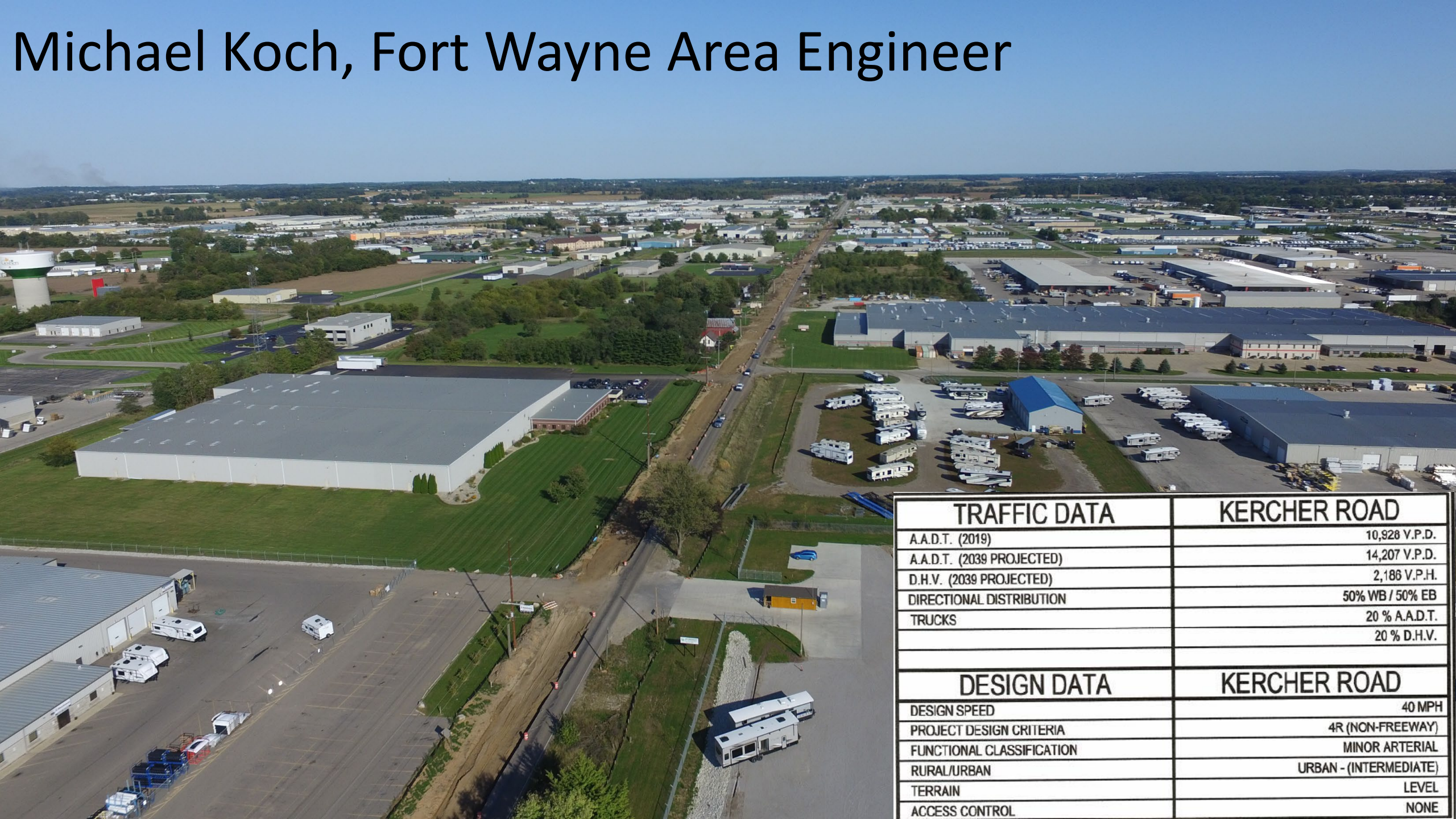
# Michael Koch, Fort Wayne Area Engineer



| TRAFFIC DATA | KERCHER ROAD |
|---|---|
| A.A.D.T. (2019) | 10,928 V.P.D. |
| A.A.D.T. (2039 PROJECTED) | 14,207 V.P.D. |
| D.H.V. (2039 PROJECTED) | 2,186 V.P.H. |
| DIRECTIONAL DISTRIBUTION | 50% WB / 50% EB |
| TRUCKS | 20 % A.A.D.T. |
| | 20 % D.H.V. |
| | |
| **DESIGN DATA** | **KERCHER ROAD** |
| DESIGN SPEED | 40 MPH |
| PROJECT DESIGN CRITERIA | 4R (NON-FREEWAY) |
| FUNCTIONAL CLASSIFICATION | MINOR ARTERIAL |
| RURAL/URBAN | URBAN - (INTERMEDIATE) |
| TERRAIN | LEVEL |
| ACCESS CONTROL | NONE |

Change Order Nbr: 005

Change Order Description: Removal of unsuitable soils

Reason Code: ERRORS & OMISSIONS, Geo Related

| CLN | PCN | PLN | Item Code | Unit | Unit Price | CO Qty | Comment | Amount Change | |
|---|---|---|---|---|---|---|---|---|---|
| 0015 | 1401747 | 0015 | 203-02020 | CYS | 30.000 | 11282.500 | C | Amount:$ | 338,475.00 |

**Item Description:** EXCAVATION, UNCLASSIFIED

Supplemental Description1:

Supplemental Description2:

Total Value for Change Order 005 = $ 338,475.00

**Whereas, the Standard Specifications for this contract provides for such work to be performed, the following change is recommended.**

General or Standard Change Order Explanation

During construction of Phase 2 of this project (North lane) black unsuitable soils were encountered below subgrade elevation. These unsuitable soils varied in depths from 1 foot to 2.5 feet. The unsuitable soil was removed as recommended in the geotechnical report of this contract. Page 5 of the geotechnical report is included in the attachments of this change order. The quantities and calculations for Phase 2 are included in attachments. A quantity has been estimated for Phase 3 pavement areas and sidewalk areas and are also attached. A summary page with the total quantity is also attached. The contractor is not requesting any additional time for this work.

# PreBid Review: All borings depict a layer of concern

## 3.1 Subsurface Soil Profile

Borings RB-01 through RB-10, which were drilled on the existing roadway, encountered asphalt underlain by aggregate base with combined thicknesses varying between about 14 inches and 20 inches at the current surface.

All borings then revealed old fill materials consisting of dark brown to black sandy loam (A-2-4 or A-2-6) to depths ranging from about 3.5 ft to 5 ft below the ground surface. Moisture and organic contents of the samples from this zone were as high as about 19% and 4%, respectively.

Below the old fills, all borings revealed brown sand (A-3) underlain by sand and gravel (A-1-b) to the termination depths of 10 ft and 15 ft below the ground surface. Field Standard Penetration Tests (SPT-N) values indicate that the natural granular soils are generally very loose to medium dense and the cohesive soils are generally soft to medium stiff.

| ELEVATION | SAMPLE DEPTH | SOIL/MATERIAL DESCRIPTION | SAMPLE NUMBER | SPT per 6" | % RECOVERY | MOISTURE CONTENT | DRY DENSITY, pcf | POCKET PEN., tsf | UNCONF. COMP., tsf | ATTERBERG LIMITS LL | PL | PI | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 7 in. Asphalt over 7 in. Aggregate Base | | | | | | | | | | | |
| | 1.2 | | | | | | | | | | | | |
| 815.0 | 2.5 | **Sandy Loam A-2-4**, Dark brown to black, moist, medium stiff, with trace organic matter (FILL), (Lab No. 1) | SS1 | 3-3-3-3 | 100 | 17.4 | 101.8 | 1.0 | | | | | 2.2, Organic=3.5% |
| | 4.0 | | | | | | | | | | | | |

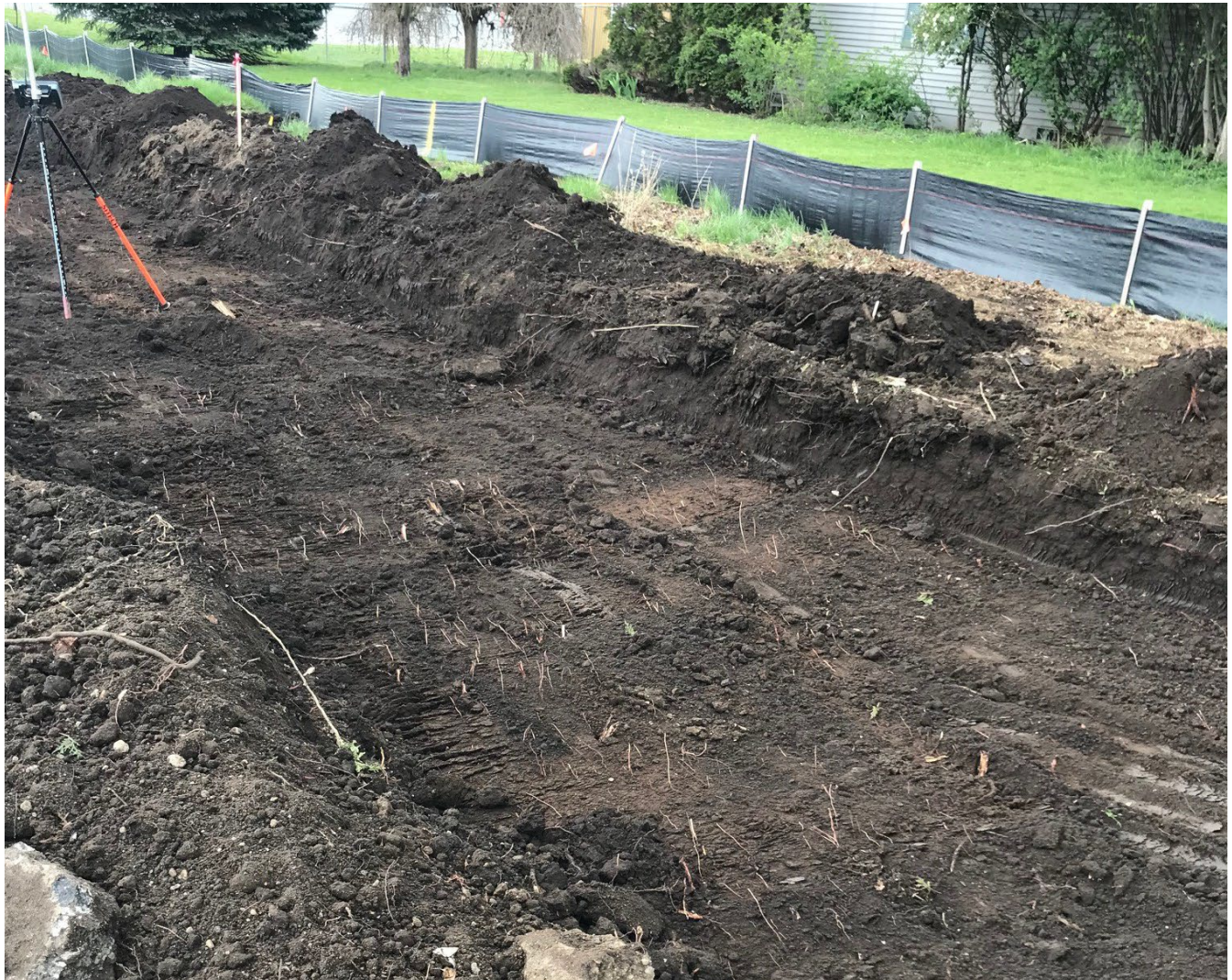
| ELEVATION | SAMPLE DEPTH | SOIL/MATERIAL DESCRIPTION | SAMPLE NUMBER | SPT per 6" | % RECOVERY | MOISTURE CONTENT | DRY DENSITY, pcf | POCKET PEN., tsf | UNCONF. COMP., tsf | ATTERBERG LIMITS LL | ATTERBERG LIMITS PL | ATTERBERG LIMITS PI | REMARKS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 12 in. Asphalt over 6 in. Aggregate Base | | | | | | | | | | | |
| | 1.5 | | | | | | | | | | | | |
| 815.0 | 2.5 | **Sandy Loam A-2-6**, Dark brown to black, moist, medium stiff, with trace organic matter (FILL), (Lab No. 2) | SS1 | 5-3-3-4 | 100 | 16.5 | 116.9 | 1.25 | | | | | 2.5, Organic=4.5% |
| | 3.5 | | | | | | | | | | | | |

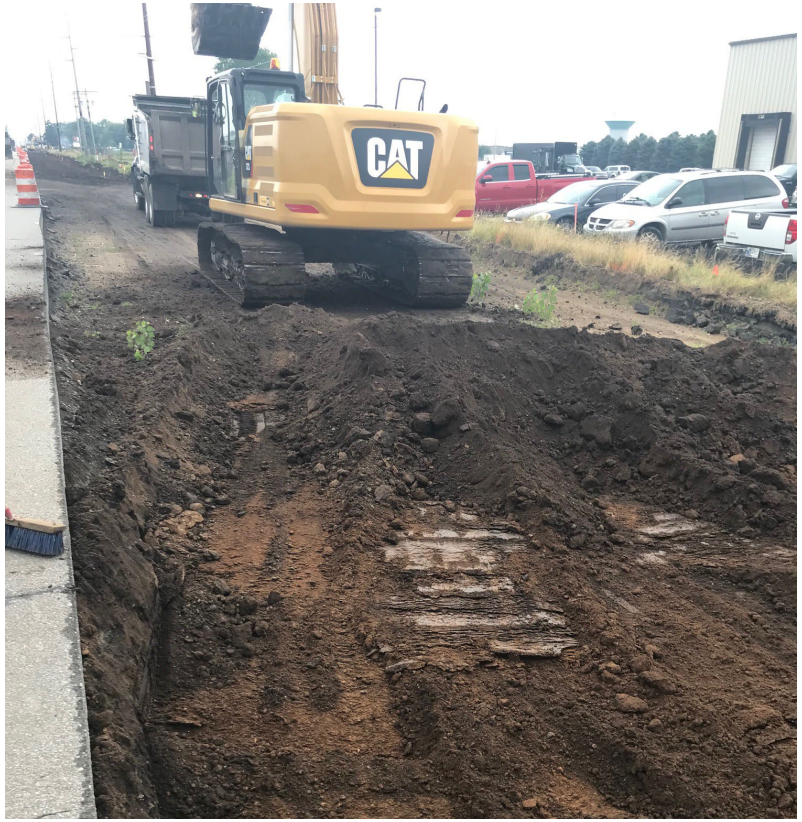
## 4.1 Pavement Subgrade Recommendations

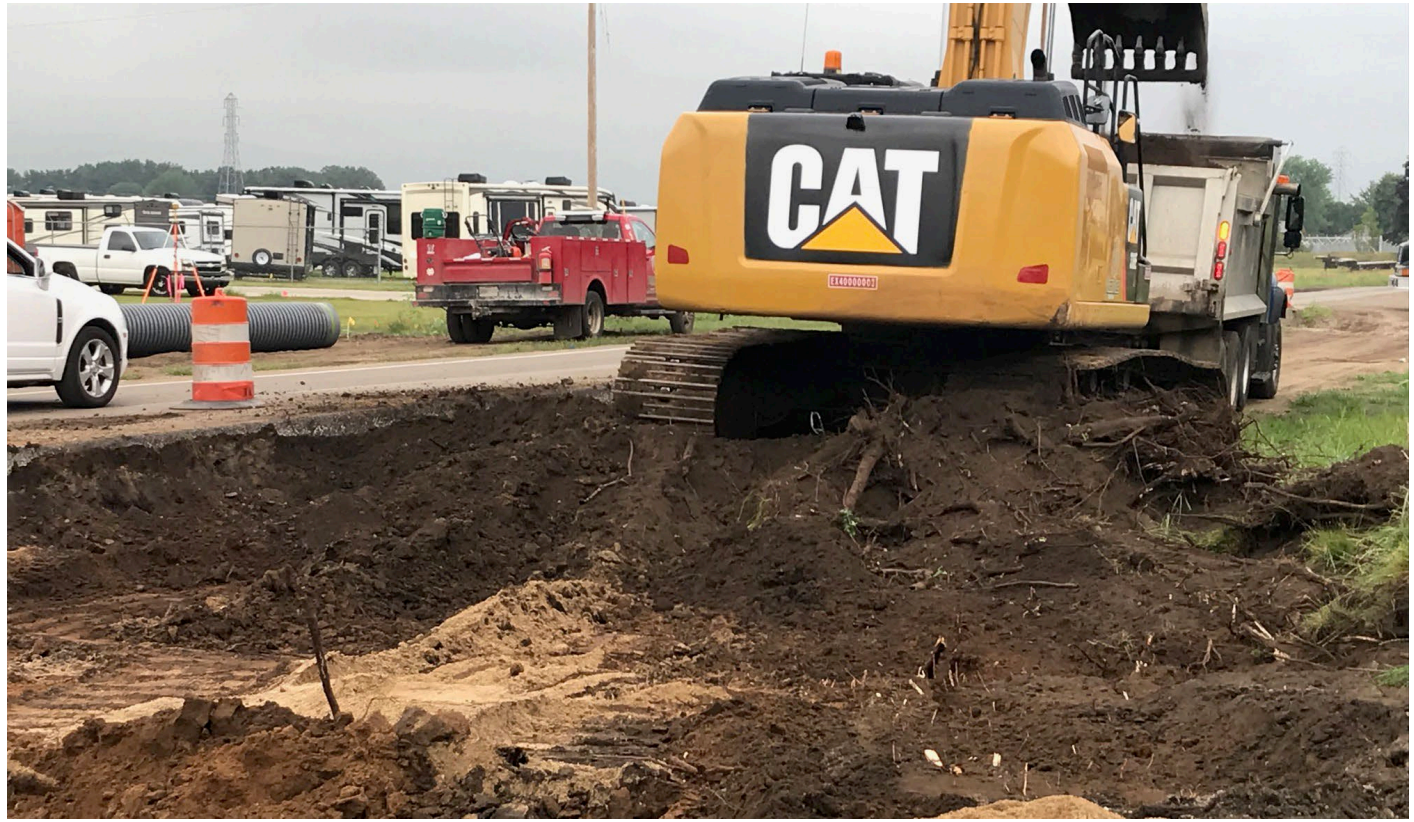
We understand that the proposed roadway will consist of asphalt pavement and coarse aggregate base over properly prepared subgrade. All existing pavement, vegetation and deleterious materials should be removed from the proposed subgrade prior to the placement of new fill or pavement. Any exposed highly organic (over 5%) or otherwise unsuitable soils should be removed to a maximum depth of 3 ft below the finished pavement grade. All exposed suitable granular subgrade should be surface compacted prior to the placement of any new fill. Based on

## 5.1 Site Preparation

There should be a contingency plan in case unstable and unsuitable subgrade soils are encountered during construction, as discussed earlier. An [redacted] representative should be present throughout the earthwork to verify that they are performed as recommended and identify areas where special stabilization may be necessary.

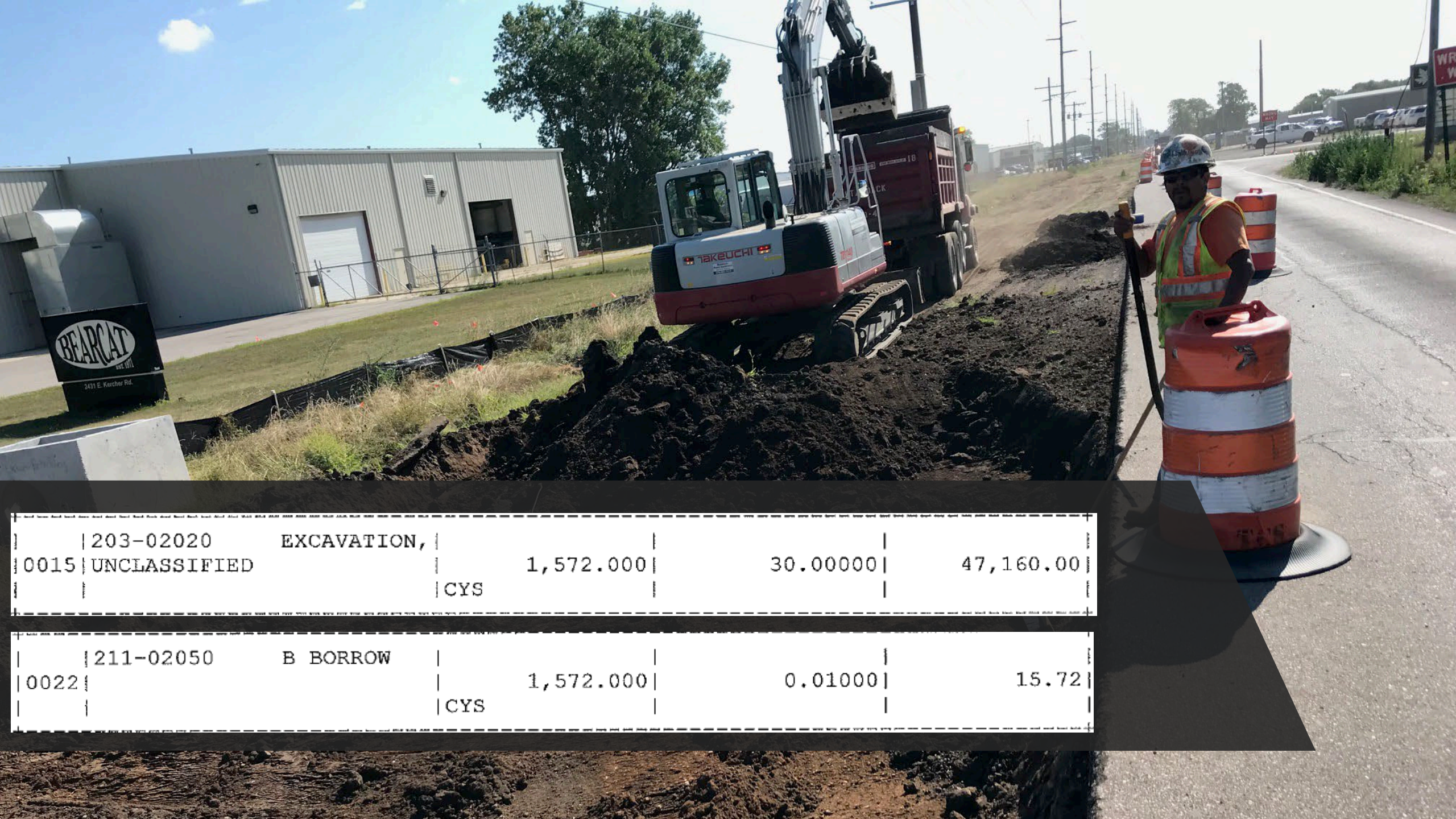





- Geotech: We are on the borderline with many borings. Although slightly under how will the organic material be addressed? Anticipated undistributed removal quantity?

B-Borrow and Unclassified Excavation were added to the cost estimate to account for these soils.



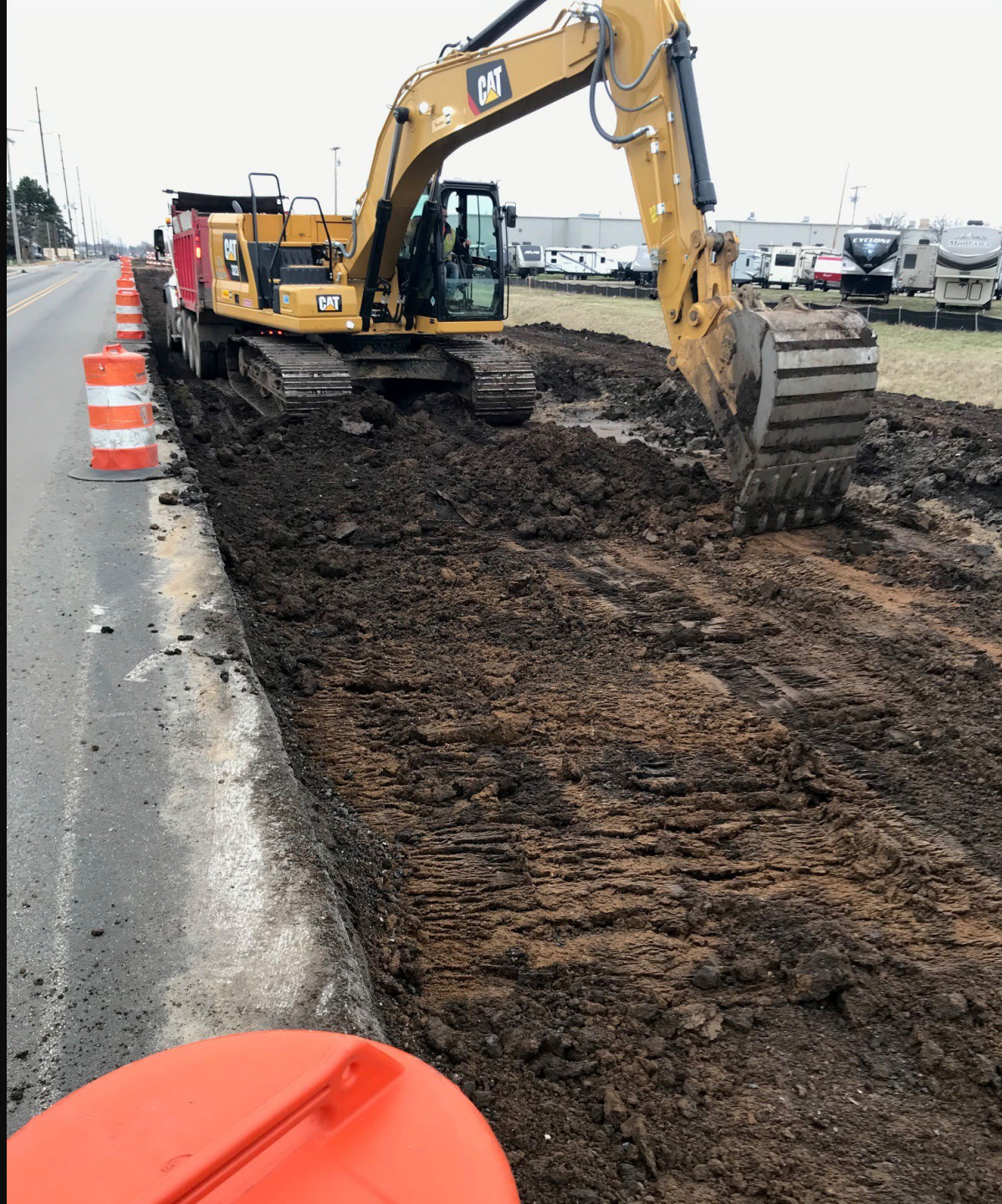

| | | | | | |
|---|---|---|---|---|---|
| 0015 | 203-02020<br>UNCLASSIFIED | EXCAVATION, | 1,572.000<br>CYS | 30.00000 | 47,160.00 |

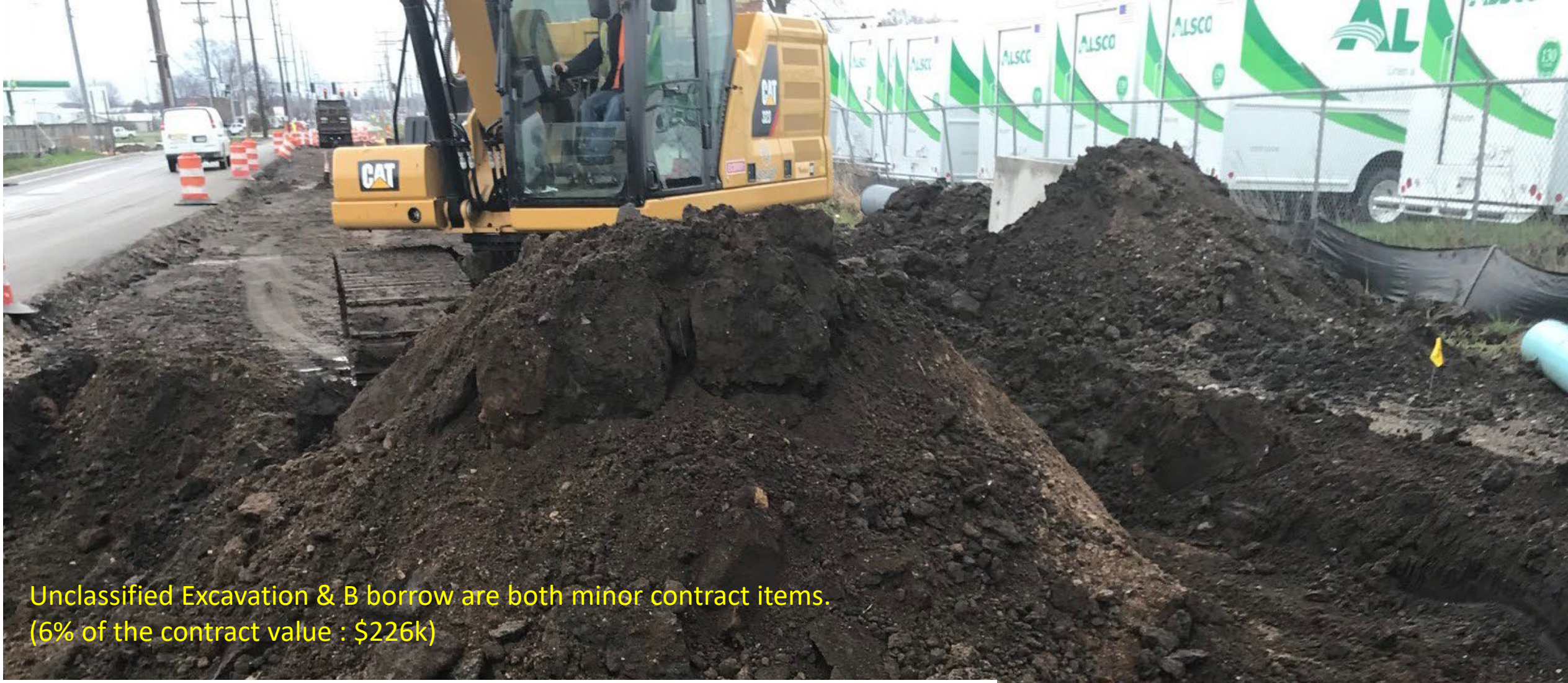
| | | | | | |
|---|---|---|---|---|---|
| 0022 | 211-02050 | B BORROW | 1,572.000<br>CYS | 0.01000 | 15.72 |

- Modify the subgrade treatment from the bid Type IB @ $7.75/syd to Type IC the average unit cost is about $24/syd
  - ($24.12 - $7.75) x 27,337syd = $448k
  - Cost not feasible and we would still need additional undercutting

OR

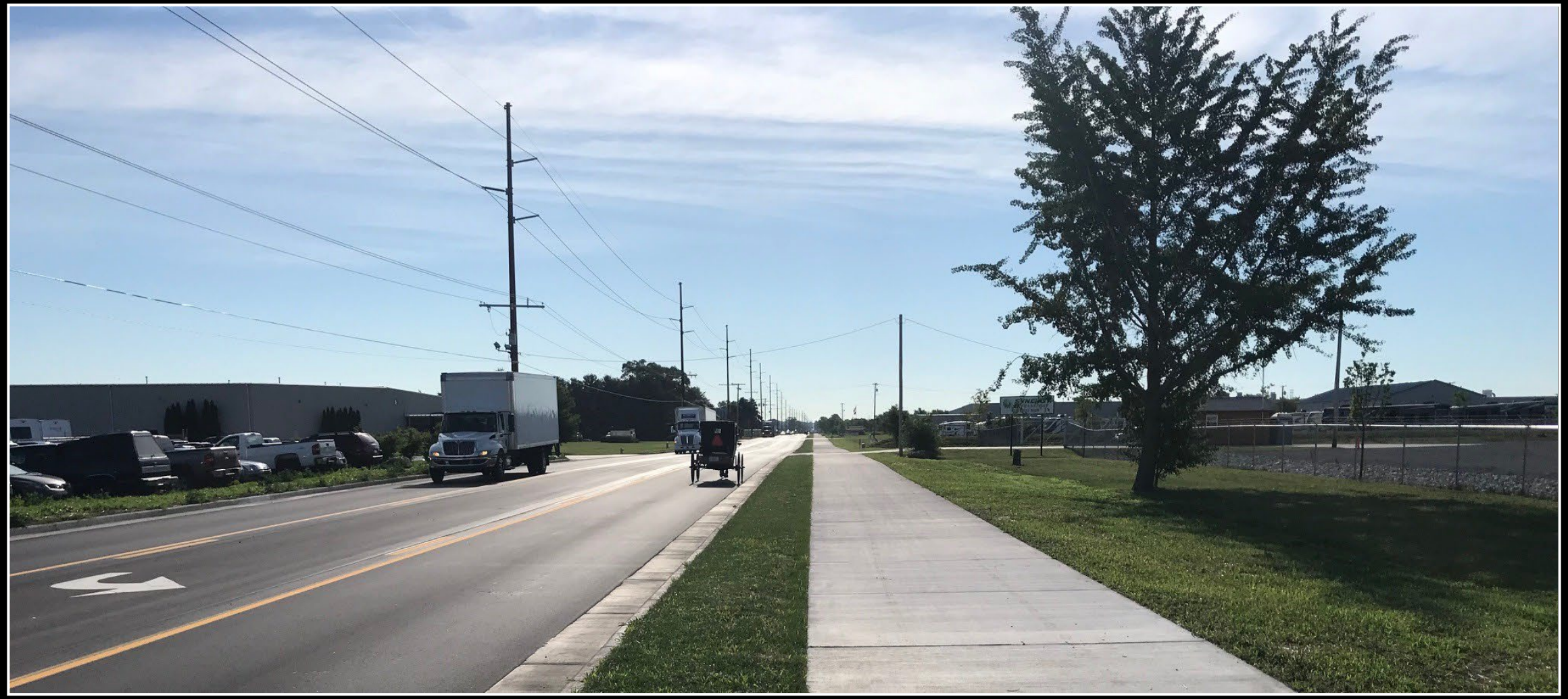
- Performing 2 lifts of type IB not feasible
  - Handling upper lift would require bid item Common Excavation at $25/syd
  - Utilities






Unclassified Excavation & B borrow are both minor contract items.
(6% of the contract value : $226k)

If an increase or decrease in a contract item is in accordance with 104.02, the contract unit price will be the rate of payment unless an adjusted price is agreed to by the parties to the contract. The contract unit price for a minor item may be adjusted if agreed to by parties for only that portion of the item which exceeds 6% of the total bid amount of the contract. A loss or gain of overhead costs will not be a consideration for adjusting the unit prices.



# Unfunded Liability