Texas 78753

Re: Texas Custodial Trust
Former ASARCO Smelter Site, El Paso, Texas

Subject: Cell 4 Final Cover Design

Dear Ms. Wehner:

Enclosed please find our submittal regarding the Cell 4 Final Cover Design including responses to agency comments dated February 21, 2012 on the original Cell 4 submittal for your review and approval. It was agreed at that time that the original submittal (and associated revisions from agency comments) would suffice for approval of the lining system construction and filling activities and that the cover system revisions would be submitted at a later date.

We anticipate completion of Cell 4 fill activities to be complete this year. Installing the final cover system will be initiated upon receiving agency approval to proceed. The lower slope cover sections can be constructed immediately upon approval to provide final cover protection and reduce the potential for storm water impacts prior to capping the top. The top of the landfill will be capped after all Category 1 materials have been disposed (anticipated in Q1 or Q2, 2015).

If you have any questions regarding the information submitted, please call me or Mike Berry at 602-438-0883.

Very truly yours,

MALCOLM PIRNIE, INC.

Scott M. Brown, P.E.
Project Manager

cc: Charles Fischer, USEPA Region 6
Chuck Barnes, USEPA Region 6
Roberto Puga, Project Navigator
Mark Landress, Project Navigator
Beth Gross, Geosyntec Consultants
Former ASARCO Smelter Team

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24 June 2014

Mr. Scott M. Brown, P.E.
Malcolm Pirnie, Inc.
410 N. 44th Street, Suite 1000
Phoenix, Arizona 85008

Subject: Response to EPA Comments on Category I Landfill, Cell 4 Final Cover Design
Texas Custodial Trust
Former ASARCO Smelter Site, El Paso, Texas

Dear Mr. Brown:

This letter was prepared to respond to the 21 February 2012 technical review comments from the U.S. Environmental Protection Agency (EPA) on the final cover design for the above referenced facility. Geosyntec Consultants (Geosyntec) and Malcolm Pirnie, Inc. (MP) previously responded to EPA comments on the Cell 4 liner system in a 9 July 2012 submittal to Mr. James S.H. Sher, P.E. of the Texas Commission on Environmental Quality (TCEQ). As described in that submittal, TCEQ had asked that the grading of the final cover system be revised to a 3 horizontal:1 vertical (3H:1V) slope with two interceptor benches to decrease drainage path lengths. The design package for this grading change was to be submitted under separate cover.

Since that submittal, the grading of the final cover system has been revised to include two interceptor benches as requested by TCEQ, and the final cover design package has been finalized. The design package for the final cover system is attached to this letter and includes the following:

- Attachment A - Design Drawings, Category I Landfill – Cell 4 (Revision 7);
- Attachment B - Cell 4 Final Cover Design;
- Attachment C - Surface Water Management System Design;
- Attachment D - Riprap Lining Design for Cell 4 Drainage Channel;
- Attachment E - Revised Final Cover Erosion Analysis; and
- Attachment F - Parker Brothers Arroyo Interim Channel Design (Revision 3).

EPA comments from the 21 February 2012 letter that were deferred until submittal of the final cover system design package are presented and addressed below.

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EPA Comment:

1. Drainage – Hydraulics

(A) Please provide the equation(s) and sizing calculations used for the Landfill Toe Perimeter Channel that will collect storm water run-off from the Landfill.

(B) Provide Calculations of the velocities in each branch of the perimeter channel.

Response:

The equations and sizing calculations for the drainage channel and the velocities in each reach along the channel are provided in Attachment C.

EPA Comment:

(C) Provide Calculations of the Landfill storm-water flow velocity and the discharge rate (Q, cfs) of storm water flowing down the chute Channel. Provide the hydraulic grade line of the 100 year frequency return storm.

Response:

The calculated velocities and flow rates for each reach of the downchute are provided in Attachment C. The hydraulic grade line along the downchute for the 100-yr, 24-hr storm event is shown in Figures 1a and 1b. Figure 1a includes the hydraulic grade line in Parker Brothers Arroyo (PBA) for the Interim Configuration, which includes an overflow weir (see Sheet 4 of 9 in Attachment F). This is the current condition of PBA at the site. Figure 1b shows the hydraulic grade line in PBA for the final configuration after the overflow weir has been removed. It is anticipated that the weir will be removed in 2015.

EPA Comment:

(D) Size and provide in the landfill cover drainage drawing(s) in part (E) below, the Energy dissipation structure needed in the apron at the end of the chute. Show calculations and equations used.

(E) In Fig H/15 please provide properly sized permanent energy dissipaters where the flow precedes the hydraulic jump at the chute channel apron, at the toe of the slope.

Response:

An energy dissipation structure is not needed in the concrete apron at the end of downchute and, therefore, was not incorporated into the stormwater management system design. The calculated velocity, flow rate, and flow depth at the apron for the 100-year, 24-hour storm event are 4.1 ft/s, 28.4 ft^3/s, and 0.67 ft respectively (Attachment C). The slower flowing water in the perimeter channel at the bottom of the downchute provides some dissipation of the energy of the downchute flow. In addition, the articulated concrete block (ACB) lining of the downchute and the concrete lining of the apron protect the drainage outlet from erosion due to hydraulic stresses. From the

apron, water flows down the ACB lining the outboard side of the landfill berm and into PBA (Attachment A). The bottom of the channel is lined with riprap and gravel-filled geoweb over a nonwoven geotextile and linear low density polyethylene (LLDPE) geomembrane (Attachment F).

Although a hydraulic jump does occur where flow from the downchute transitions into flow at the channel outlet apron, permanent energy dissipaters are not needed on the downchute where flow precedes the hydraulic jump. The calculated velocity, flow rate, and flow depth at the bottom of the downchute for the 100-yr, 24-hr storm event are 10.8 ft/s, 12.1 ft^3/s, and 0.29 ft respectively (Attachment C). The flow depth is low in the downchute and at the apron, the area is protected from erosion by ACB and concrete linings, and the slower flowing water in the perimeter channel at the bottom of the downchute provides some dissipation of the energy of the downchute flow.

EPA Comment:
(F) Provide the storm water sheet flow runoff flow rate (Q) on the slope above the terrace channel that captures it. Show the calculations of the sizing of the terrace channel based on that, Q.

Response:
The calculated overland sheet flow rate for each subcatchment area and the sizing of the drainage benches is provided in Attachment C.

EPA Comment:
(G) Show calculations of the Chute Channel design and the discharge flow rate in the chute channel. Draw and label the hydraulic grade line in the chute profile.

Response:
The calculated velocities and flow rates for each reach of the downchute are provided in Attachment C. The hydraulic grade line along the downchute for the 100-year, 24-hour storm event is shown in Figures 1a and 1b.

EPA Comment:
(H) Calculate the sum of the Landfill storm water run-off discharge flow (Q) into the Landfill perimeter channel that is located at the toe of the landfill. Next, calculate the flow (ΣQi) that is then discharged into the Arroyo channel.

Response:
As shown in Attachment C, the flow rate from Cell 4 to PBA for the 100-yr, 24-hr storm event is 28.4 ft^3/s.

EPA Comment:
(I) Provide the hydraulic freeboard in the Arroyo and hydraulic grade line for the 100 year return rainfall event.

Response:
The freeboard required and freeboard provided for the Interim Configuration of PBA are tabulated on Sheet 5 of 9 in Attachment F. The hydraulic grade line for the 100-yr storm event is also shown on this sheet. As discussed above in the response to Comment 1(C), additional freeboard will be provided for the final configuration after the overflow weir has been removed.

EPA Comment:
(J) What is the design storm event for which the Arroyo channel and the Landfill Perimeter drainage channels are sized, respectively?

Response:
Both have been sized to accommodate at least the 100-yr storm event (See Attachments C, D, and F). Although the detailed calculations are not included in Attachment C, Geosyntec also routed flow from the 500-yr, 24-hr storm event through the Cell 4 surface water management system and found that the perimeter drainage channel could convey this flow while maintaining more than 1 ft of freeboard.

EPA Comment:
2. Landfill Design
(b) Landfill Cover slope has been designed on a 3H:1V slope. Given the design of the landfill cover and proposed landfill height, this slope appears to be steeper than the normal landfill cover slope's design of 4H:1V. Please consider reducing the slope.

Response:
As described in our 9 July 2012 submittal to TCEQ, the grading of the final cover system has been revised to incorporate an additional interceptor bench (i.e., a second bench was added) to decrease drainage path lengths.

EPA Comment:
(d) Provide design drawing(s) for the landfill cover to show that the Landfill Cover will be constructed with a Composite liner the same as that to be constructed on the landfill bottom and side slopes. It must include the 60 mil geomembrane HDPE plastic liner.

Response:
The final cover system that has been proposed for Cell 4 is a 3-ft thick soil evapotranspirative (ET) cover consisting of a 6-in. thick gravelly to very gravelly surface layer over a 30-in. thick isolation layer. The cover will be constructed with on-site soils and vegetated with native and/or naturalized grass species and forbs. The design of the ET cover is presented in Attachment B.

EPA Comment:
3. Leachate Collection & Disposal
(c) Provide Soil Loss Rate Analysis from the Landfill side slopes final cover and compute soil loss rate using approved methods such as RUSLE/MUSLE etc. Show how soil loss will be controlled and minimized.
(d) Provide the RUSLE Equation as used in calculating the Soil Loss (A) and specify each parameter numerical values used in the RUSLE Equation below, or whichever revised version is used by the Consultant: A = R*K*L*S*C*P A = Tons/acre. Year) of Soil lost from each area (a_i) of the slope under analysis.

Response:
The previously-submitted final cover erosion analysis has been revised to incorporate an additional drainage bench on the cover system. The revised calculation package is provided in Attachment E.

EPA Comment:
Additional EPA Comments for TCEQ to Consider
1. POST CLOSURE CARE OF THE LANDFILL(s) for perpetuity? Please state how the Trustee plans to conduct and transfer responsibility for Post Closure care of this Landfill for perpetuity?

Response:
Long-term post closure care of Cell 4 will be the responsibility of the Trust until a subsequent buyer of the property takes ownership. The property will be deed restricted to incorporate requirements of an approved Response Action Plan (RAP) that includes an Operation, Monitoring and Maintenance (OM&M) Plan. The RAP will be submitted to the agencies and revised to incorporate agency comments. It will also be approved by the agencies prior to the sale of the property, such that it will be available for review by potential buyers and included in a purchase and sale agreement for the property.

The OM&M Plan will include annual monitoring and maintenance procedures for Cell 4, including documentation requirements. The subsequent owner of the property will be required by law to comply with the RAP and OM&M Plan.

EPA Comment:
2. Please discuss what will happen to the Landfill structure if and when the site experiences a rainfall storm event of a frequency greater that the 100 year occurrence frequency 24-hr event. Who will perform and what actions will be taken to repair the landfill, address any washout areas/damages to the landfill, collect environmental samples for laboratory analysis and potentially perform any remedial actions resulting from pollution entering the IBWC and/or Rio Grande River?

Response:
The final cover system has been designed to withstand erosive forces from storms with intensities and durations equal to or greater than the 100-yr storm. To accomplish this, a 6-in. thick surface layer of gravelly to very gravelly soil ($D_{75} \geq 1$ in.) is provided to protect the underlying 30-in. thick isolation layer. The calculated annual soil loss for the final cover system is 0.26 tons/acre/yr, which is about seven to 11 times less than the 2 to 3 tons/acre/yr permissible rate of soil loss recommended by the TCEQ for final cover conditions. In addition, although the detailed calculations are not included in Attachment C, Geosyntec routed flow from the 500-yr, 24-hr storm event through the Cell 4 surface water management system and found that the drainage benches, downchute, and perimeter drainage channel could convey this flow while maintaining more than 1 ft of freeboard. The surface linings for the cover and drainage features were also found to have permissible tractive stresses greater than the calculated tractive stresses for the 500-yr, 24-hr storm event.

Annual monitoring and maintenance of this system will be described in the OM&M Plan. For severe storms, the OM&M Plan will describe inspections before (if possible from weather forecasts), during (if this can be accomplished in a safe manner), and after the event to determine if preemptive measures should be taken prior or during the storm and if erosive forces have damaged the cover system once the storm has passed through the area. Repair and mitigation measures to be carried out after the storm will also be described.

EPA Comment:
3. Storm water sampling locations need to be established to document that the storm water runoff from the cover is not contaminated and entering the IBWC and/or Rio Grande River.

Response:
Storm water sampling will be included in the OM&M Plan submitted with the RAP. Sampling at the outfall down gradient of Cell 4 will be included.

If you have any questions regarding our response, please do not hesitate to contact either of the undersigned.

Sincerely,

M. Zahirul Islam, Ph.D., P.E.
Project Engineer

Beth A. Gross, Ph.D., P.E.
Principal

Attachments:
Figure 1a. Hydraulic Grade Line Along Downchute for PBA Interim Configuration
Figure 1b. Hydraulic Grade Line Along Downchute for PBA Final Configuration
Attachment A - Design Drawings, Category I Landfill – Cell 4 (Revision 7)
Attachment B - Cell 4 Final Cover Design
Attachment C - Surface Water Management System Design
Attachment D - Riprap Lining Design for Cell 4 Drainage Channel
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Attachment F - Parker Brothers Arroyo Interim Channel Design (Revision 3)

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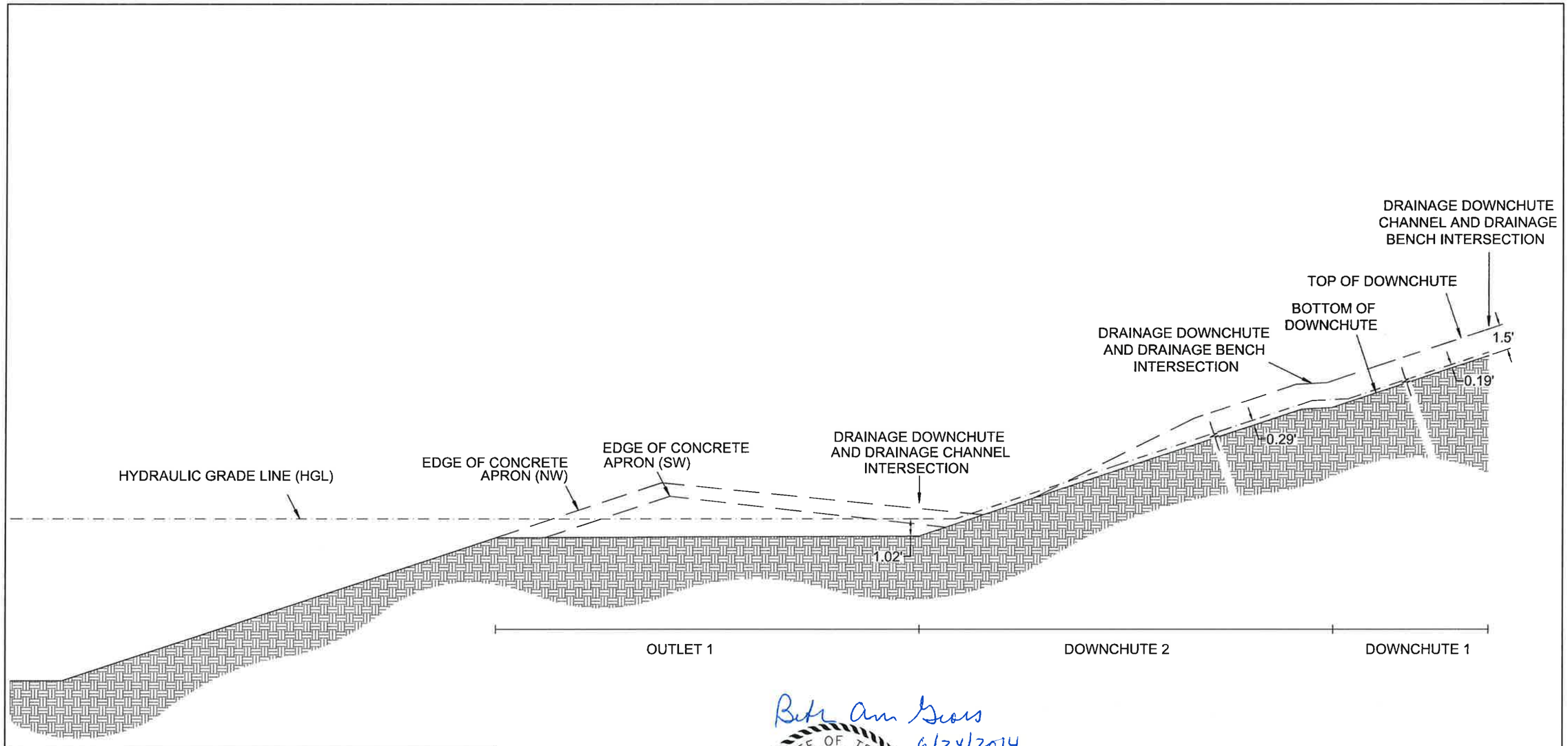

Beth Ann Gross
6/24/2014

STATE OF TEXAS
BETH ANN GROSS
79864
LICENSED
PROFESSIONAL ENGINEER

HYDRAULIC GRADE LINE
ALONG DOWNCHUTE
FOR PBA INTERIM CONFIGURATION

Geosyntec
consultants
TEXAS ENGINEERING FIRM REGISTRATION NUMBER 1182

Figure:
1A

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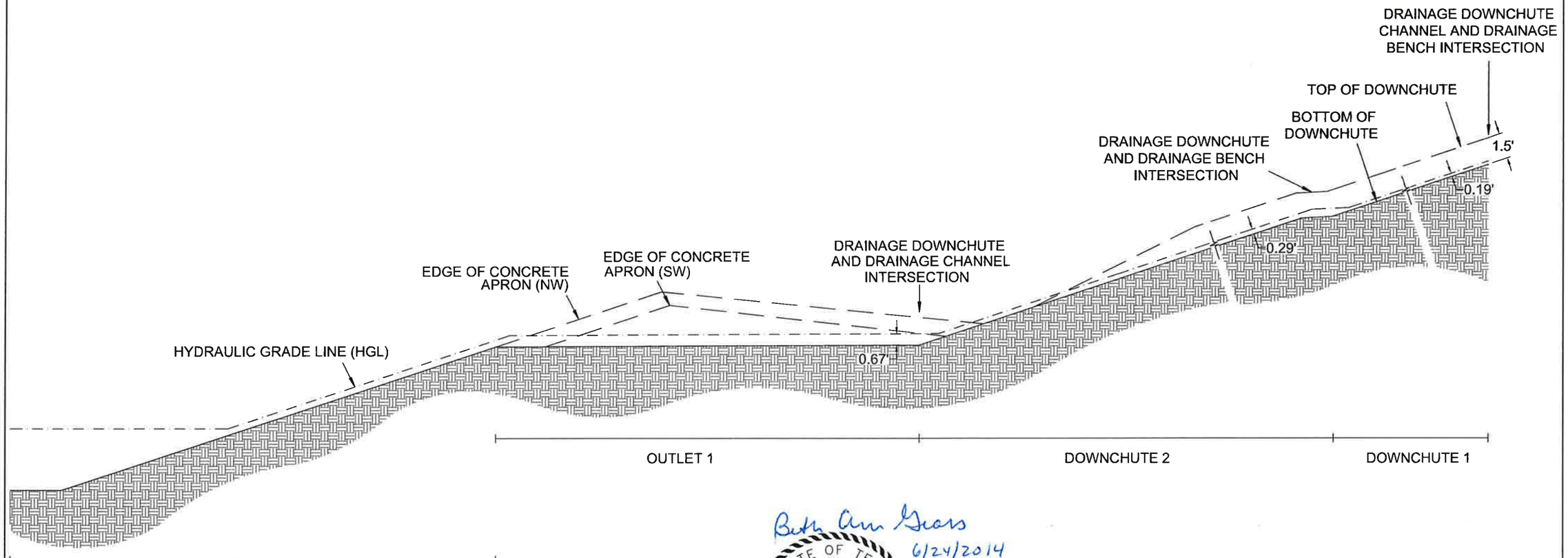

Beth Ann Gross 6/24/2014

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Figure: 1B

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