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Sent: Friday, April 1, 2022 10:39 AM

To: Margaret Lake <Margaret.Lake@txdot.gov>

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Subject: RE: Driveway Permit Application 21-42337 - HYD Review of Update #2

Margaret,

We have completed our Hydraulics Review of this 2nd Update to this Driveway Permit.

There are comments to be addressed.

Additionally, it is unclear to this Reviewer why this submittal **doesn't include** the "Center Left Turn Lane" on FM-1209 as required by Mike Arellano's email of 3/17/2022 which was sent to all parties.

Review Notes:

- a) These comments were not submitted into TxDot's *Driveway Permit Tool*.
- b) They will need **Area Office** input on Side Slope grading, **See Comment #3**.

For clarity, we will repeat the original comments, update 1 (1/21/22) review comments, and add in **today's review comments** based on the plans and Engineer's letter received for review on 3/18/2022.

The following hydraulic review comments need to be addressed:

NOTE: Next Couple Comments are Relate to Driveway and Driveway Culvert

1) **HYD 1/21/22 Review:** Comment Cleared

2) The proposed driveway culvert's minimum design is the 5-year Atlas 14 storm event. Current size doesn't not appear to convey the calculated flow of ~47cfs. Please review and revise as necessary to convey this calculated flow.

RESPONSE: TBC designed the culvert consistent with the upstream culvert that serves Walker Watson Rd. Given that TBC's driveway sees significantly less traffic than Walker Watson Road, sizing the culvert to be consistent with the public road appears to meet the local safety criteria. Additionally, if a significant storm event generates flooding that renders TBC's driveway unusable, TBC has the ability to postpone deliveries through the private drive. It also should be noted that TBC's driveway and culvert do not increase the flood level in FM 1209.

HYD 1/21/22 Review: Driveway culvert's minimum design has to convey the 5-year Atlas 14 storm event. Also note comment #4 concerning cover and loading before addressing this comment. Based on calculated runoff, you will need multiple pipes or possibly one 6x2 box culvert to convey this runoff. Additional TxDot details are attached if go with arched pipes or box culvert. **NOTE:** Plan set should contain any need details.

HYD 4/1/22 Review: Plans are updated to possibly add 2 @ 18inch RCP to the existing 1 @ 18inch RCP. If adequate depth is provided the 3 @ 18inch could meet the required the minimum design requirement of the 5-year storm event. However, no grading plan nor culvert flow lines are provide to confirm the culvert capacity. Additionally, the RCP classification is not defined on the plans. Finally, the Engineer's hydraulic summary letter is not an acceptable response for this culvert. Any proposed culvert must meet the minimum design.

3) Provide roadway ditch capacity calculations. Additionally, grading with TxDot ROW maybe required for the entire frontage of FM-1209. Based on this roadway classification the roadway ditch minimum capacity is the 5-year Atlas 14 storm event.

RESPONSE: Roadway ditch capacity calculations have been provided on C-002. See Section A-A.

HYD 1/21/22 Review: Revised Driveway and proposed culvert to account for calculated runoff and the required driveway Approach Tapper, revise grading plan and then updated to ditch capacity calculations.

HYD 4/1/22 Review: Plans indicate a ditch with a depth of 1.5feet. This proposed FM-1209 ditch will not meet the required the minimum design requirement of the 5-year storm event. The Engineer's hydraulic summary letter is not acceptable. TxDot's Hydraulic minimum design has to be meet.

Additionally, any proposed grading within the TxDot ROW which is not 6:1 (except for the SET Headwall, which has to remain at 6:1) has to be approved by the **Area Office**. Plans indicate grading of 5:1. Coordinate with the **Area Office** on approval of any proposed drainage ditch side slope grading which is not standard.

4) Please review and confirm cover and loading of proposed driveway culvert for this proposed usage.

RESPONSE: There is 6" of cover for the driveway. Proposed loading is approximately 2 heavy load vehicles per day.

HYD 1/21/22 Review: Half a foot of cover it not typically sufficient, unless you are utilizing Class IV or higher. Specify the RCP class of pipe on the plan set.

HYD 4/1/22 Review: Comment Repeated. Grade plan needed, culvert flowlines needed, and driveway pavement elevations needed.

NOTE: Next Couple Comments are Relate to Site Improvements and possible Pond Discharge on TxDot ROW

HYD 1/21/22 Review Note: We accept the general response that the site drainage does not return to the TxDot ROW

5) **HYD 1/21/22 Review:** Comment Cleared

6) **HYD 1/21/22 Review:** Comment Cleared

7) **HYD 1/21/22 Review:** Comment Cleared

8) **HYD 1/21/22 Review:** Comment Cleared

9) As additional information is provided, additional comments maybe generated.

HYD 1/21/22 Review: Comment Repeated.

HYD 4/1/22 Review: Comment Repeated.