

NOTICE
Village of Roberts
Plan Commission Meeting
Thursday, March 3, 2022
7:00 PM
GoTo Meeting Information below for online access
Agenda

The regularly scheduled Village of Roberts Plan Commission meeting and will begin at 7:00 PM on March 3, 2022 at the Roberts Village Hall.

Regular Plan Commission Agenda:

1. Call to order
2. Proper notification
3. Building Inspectors Report
4. Review/recommendation the impact of growth on the Clearas Wastewater capacity.
5. Review/recommend future Robert's growth approach.
6. Discussion/recommend with James Jermain from AT&T for potential broadband grant.
7. Review/recommend Ordinance #2022-02VB – to amend Sec. 70-42 Accessory use and structure setback requirements.
8. Review/recommend Ordinance #2022-03VB – to amend Sec 66-54(6)c to update the east sewer interceptor charges.
9. Discussion/recommendation for the annexation of 2.003 acres from Warren Township for Kwik Trip (formerly owned by James and Betty Hilpert).
10. Review/recommend Kwik Trip's site plan.
11. Discussion with Alex Miller on the proposed housing on Jennifer Rae Jct.
12. Review/recommend T-Buck/Trevor Bruce's residential development between Division St S. and Cherry Ln for private road proposal and number of annual units considered for the future development.
13. Discussion regarding the concept plan for Nature Energy for a site in the rail park.
14. Review/recommend the variance request for Nature Energy for the height of the silos
15. Review/recommend the Conditional Use Permit for Nature Energy
16. Update on needs assessment and Impact Fees.
17. Update on Joint Comprehensive Plan with Warren Township.
18. Items for future agenda.
19. Adjourn

Items on the agenda may not be presented in this order.

There may be a quorum of Village Board members present during the meeting

Agenda may change up to 24 hours before meeting

Megan Dull,
Village Clerk

Please join my meeting from your computer, tablet or smartphone.

<https://meet.goto.com/410861013>

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(For supported devices, tap a one-touch number below to join instantly.)

United States (Toll Free): 1 877 309 2073

- One-touch: [tel:+18773092073,,410861013#](tel:+18773092073,410861013#)

United States: +1 (571) 317-3129

- One-touch: [tel:+15713173129,,410861013#](tel:+15713173129,410861013#)

Access Code: 410-861-013

RESIDENTIAL CONSTRUCTION**RESIDENTIAL RENOVATIONS**

| Owner/Address | Description/Permit # | Estimated Value |
|--|--------------------------------|-----------------|
| NYENHUIS, RYAN 341 DAKOTA AVE 54023 | BASEMENT FINISH B-22-220065 | 30,000 |
| TOTAL RESIDENTIAL RENOVATIONS | 1 | 30,000 |

TOTAL # OF BUILDING PERMITS / VALUE:

1 30,000

CERTIFICATES OF OCCUPANCY

| DATE ISSUED | ADDRESS | TYPE |
|-------------|---------------------|-----------|
| 2/24/2022 | 412 SIERRA PL 54023 | PERMANENT |
| 2/24/2022 | 410 SIERRA PL 54023 | PERMANENT |
| 2/24/2022 | 408 SIERRA PL 54023 | PERMANENT |

TOTAL PERMIT & INSPECTION FEES COLLECTED:

460.00

PROJECT CODE RECAP

| PERMITS BY TYPE | # OF PERMITS | ESTIMATED VALUE |
|-----------------|--------------|-----------------|
| BASEMENT FINISH | 1 | 30,000 |
| TOTALS | 1 | 30,000 |

INSPECTIONS BY TYPE

| PERMIT TYPE | # OF INSPECTIONS | RES | COMM |
|-----------------|------------------|-----------|----------|
| BUILDING PERMIT | 26 | 26 | 0 |
| TOTALS | 26 | 26 | 0 |

MEMORANDUM

To: Roberts Plan Commission

From: Angi Goodwin

Date: March 1, 2022

Project No.: 23-0737.19

Re: Development and Wastewater Treatment Capacity

Wastewater Treatment Plant (WWTP) Capacity:

| | Total Flow | Cost |
|--|-------------|-------------|
| Existing Flows | 100,000 gpd | --- |
| Clearas Capacity | 150,000 gpd | --- |
| Clearas Capacity with added Tubes | 180,000 gpd | \$200,000 |
| Clearas Capacity with added Greenhouse | 330,000 gpd | \$3,800,000 |
| SBR Capacity | 300,000 gpd | --- |
| SBR Capacity with Modifications | 465,000 gpd | \$TBD |

Development Considerations: (see spreadsheets)

| | Estimated Flow | Comments |
|--|----------------|---------------------------|
| Platted and Approved Lots – Residential | 15,000 gpd | 140 units, 380 ppl |
| Platted and Approved Lots – Comm and Ind | 1,600 gpd | |
| Active Developments – Comm and Ind | 2,700 gpd | |
| Total Platted and Approved and Active | 19,000 gpd | |
| Total WWTP Flow | 119,000 gpd | |
| Annual - Unplatted Residential at 10% Growth | 7,600 gpd | 70 units, 190 ppl |
| Annual - Commercial and Industrial Estimate | 5,000 gpd | included in below numbers |
| Annual - Total Added WWTP Flow per Year | 12,600 gpd | |
| Allow All Platted and 70 Annual Unplatted Res | | |
| 2022 YEAR END, includes all platted/approved | 132,000 gpd | + 210 res units, 570 ppl |
| 2023 YEAR END | 144,000 gpd | + 70 res units, 190 ppl |
| 2024 YEAR END | 157,000 gpd | + 70 res units, 190 ppl |
| 2025 YEAR END | 170,000 gpd | + 70 res units, 190 ppl |
| 2026 YEAR END | 182,000 gpd | + 70 res units, 190 ppl |
| 25% Annual Platted and Total 10% Growth | | |
| 2022 YEAR END, includes 25% platted (35 units) | 116,000 gpd | + 70 res units, 190 ppl |
| 2023 YEAR END, includes 25% platted (35 units) | 129,000 gpd | + 70 res units, 190 ppl |
| 2024 YEAR END, includes 25% platted (35 units) | 142,000 gpd | + 70 res units, 190 ppl |
| 2025 YEAR END, includes 25% platted (35 units) | 155,000 gpd | + 70 res units, 190 ppl |
| 2026 YEAR END | 167,000 gpd | + 70 res units, 190 ppl |

VACANT LOT AND DEVELOPMENT SUMMARY - ESTIMATED WASTEWATER DISCHARGE
MARCH 2022 - ROBERTS, WISCONSIN

| Land Use | Open Units Feb 2022 | Acres | Gallons Per Day (gpd) | Comments |
|--|------------------------|------------|--------------------------|---|
| Platted/Approved Lots | | | | |
| Mobile Home Park | Residential | 44 | 4,800 | 110 gpd/unit; (6) of (44) recently pulled permits but not using water yet |
| Ash and Maple Street | Residential | 5 | 600 | 110 gpd/unit; double lots could be subdivided |
| CTH TT/Cherry Lane Multi Family | Residential | 4 | 400 | 110 gpd/unit; vacant lot |
| Newell and S. Meadow Lane | Residential | 7 | 800 | 110 gpd/unit; vacant lots with S. Meadow Lane Extension |
| Sharondale Vacant Single Family | Residential | 6 | 700 | 110 gpd/unit; vacant lots |
| Sharondale Multi Family | Residential | 40 | 4,400 | 110 gpd/unit; vacant lots |
| Rolling Meadows Sierra Place | Residential | 10 | 1,100 | 110 gpd/unit; Lots 410, 412, 416-423 |
| Rolling Meadows Susan Lane | Residential | 3 | 300 | 110 gpd/unit; vacant lots |
| Rolling Meadows 8th Addition | Residential | 20 | 2,200 | 110 gpd/unit; approved |
| Cherry Lane South Multi Family | Residential | 8 | 1,400 | 110 gpd/unit; Ed's vacant lot east of senior housing |
| Main Street, 3 lots | Commercial | 1 | 500 | 500 gpd/acre; old grocery store, Wilkins lot, Hancock lot |
| 1880 Warehouse Expansion | Industrial | 30 | 200 | based on existing use, 2/3 land available, warehouse expansion plus building site |
| Platted/Approved Lots - Wastewater Subtotal | | 147 | 17,400 | GPD |
| Platted/Approved Lots Outside of Current Utility Service Area | | | | |
| River States Trucking | Commercial | 60 | 3,000 | 500 gpd/acre calculates high, instead use 50 employees x 15 gpd/employee x 2X area = 1500 gpd +1500 gpd detailing |
| US Minerals | Industrial | 19 | 1,400 | 75 gpd/acre |
| West of US Minerals | Industrial | 10 | 800 | 75 gpd/acre |
| County Materials | Industrial | 140 | 3,800 | 75 gpd/acre calculates high, instead use 250 employees x 15 gpd/employee = 3,800 gpd |
| Platted/Approved Lots Outside of Current Utility Service Area - Wastewater Subtotal | | | 9,000 | GPD |
| Active Developments in Village Limits | | | | |
| Kwik Trip | Commercial | 18 | 2,500 | Based on Kwik Trip estimates and Flying J comparison |
| Nature Energy | Industrial | 30 | 200 | Based on 15 employees x 15gpd/employee = 225 gpd |
| Active in Village Limits - Wastewater Subtotal | | | 2,700 | GPD |
| Other Potential Developments in Village Limits | | | | |
| Rolling Meadows Remaining Sierra Place | Residential | 88 | 9,680 | 8 units/acre x 110 gpd/unit |
| Rolling Meadows Northwest Area | Residential | 23 | 2,500 | 110 gpd/unit |
| USH 12 North of Church | Residential | 18 | 7,920 | 440 gpd/acre |
| Townledge STH 65/CTH TT | Residential | 117 | 12,900 | 110 gpd/unit |
| Townledge STH 65/CTH TT | Commercial | 7 | 3,500 | 500 gpd/acre |
| South of 70th and West of Flying J | Comm/Ind | 35 | 17,500 | 500 gpd/acre |
| West and North of Kwik Trip | Commercial | 26 | 13,000 | 500 gpd/acre |
| Northeast STH 65 and 70th Avenue | Commercial | 135 | 67,500 | 500 gpd/acre |
| Northeast IH 94 and STH 65 | Commercial | 4 | 2,000 | 500 gpd/acre |
| West of River States Trucking | Commercial | 45 | 22,500 | 500 gpd/acre |
| Southeast IH 94 and STH 65 | Commercial | 6 | 3,000 | 500 gpd/acre |
| Rail Park - Remaining Lots less Nature Energy | Industrial | 55 | 4,100 | 75 gpd/acre |
| Northwest of 70th and 130th | Industrial | 130 | 9,800 | 75 gpd/acre |
| East of County Materials | Industrial | 160 | 12,000 | 75 gpd/acre |
| Other in Village Limits - Wastewater Subtotal | | | 187,900 | GPD |
| Proposed Annexations | | | | |
| T-Buck Residential - Phase I | Residential | 257 | 28,300 | 110 gpd/unit |
| T-Buck Residential - Other Phases | Residential | 771 | 84,800 | 110 gpd/unit |
| Proposed Annexations - Water Use Subtotal | | | 113,100 | GPD |
| Existing WWTP Flow (February 2022) | | | 100,000 | |
| Platted/Approved Lots in Current Utility Service Area | | | 17,400 | determine percent development and timeframes |
| Platted/Approved Lots outside of Current Utility Service Area | | | 9,000 | determine percent development and timeframes |
| Active Developments in Village Limits | | | 2,700 | determine percent development and timeframes |
| Other Potential Developments in Village Limits | | | 187,900 | determine percent development and timeframes |
| Proposed Annexations | | | 113,100 | determine percent development and timeframes |
| Total Future WWTP Flow (assumes 100% development) | | | 430,100 | |
| Clearas Existing Capacity | | | 150,000 | |
| Clearas with added tubes, \$200k, adds 30,000 gpd | | | 180,000 | |
| Clearas also add greenhouse, \$3.8M, adds 150,000 gpd | | | 330,000 | |
| SBR Treatment Existing Capacity | | | 300,000 | |
| SBR Treatment Expanded Capacity, adds 165,000 gpd | | | 465,000 | |

NOTES: Residential Unit Water Use:

GPD/UNIT --- 2.7 people/unit x 40 gpd/person = **USE 110 gpd/unit**

UNITS/ACRE --- 4 units per acre average density, 110 gpd/unit x 4 acres/unit = **USE 440 gpd/acre**

Commercial Water Use:

EXAMPLES --- Flying J/McD's uses 7500 gpd/10 acres = 750 gpd/acre

Kwik Trip estimates 2500 gpd/18 acres = 140 gpd/acre

GPD/ACRE --- typical is 1,500 gpd/acre but per examples **USE 500 gpd/acre**

Industrial Water Use (no wet industry):

EXAMPLES --- typical use is 15 gpd/employee for dry industry

--- Phoenix Fixtures uses 111 gpd/18 acres = 6 gpd/acre

--- SOS Manufacturing uses 366 gpd/4 acres = 90 gpd/acre

has 50 employees, expect 50 x 15 gpd/employee = 750 gpd

--- B&H Machines uses 33 gpd/3 acres = 10 gpd/acre

--- Mallard estimates 13,400 gpd/98 acres = 136 gallons/acre

GPD/ACRE --- for dry industry: as average, **USE 75 gpd/acre**

VACANT LOT AND DEVELOPMENT SUMMARY - ESTIMATED WASTEWATER DISCHARGE
MARCH 2022 - ROBERTS, WISCONSIN

| Land Use | Open Units Mar 2022 | Acres | Gallons Per Day (gpd) | RESIDENTIAL | | COMM AND INDUSTR | |
|--|------------------------|------------|--------------------------|--------------------|--------------------------|--------------------|--------------------------|
| | | | | Percent Allowed | Gallons Per Day (gpd) | Percent Allowed | Gallons Per Day (gpd) |
| Platted/Approved Lots | | | | | | | |
| Mobile Home Park | Residential | 44 | 4,800 | | | | |
| Ash and Maple Street | Residential | 5 | 600 | | | | |
| CTH TT/Cherry Lane Multi Family | Residential | 4 | 400 | | | | |
| Newell and S. Meadow Lane | Residential | 7 | 800 | | | | |
| Sharondale Vacant Single Family | Residential | 6 | 700 | | | | |
| Sharondale Multi Family | Residential | 40 | 4,400 | | | | |
| Rolling Meadows Sierra Place | Residential | 10 | 1,100 | | | | |
| Rolling Meadows Susan Lane | Residential | 3 | 300 | | | | |
| Rolling Meadows 8th Addition | Residential | 20 | 2,200 | | | | |
| Cherry Lane South Multi Family | Residential | 8 | 1,400 | | | | |
| Main Street, 3 lots | Commercial | 1 | 500 | | | | |
| 1880 Warehouse Expansion | Industrial | 30 | 200 | | | | |
| Platted/Approved Lots- Wastewater Subtotal | | | 17,400 | 90% | 15,030 | 100% | 700 |
| Platted/Approved Lots Outside of Current Utility Service Area | | | | | | | |
| River States Trucking - 50 emp x 2 + detailing | Commercial | 60 | 3,000 | | | | |
| US Minerals | Industrial | 19 | 1,400 | | | | |
| West of US Minerals | Industrial | 10 | 800 | | | | |
| County Materials - 250 employees | Industrial | 140 | 3,800 | | | | |
| Platted/Approved Lots Outside of Current Utility Service Area - Wastewater Subtotal | | | 9,000 | | | 10% | 900 |
| Active Developments in Village Limits | | | | | | | |
| Kwik Trip | Commercial | 18 | 2,500 | | | | |
| Nature Energy | Industrial | 30 | 200 | | | | |
| Active in Village Limits - Wastewater Subtotal | | | 2,700 | | | 100% | 2,700 |
| Other Potential Developments in Village Limits | | | | | | | |
| Rolling Meadows Remaining Sierra Place | Residential | 88 | 9,680 | | | | |
| Rolling Meadows Northwest Area | Residential | 23 | 2,500 | | | | |
| USH 12 North of Church | Residential | 18 | 7,920 | | | | |
| Townsende STH 65/CTH TT | Residential | 117 | 12,900 | | | | |
| Townsende STH 65/CTH TT | Commercial | 7 | 3,500 | | | | |
| South of 70th and West of Flying J | Comm/Ind | 35 | 17,500 | | | | |
| West and North of Kwik Trip | Commercial | 26 | 13,000 | | | | |
| Northeast STH 65 and 70th Avenue | Commercial | 135 | 67,500 | | | | |
| Northeast IH 94 and STH 65 | Commercial | 4 | 2,000 | | | | |
| West of River States Trucking | Commercial | 45 | 22,500 | | | | |
| Southeast IH 94 and STH 65 | Commercial | 6 | 3,000 | | | | |
| Rail Park - Remaining Lots less Nature Energy | Industrial | 55 | 4,100 | | | | |
| Northwest of 70th and 130th | Industrial | 130 | 9,800 | | | | |
| East of County Materials | Industrial | 160 | 12,000 | | | | |
| Other in Village Limits - Wastewater Subtotal | | | 187,900 | | | | |
| Proposed Annexations | | | | | | | |
| T-Buck Residential - Phase I | Residential | 257 | 28,300 | | | | |
| T-Buck Residential - Other Phases | Residential | 771 | 84,800 | | | | |
| Proposed Annexations - Water Use Subtotal | | | 113,100 | | | | |
| Existing WWTP Flow (February 2022) | | | 100,000 | | | | |
| Platted/Approved Lots in Current Utility Service Area | | 139 | 15,730 | | 15,030 | | 700 |
| Platted/Approved Lots outside of Current Utility Service Area | | | 900 | | 0 | | 900 |
| Active Developments in Village Limits | | | 2,700 | | 0 | | 2,700 |
| TOTAL CURRENT COMMITMENTS FOR ADDED WASTEWATER DISCHARGE | | | 19,330 | Res. | 15,030 | Com/Ind | 4,300 |
| RUNNING TOTAL WITH CURRENT COMMITMENTS FOR WASTEWATER DISCHARGE | | | 119,330 | | | | |
| Max. Unplatted Residential Annual at 10% Growth - 190 ppl/2.7 ppl per unit = 70 units | | | 7,560 | Res. | 7,560 | | |
| Estimated Annual Commercial and Industrial | | | 5,000 | | | Com/Ind | 5,000 |
| ADDED ANNUAL WASTEWATER DISCHARGE | | | 12,560 | | | | |
| 2022 YEAR END | | | 131,890 | | | | |
| 2023 YEAR END | | | 144,450 | | | | |
| 2024 YEAR END | | | 157,010 | | | | |
| 2025 YEAR END | | | 169,570 | | | | |
| 2026 YEAR END | | | 182,130 | | | | |
| Clearas Existing Capacity | | | 150,000 | | | | |
| Clearas with added tubes, \$200k, adds 30,000 gpd | | | 180,000 | | | | |
| Clearas also add greenhouse, \$3.8M, adds 150,000 gpd | | | 330,000 | | | | |
| SBR Treatment Existing Capacity | | | 300,000 | | | | |
| SBR Treatment Expanded Capacity, adds 165,000 gpd | | | 465,000 | | | | |

**VILLAGE OF ROBERTS
ST. CROIX COUNTY, WISCONSIN**

ORDINANCE NO. 2022-02VB

**AN ORDINANCE AMENDING THE MUNICIPAL CODE FOR
THE VILLAGE OF ROBERTS, WISCONSIN**

The Village Board of the Village of Roberts, Wisconsin, hereby ordains Section 70-42(b) of the Municipal Code of the Village of Roberts, St. Croix County, Wisconsin, is hereby amended to read as follows:

Sec. 70-42. Accessory use and structure setback requirements.

- (b) All detached accessory structures or uses shall not be closer than ten feet from any other structure on the property unless an approved fire separation is installed. All detached accessory structures and uses shall not exceed 15 feet in height in all Residential and Conservancy Districts. Accessory structures and uses may be up to 20 feet in height in all other Districts. The accessory building should be a minimum of five feet from the side yard and a minimum of five feet from the rear yard. When, in the judgment of the zoning administrator or plan commission, it is determined that, due to the configuration of the lot or principal of accessory structures on the lot, such accessory uses or structures are or may become a visual or audible nuisance, they shall require the owner of such accessory uses or structures to screen them by use of dense vegetation, aesthetic fencing, structural barriers, or a combination thereof based on a specific plan drawn to scale.

Adopted by the Village Board on _____, 2022.

VILLAGE OF ROBERTS

By: _____
Willard Moeri, President

Attest: _____
Megan Dull, Village Clerk

Published: _____, 2022

**VILLAGE OF ROBERTS
ST. CROIX COUNTY, WISCONSIN**

ORDINANCE NO. 2022-03VB

**AN ORDINANCE AMENDING THE MUNICIPAL CODE FOR
THE VILLAGE OF ROBERTS, WISCONSIN**

The Village Board of the Village of Roberts, Wisconsin, hereby ordains Section 66-54(6)c. of the Municipal Code of the Village of Roberts, St. Croix County, Wisconsin, is hereby amended to read as follows:

- c. In addition, any property serviced by the east sewer interceptor will have an additional charge as follows:

| Year | Area Developed | Hookup Cost for Interceptor |
|-----------|------------------|-----------------------------|
| 2011-2015 | < .5 acres | \$720.00 |
| | 0.5 to 1.0 acres | \$1,440.00 |
| | > 1.0 acre | \$1,440.00 per acre |
| 2016-2020 | < .5 acres | \$875.00 |
| | 0.5 to 1.0 acres | \$1,750.00 |
| | > 1.0 acre | \$1,750.00 per acre |
| 2021-2025 | < .5 acres | \$1,035 |
| | 0.5 to 1.0 acres | \$1,700 |
| | > 1.0 acre | \$1,700 per acre |

Charges beyond the year 2025 will be determined in a similar manner, depending on actual inflation rates. The costs for each subsequent five-year period will be determined prior to the period (i.e., costs for the years 2026-2030 will be determined by the end of year 2025).

Adopted by the Village Board on _____, 2022.

VILLAGE OF ROBERTS

By: _____
Willard Moeri, President

Attest: _____
Megan Dull, Village Clerk

Published: _____, 2022



TONY EVERS

GOVERNOR

KATHY BLUMENFELD

SECRETARY

Municipal Boundary Review

PO Box 1645, Madison WI 53701

Voice (608) 264-6102 Fax (608) 264-6104

Email: wimunicipalboundaryreview@wi.gov

Web: <http://doa.wi.gov/municipalboundaryreview>

February 23, 2022

PETITION FILE NO. 14482

MEGAN DULL, CLERK
VILLAGE OF ROBERTS
107 E MAPLE ST
ROBERTS, WI 54023-9703

DEINA SHIRMER, CLERK
TOWN OF WARREN
720 112TH ST
ROBERTS, WI 54023

Subject: KWIK TRIP ANNEXATION

The proposed annexation submitted to our office on February 09, 2022, has been reviewed and found to be in the public interest. In determining whether an annexation is in the public interest, s. 66.0217 (6), Wis. Stats. requires the Department to examine "[t]he shape of the proposed annexation and the homogeneity of the territory with the annexing village or city...." so as, to ensure the resulting boundaries are rational and compact. The statute also requires the Department to consider whether the annexing city or village can provide needed municipal services to the territory. The subject petition is for territory that is reasonably shaped and contiguous to the **VILLAGE OF ROBERTS**, which is able to provide needed municipal services.

The Department reminds clerks of annexing municipalities of the requirements of s. 66.0217 (9)(a), Wis. Stats., which states:

"The clerk of a city or village which has annexed shall file immediately with the secretary of administration a certified copy of the ordinance, certificate and plat, and shall send one copy to each company that provides any utility service in the area that is annexed. The clerk shall record the ordinance with the register of deeds and file a signed copy of the ordinance with the clerk of any affected school district..."

State and federal aids based on population and equalized value may be significantly affected through failure to file with the Department of Administration. Please file a copy of your annexing ordinance, including a statement certifying the population of the annexed territory. **Please include your MBR number 14482 with your ordinance.** Ordinance filing checklist available at <http://mds.wi.gov/>, click on "Help on How to Submit Municipal Records". Email scanned copy of required materials (color scan maps with color) to mds@wi.gov or mail to: Wisconsin Department of Administration, Municipal Boundary Review, PO Box 1645, Madison WI 53701-1645.

The petition file is available for viewing at: <http://mds.wi.gov/View/Petition?ID=2556>
Please call me at (608) 264-6102, should you have any questions concerning this annexation review.

Sincerely,

Erich Schmidtke, Municipal Boundary Review

cc: petitioner



Building a Better World
for All of Us®

MEMORANDUM

TO: Nate Byom, Development Coordinator / Project Manager, Kwik Trip, Inc.

FROM: Josh Woller, PE (Lic. WI, IL, IN, MI)

DATE: February 21, 2022

RE: Kwik Trip Store 1260 Traffic Impact Analysis
SEH No. 164910 14.00

Kwik Trip is proposing a new fuel station / convenience store plus truck stop in the northwest quadrant of STH 65 & 70th Avenue in the Village of Roberts. The proposed development site is a 21.6-acre site which is currently occupied by a farm field and a residential parcel. As part of the development and permitting process, the Village of Roberts has requested a traffic impact analysis to be conducted to determine the impacts the new development will have on the adjacent roadway network. Short Elliott Hendrickson, Inc (SEH) conducted a traffic impact analysis to identify existing traffic volumes on the adjacent street system, the traffic expected to be generated by the proposed development, and the operational impacts on the local roadway network.

As part of the development two separate access alternatives were reviewed.

Alternative 1 includes a new proposed village street connection on 70th Avenue that will connect between the existing truck entrance and exit driveways for the Flying J Travel Center. This is proposed to be a full access point. Under this scenario all site generated traffic will utilize 70th Avenue. The proposed site access driveways will be provided along this new north/south street connection.

Alternative 2 includes the full access connection on 70th Avenue (Alternative 1), but also includes a second access point that will be requested on STH 65 at the north end of the proposed site. This will also be a village street connection and will provide right-in/right out access only and create a village street loop around the site. To provide analysis results the proposed access at STH 65 the EB right turn was modeled under stop control conditions. The ultimate configuration will provide a free flow movement due to a lane add at the intersection. A project location map and the site plan are included with Attachment A to this memorandum.

This memorandum documents the procedures, findings, and conclusions of the traffic impact analysis.

Study Area / Data Collection

The traffic study area is along STH 65 and 70th Avenue. SEH completed AM and PM peak hour turning movement traffic counts, utilizing video camera equipment, at the following signalized intersections that are located adjacent to the proposed development:

- STH 65 & 70th Avenue

Engineers | Architects | Planners | Scientists

Short Elliott Hendrickson Inc., 6808 Odana Road, Suite 200, Madison, WI 53719-1137

608.620.6199 | 800.732.4362 | 888.908.8166 fax | sehinc.com

SEH is 100% employee-owned | Affirmative Action–Equal Opportunity Employer

The data that was collected was then utilized to determine AM and PM peak hour volumes at the Flying J truck entrance driveway and truck entrance driveway. The overall study analyzes five (5) intersections:

- Node #3 - STH 65 & 70th Avenue
- Node #15 - 70th Avenue & Flying J Passenger Car Driveway (East)
- Node #9 - 70th Avenue & Flying J Truck Entrance Driveway (West)
- Node #11 - 70th Avenue & Flying J Truck Exit Driveway (Center)
- Node #7 - 70th Avenue & Proposed Village Street Connection (Proposed)
- Node #13 - STH 65 & Proposed Village Street Connection – Right-in/right-out (Proposed)

The study area intersections were analyzed for the AM and PM peak traffic periods. Based on traffic counts conducted by SEH on Wednesday, December 22, 2021, the weekday AM peak hour was identified as 7:00am to 8:00am and the weekday PM peak traffic hour was identified as 4:30 pm to 5:30 pm. The existing traffic volumes for the study area are included with Attachment B.

There is currently no pedestrian facilities or public transportation facilities within the vicinity of the project.

Evaluation of Existing Conditions

The study area intersections were analyzed using procedures set forth in the *Highway Capacity Manual 6th Edition (HCM)*. Level of service (LOS) is the metric by which roadway operations are defined based on the delay/congestion experienced by users of the facility. LOS ranges from LOS A, little to no delay/congestion, to LOS F, significant delay/congestion. WisDOT practice is to maintain LOS D or better, where practical, during peak hour operations. Descriptions of the various levels of service are as follows:

- *LOS A* is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized and unsignalized intersections, average delays are less than 10 seconds.
- *LOS B* represents stable operation. At signalized intersections, average vehicle delays are 10 to 20 seconds. At unsignalized intersections, average delays are 10 to 15 seconds.
- *LOS C* still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At signalized intersections, average vehicle delays are 20 to 35 seconds. At unsignalized intersections, average delays are 15 to 25 seconds.
- *LOS D* represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are 35 to 55 seconds. At unsignalized intersections, average delays are 25 to 35 seconds.
- *LOS E* represents the capacity of the intersection. At signalized intersections, average vehicle delays are 55 to 80 seconds. At unsignalized intersections, average delays are 35 to 50 seconds.
- *LOS F* represents jammed conditions where the intersection is over capacity and acceptable gaps for unsignalized intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed 80 seconds. At unsignalized intersections, average delays exceed 50 seconds.

The existing traffic operations capacity analysis is based on the existing geometrics and existing traffic control. Table 1 summarizes the weekday AM and PM peak hour traffic operating conditions for the

existing background traffic. Table 2 summarizes the weekday AM and PM peak hour 95th percentile queues for the existing background traffic. Synchro/SimTraffic Version 11, HCM outputs are included in Attachment C.

Table 1
Existing Conditions LOS, by Movement

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | | D | D | | | A | A | A | A | B | A |
| | | PM | D | | D | D | | | A | A | A | A | A | A |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | A | | | A | | | A | | | --- | | |
| | | PM | A | | | A | | | A | | | --- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | A | | | A | | | A | | | --- | | |
| | | PM | A | | | A | | | A | | | --- | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | A | | | A | | | A | | | --- | | |
| | | PM | A | | | A | | | A | | | --- | | |

All the intersection movements at the study area intersections operate acceptably with LOS D or better during the AM and PM peak hours.

Table 2
Existing Conditions 95th Percentile Queues, by Movement

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 69 | | 82 | | | 109 | 67 | 78 | 2 | 15 | 153 | 33 |
| | | PM | 38 | | 73 | | | 47 | 93 | 151 | 5 | 11 | 115 | 2 |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | 0 | | | 15 | | | 48 | | | --- | | |
| | | PM | 0 | | | 34 | | | 54 | | | --- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | 0 | | | 0 | | | 96 | | | --- | | |
| | | PM | 0 | | | 0 | | | 88 | | | --- | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | 0 | | | 13 | | | 0 | | | --- | | |
| | | PM | 0 | | | 12 | | | 0 | | | --- | | |

Existing queues are contained within existing storage areas. No blocking of intersections or driveways is shown. To determine the full extent of future queues the values reported in all the tables for STH 65 & 70th Avenue is from a model showing only the STH 65 & 70th intersection. The purpose of this was to eliminate all nodes that may limit the length of queues reported. All other queues are reported are part of the full project model.

Site Traffic Forecasting

To address any potential future traffic impacts at the study area intersections, it is necessary to identify the hourly volume of traffic generated by the anticipated development. The traffic volumes expected to be generated are based on the size and type of the proposed use and on trip rates as published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition*.

Trip Generation

Expected peak hour trips were determined by using the *ITE Trip Generation Manual 10th Edition*. Based on the proposed development type land use code 950 – Truck Stop was utilized for the diesel fuel pumps and code 960 – Super Convenience Market/Gas Station (Midwest Filter) was used for regular fuel pumps.

During a typical weekday morning peak hour, the development is anticipated to generate 550 trips (270 entering / 280 exiting). Of those trips, 70 are expected to be pass-by trips (discussed below), resulting in 480 new trips during the weekday AM peak. During a typical weekday PM peak hour, the development is anticipated to generate 475 (240 entering / 235 exiting). Of those trips, 60 are expected to be pass-by trips, resulting in 415 new trips during the weekday PM peak.

Table 3
Kwik Trip Store 1260 Trip Generation

| Land Use | ITE Code | Proposed Size | | | Weekday Daily | In | AM Peak Out | Total | In | PM Peak Out | Total |
|--------------------------------------|----------|---------------|---|---------------------------|---------------|-----|-------------|-------|-----|-------------|-------|
| Truck Stop | 950 | 8 | x | Vehicle Fueling Positions | 1790 | 55 | 55 | 110 | 65 | 60 | 125 |
| | | | | | 224.00 | 49% | 51% | 13.97 | 53% | 47% | 15.42 |
| Super Convenience Market/Gas Station | 960 | 20 | x | Vehicle Fueling Positions | 6080 | 215 | 225 | 440 | 175 | 175 | 350 |
| | | | | | 304.00 | 50% | 50% | 22.05 | 50% | 50% | 17.56 |
| Subtotal | | | | | 7870 | 270 | 280 | 550 | 240 | 235 | 475 |
| Total Pass-by Trips (Minus) | | | | | 945 | 35 | 35 | 70 | 30 | 30 | 60 |
| Total Linked Trips (Minus) | | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total New Trips | | | | | 5422 | 235 | 245 | 480 | 210 | 205 | 415 |

Notes: 12% of Proposed Trips assumed to be Pass-by Trips

Mode Split

The development area currently has no pedestrian accommodations and is in a rural area. Given this, no reduction in the number of vehicle trips to include walking and bicycle trips was applied.

Linked and Pass-by Trip Traffic

The proposed development does not have any linked (internal) trips because the site operates as a single land use "Super Convenience Market/Gas Station". However, the proposed site will include pass-by trips due to the surrounding industrial land uses and the site's proximity to STH 65. Pass-by trips occur when motorists already on the highway system stop at the development site prior to continuing their intended route. Based on the surrounding roadway network, it is assumed that approximately 12 percent of development trips are considered pass-by trips. This value corresponds to approximately 10 percent of the existing daily traffic for the adjacent roadway network. Furthermore, this value corresponds with the current ITE and WisDOT recommended practice of pass-by trips not exceeding 10 percent of adjacent roadway volumes.

In addition, there is a potential for diversion traffic. This would be traffic that is currently traveling to the Flying J Travel Center that will now utilize Kwik Trip. It is anticipated that there will be some diversion traffic however the worst-case modeling scenario is to maximize weaving traffic which would equate to leaving all Flying J traffic continuing to Flying J. As shown in the modeling results below each driveway has ample capacity to accept additional traffic.

Trip Distribution

Trip distribution was based on the existing traffic patterns, the proposed land use, and the location of population centers. Trips were assigned to the study area roadways in accordance with the following trip distribution:

- 77.5% to/from south on STH 65
- 17.5% to/from north on STH 65
- 5% to/from east on 70th Avenue

Trip Assignment

Traffic generated by the Kwik Trip development was assigned to the existing roadway system based on the trip generation and distribution above. New development trips and pass-by trips were assigned and reflect the above directional distributions accordingly by alternative. The new development trips and pass-by trips are shown in Attachment B. The existing traffic volumes, site generated traffic, and pass-by traffic were added together to generate the build total traffic volumes, which are also included in Attachment B.

Evaluation of Proposed Conditions

The total build traffic (including Kwik Trip generated traffic) peak hour operating, and queuing conditions based on the existing transportation system are summarized in Tables 4, 5, 6, and 7 below. The total traffic analysis was completed using existing intersection configurations and traffic control.

Alternative 1

Under the alternative 1 analysis all movements are expected to continue to operate with acceptable levels of service (LOS D or better) for the study area intersections.

A capacity analysis was also performed for the two new proposed village street connections located on 70th Avenue and STH 65. Traffic operations at the proposed driveways are anticipated to operate acceptably during weekday AM and PM peak hours (LOS B or higher). Synchro operational output reports are included in Attachment C.

Table 4
Existing Conditions (Build Traffic) LOS, by Movement – Alternative 1

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | C | | D | D | | | C | A | A | B | C | B |
| | | PM | D | | D | D | | | B | B | A | B | B | B |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Strop Control | AM | A | | | A | | | -- | | | B | | |
| | | PM | A | | | A | | | -- | | | B | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |

Table 5
Existing Conditions (Build Traffic) 95th Percentile Queues – Alternative 1

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 150 | | 140 | 118 | | | 217 | 187 | 14 | 57 | 318 | 116 |
| | | PM | 154 | | 124 | 59 | | | 216 | 284 | 48 | 22 | 217 | 36 |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | 59 | | | 92 | | | 54 | | | -- | | |
| | | PM | 29 | | | 92 | | | 54 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | 33 | | | 12 | | | 89 | | | -- | | |
| | | PM | 32 | | | 11 | | | 94 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Strop Control | AM | 14 | | | 21 | | | -- | | | 108 | | |
| | | PM | 0 | | | 24 | | | -- | | | 105 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | 0 | | | 12 | | | 0 | | | -- | | |
| | | PM | 0 | | | 16 | | | 0 | | | -- | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated the NB left turn queues and the EB right turn queues at STH 65 & 70th Avenue will extend past the available storage. It should be noted that the average queues for these movements are expected to be contained within the available storage. All queues at the existing and proposed driveways are anticipated to be 110 feet or less. Note that the eastbound queues at the driveways are anticipated to spillover from STH 65 & 70th Avenue intersection.

Alternative 2

Under the alternative 2 analysis, all movements are expected to continue to operate with acceptable levels of service (LOS D or better) for the study area intersections.

A capacity analysis was also performed for the two new proposed village street connections located on 70th Avenue and STH 65. Traffic operations at the proposed driveways are anticipated to operate acceptably during weekday AM and PM peak hours (LOS B or higher). Synchro operational output reports are included in Attachment C.

Table 6
Existing Conditions (Build Traffic) LOS, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | | D | | D | | D | B | A | B | C | B |
| | | PM | D | | D | | D | | B | B | A | B | B | B |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | A | | | A | | | -- | | | B | | |
| | | PM | A | | | A | | | -- | | | B | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |
| STH 65 & Proposed Village Street | One-way Stop Control | AM | C | | | -- | | | A | | | A | | |
| | | PM | B | | | -- | | | A | | | A | | |

Table 7
Existing Conditions (Build Traffic) 95th Percentile Queues, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 210 | | 140 | 152 | | | 231 | 264 | 14 | 13 | 301 | 14 |
| | | PM | 150 | | 129 | 67 | | | 214 | 267 | 18 | 37 | 236 | 3 |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | 58 | | | 84 | | | 52 | | | -- | | |
| | | PM | 40 | | | 81 | | | 61 | | | -- | | |
| 70 th Avenue & Flying Truck Exit | One-way Strop Control | AM | 23 | | | 18 | | | 93 | | | -- | | |
| | | PM | 14 | | | 23 | | | 88 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Strop Control | AM | 0 | | | 18 | | | -- | | | 79 | | |
| | | PM | 3 | | | 24 | | | -- | | | 80 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | 0 | | | 8 | | | 0 | | | -- | | |
| | | PM | 0 | | | 15 | | | 0 | | | -- | | |
| STH 65 & Proposed Village Street | One-way Strop Control | AM | 85 | | | -- | | | 0 | | | 0 | | |
| | | PM | 43 | | | -- | | | 0 | | | 0 | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated the NB left turn queues and the EB right turn queues at STH 65 & 70th Avenue will extend past the available storage. All queues at the existing and proposed driveways are anticipated to be 100 feet or less. Note that the eastbound queues at the driveways are anticipated to spillover from STH 65 & 70th Avenue intersection.

Evaluation of Proposed Conditions with Improvements

Based on unacceptable operations for the EB right turn movement at STH 65 & 70th Avenue under Build traffic an improvement analysis was also conducted. WisDOT has an improvement project planned for STH 65. Plans are currently being developed for the improvements, but the final construction timeline has not been determined. An improvement analysis was conducted using the current plans. In addition, WisDOT requested that the addition of dual NB left turn lanes at the STH 65 & 70th Avenue intersection be evaluated as well. Lastly, as noted above the final construction timeline for this project has not been determined. To determine the improvements needed to achieve acceptable operations until the WisDOT project is constructed an interim improvement scenario was also analyzed.

Kwik Trip Improvements

Under this scenario an EB right turn overlap phase was added and the signal timing for the intersection has been reoptimized utilizing Synchro. In addition, two WB lanes on 70th Avenue were included from STH 65 to just west of the proposed Kwik Trip Driveway.

Alternative 1

Under the alternative 1 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 8
Kwik Trip Improvements LOS, by Movement – Alternative 1

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | | C | D | | | B | A | A | B | C | B |
| | | PM | D | | C | D | | | A | A | A | A | B | A |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | A | | | A | | | -- | | | B | | |
| | | PM | A | | | A | | | -- | | | B | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |

Table 9
Kwik Trip Improvements 95th Percentile Queues – Alternative 1

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 176 | 146 | 124 | 195 | 85 | 12 | 49 | 302 | 97 | | | |
| | | PM | 141 | 118 | 59 | 211 | 157 | 7 | 32 | 197 | 46 | | | |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 73 | | 54 | 53 | | -- | | | | | | |
| | | PM | 32 | | 55 | 54 | | -- | | | | | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | 33 | | 8 | 88 | | -- | | | | | | |
| | | PM | 35 | | 0 | 95 | | -- | | | | | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | 16 | | 17 | -- | | 107 | | | | | | |
| | | PM | 9 | | 18 | -- | | 109 | | | | | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | 0 | | 8 | 0 | | -- | | | | | | |
| | | PM | 0 | | 15 | 0 | | -- | | | | | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated the NB left turn queues and the EB right turn queues at STH 65 & 70th Avenue will extend past the available storage. All queues at the existing and proposed driveways are anticipated to be 110 feet or less. It should be noted that the average queues are expected to be accommodated by the existing storage lanes.

Alternative 2

Under the alternative 2 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 10
Kwik Trip Improvements LOS, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | | C | D | | | D | B | A | B | C | B |
| | | PM | D | | C | D | | | B | B | A | B | B | B |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Strop Control | AM | A | | | A | | | -- | | | B | | |
| | | PM | A | | | A | | | -- | | | B | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |
| STH 65 & Proposed Village Street | One-way Strop Control | AM | C | | | -- | | | A | | | A | | |
| | | PM | B | | | -- | | | A | | | A | | |

Table 11
Kwik Trip Improvements 95th Percentile Queues, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 214 | | 137 | 149 | | | 234 | 165 | 10 | 34 | 318 | 62 |
| | | PM | 150 | | 116 | 65 | | | 227 | 152 | 10 | 27 | 242 | 8 |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | 85 | | | 53 | | | 57 | | | -- | | |
| | | PM | 58 | | | 63 | | | 61 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | 22 | | | 0 | | | 94 | | | -- | | |
| | | PM | 16 | | | 10 | | | 90 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Strop Control | AM | 10 | | | 5 | | | -- | | | 83 | | |
| | | PM | 3 | | | 18 | | | -- | | | 78 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | 0 | | | 12 | | | 0 | | | -- | | |
| | | PM | 0 | | | 15 | | | 0 | | | -- | | |
| STH 65 & Proposed Village Street | One-way Strop Control | AM | 85 | | | -- | | | 0 | | | 0 | | |
| | | PM | 44 | | | -- | | | 0 | | | 0 | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated the NB left turn queues and the EB right turn queues at STH 65 & 70th Avenue will extend past the available storage. All queues at the existing and proposed driveways are anticipated to be 100 feet or less. It should be noted that the average queues are expected to be accommodated by the existing storage lanes.

WisDOT Improvements – Current Plans

Under this scenario the intersection of STH 65 & 70th Avenue will be fully reconstructed per WisDOT plans. The improvements include adding designated turn lanes to the EB and WB approaches and the extension of the NB and SB turn lanes as well as an additional through lane for NB/SB approaches. In addition, the traffic signal will be upgraded to 4-section flashing yellow arrow heads on all approaches, and the EB right turn lane will have an overlap phase. In addition, the second WB through lane on 70th Avenue, west of STH 65, was also included. Overall, this improvement has little impact on LOS.

Alternative 1

Under the alternative 1 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 12
WisDOT Improvements LOS, by Movement – Alternative 1

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | D | C | C | D | A | B | B | A | A | C | A |
| | | PM | D | D | C | C | D | A | B | A | A | A | B | A |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | --- | | |
| | | PM | A | | | A | | | B | | | --- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | A | | | A | | | B | | | --- | | |
| | | PM | A | | | A | | | B | | | --- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | A | | | A | | | --- | | | B | | |
| | | PM | A | | | A | | | --- | | | B | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | A | | | A | | | A | | | --- | | |
| | | PM | A | | | A | | | A | | | --- | | |

Table 13
WisDOT Improvements 95th Percentile Queues – Alternative 1

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 96 | 107 | 58 | 81 | 39 | 0 | 189 | 44 | 0 | 30 | 187 | 21 |
| | | PM | 91 | 71 | 35 | 34 | 26 | 0 | 205 | 74 | 1 | 13 | 151 | 15 |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 20 | | | 50 | | | 49 | | | -- | | |
| | | PM | 29 | | | 58 | | | 54 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | 27 | | | 7 | | | 91 | | | -- | | |
| | | PM | 27 | | | 0 | | | 95 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | 17 | | | 18 | | | -- | | | 123 | | |
| | | PM | 15 | | | 7 | | | -- | | | 117 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | 0 | | | 10 | | | 0 | | | -- | | |
| | | PM | 0 | | | 7 | | | 0 | | | -- | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated that all queues will be accommodated by the available storage. All queues at the existing and proposed driveways are anticipated to be 125 feet or less.

Alternative 2

Under the alternative 2 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 14
WisDOT Improvements LOS, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | D | C | D | D | A | B | A | A | A | C | A |
| | | PM | D | D | C | C | D | A | B | A | A | A | B | A |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | A | | | A | | | -- | | | B | | |
| | | PM | A | | | A | | | -- | | | B | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |
| STH 65 & Proposed Village Street | One-way Stop Control | AM | C | | | -- | | | A | | | A | | |
| | | PM | B | | | -- | | | A | | | A | | |

Table 15
WisDOT Improvements 95th Percentile Queues, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 107 | 123 | 81 | 114 | 75 | 0 | 211 | 48 | 10 | 17 | 163 | 4 |
| | | PM | 98 | 82 | 43 | 33 | 47 | 0 | 174 | 72 | 7 | 14 | 128 | 0 |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 26 | | | 49 | | | 51 | | | -- | | |
| | | PM | 11 | | | 64 | | | 53 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | 23 | | | 8 | | | 94 | | | -- | | |
| | | PM | 15 | | | 0 | | | 87 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | 0 | | | 10 | | | -- | | | 85 | | |
| | | PM | 0 | | | 13 | | | -- | | | 82 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | 0 | | | 16 | | | 0 | | | -- | | |
| | | PM | 0 | | | 7 | | | 0 | | | -- | | |
| STH 65 & Proposed Village Street | One-way Stop Control | AM | 61 | | | -- | | | 0 | | | 0 | | |
| | | PM | 45 | | | -- | | | 0 | | | 0 | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated that all queues will be accommodated by the available storage. All queues at the existing and proposed driveways are anticipated to be 95 feet or less.

WisDOT Improvements – Current Plans with dual NB left turn lanes

Under this scenario all of the improvements identified in the current WisDOT plans will be implemented, but the NB left turn lane will be modified to become a dual left turn lane.

Alternative 1

Under the alternative 1 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 16
WisDOT Improvement (Dual NB Left) LOS, by Movement – Alternative 1

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | C | D | C | C | D | A | D | B | A | A | C | A |
| | | PM | C | D | C | C | D | A | D | A | A | A | B | A |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Strop Control | AM | A | | | A | | | -- | | | B | | |
| | | PM | A | | | A | | | -- | | | B | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |

Table 17
WisDOT Improvements (Dual NB Left) 95th Percentile Queues – Alternative 1

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 92 | 94 | 43 | 77 | 37 | 0 | 229 | 43 | 4 | 24 | 190 | 22 |
| | | PM | 94 | 100 | 36 | 28 | 23 | 0 | 238 | 69 | 2 | 10 | 145 | 16 |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | 9 | | | 55 | | | 52 | | | -- | | |
| | | PM | 30 | | | 81 | | | 54 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | 36 | | | 6 | | | 91 | | | -- | | |
| | | PM | 30 | | | 15 | | | 92 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Strop Control | AM | 19 | | | 16 | | | -- | | | 100 | | |
| | | PM | 14 | | | 30 | | | -- | | | 106 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | 0 | | | 7 | | | 0 | | | -- | | |
| | | PM | 0 | | | 0 | | | 0 | | | -- | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated that all queues will be accommodated by the available storage. All queues at the existing and proposed driveways are anticipated to be 110 feet or less.

Alternative 2

Under the alternative 2 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 18
WisDOT Improvement (Dual NB Left) LOS, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | D | C | D | D | A | D | A | A | A | C | A |
| | | PM | C | D | C | C | D | A | D | A | A | A | B | A |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | A | | | A | | | -- | | | B | | |
| | | PM | A | | | A | | | -- | | | B | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |
| STH 65 & Proposed Village Street | One-way Stop Control | AM | C | | | -- | | | A | | | A | | |
| | | PM | B | | | -- | | | A | | | A | | |

Table 19
WisDOT Improvements (Dual NB Left) 95th Percentile Queues, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 105 | 144 | 62 | 106 | 67 | 0 | 228 | 45 | 12 | 17 | 154 | 9 |
| | | PM | 91 | 96 | 40 | 31 | 46 | 0 | 253 | 71 | 10 | 10 | 127 | 2 |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 27 | | | 59 | | | 50 | | | -- | | |
| | | PM | 0 | | | 78 | | | 57 | | | -- | | |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 18 | | | 11 | | | 100 | | | -- | | |
| | | PM | 14 | | | 18 | | | 90 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | 0 | | | 16 | | | -- | | | 83 | | |
| | | PM | 0 | | | 24 | | | -- | | | 78 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | 0 | | | 7 | | | 0 | | | -- | | |
| | | PM | 0 | | | 13 | | | 0 | | | -- | | |
| STH 65 & Proposed Village Street | One-way Stop Control | AM | 86 | | | -- | | | 0 | | | 0 | | |
| | | PM | 45 | | | -- | | | 0 | | | 0 | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated that all queues will be accommodated by the available storage. All queues at the existing and proposed driveways are anticipated to be 100 feet or less.

Evaluation of Proposed Conditions with Future Build Traffic

In addition to analyzing the impacts of the proposed Kwik Trip, the impacts of future planned developments were also reviewed. Trip generation and distribution numbers for this analysis were provided by the Village of Roberts.

The anticipated development areas include three areas that will be provided access via 70th Avenue. Here is a summary of each area:

- Area 1 – 300,000 SF expansion of the recently completed 1880 warehouse. It is anticipated that this expansion will generate 60 AM peak trips and 60 PM peak trips.
- Area 2 – 30 acres just west of the Flying J. Based on land use planning it is anticipated this site will be occupied by a 200,000 SF Industrial building. The site will generate 140 AM peak trips and 65 PM peak trips.
- Area 3 – 13-acre commercial site northwest of the Kwik Trip site. It is anticipated that this site will generate 100 AM peak trips and 175 PM peak trips.

A complete summary of the trip generation is included in Attachment B.

The direction distribution assumed for these future developments is as follows:

- 72.5% to/from north on STH 65
- 22.5% to/from south on STH 65
- 5% to/from east on 70th Avenue

It is assumed that all WisDOT improvements will be in place prior to any of these future developments therefore only the WisDOT improvement scenarios were evaluated with these added volumes.

WisDOT Improvements

Under this scenario the geometry matches the WisDOT improvements described above.

Alternative 1

Under the alternative 1 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 20
WisDOT Improvements LOS, by Movement – Alternative 1

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | D | C | D | D | A | B | B | A | A | C | A |
| | | PM | C | C | B | C | D | A | B | B | A | B | C | A |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | A | | | A | | | -- | | | D | | |
| | | PM | A | | | A | | | -- | | | C | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |

Table 21
WisDOT Improvements 95th Percentile Queues – Alternative 1

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 113 | 209 | 125 | 87 | 75 | 0 | 214 | 63 | 4 | 23 | 124 | 67 |
| | | PM | 119 | 366 | 166 | 32 | 44 | 0 | 253 | 106 | 2 | 14 | 183 | 45 |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 89 | | | 60 | | | 58 | | | -- | | |
| | | 160 | 160 | | | 83 | | | 90 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | 45 | | | 10 | | | 110 | | | -- | | |
| | | PM | 51 | | | 16 | | | 93 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | 44 | | | 65 | | | -- | | | 167 | | |
| | | PM | 71 | | | 25 | | | -- | | | 164 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | 0 | | | 26 | | | 0 | | | -- | | |
| | | PM | 0 | | | 42 | | | 0 | | | -- | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated that the EB queues at STH 65 & 70th Avenue will extend past the

Flying J eastern driveway All queues at the existing and proposed driveways are anticipated to be 170 feet or less.

Alternative 2

Under the alternative 2 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 22
WisDOT Improvements LOS, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | D | C | D | D | A | B | A | A | A | C | A |
| | | PM | D | C | C | C | D | A | B | B | A | B | C | A |
| 70 th Avenue & Flying J Car Driveway | One-way Strop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Strop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Strop Control | AM | A | | | A | | | -- | | | C | | |
| | | PM | A | | | A | | | -- | | | C | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Strop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |
| STH 65 & Proposed Village Street | One-way Strop Control | AM | C | | | -- | | | A | | | A | | |
| | | PM | C | | | -- | | | A | | | A | | |

Table 23
WisDOT Improvements 95th Percentile Queues – Alternative 2

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 117 | 241 | 109 | 106 | 92 | 0 | 276 | 56 | 0 | 26 | 165 | 29 |
| | | PM | 114 | 356 | 160 | 32 | 71 | 0 | 225 | 93 | 10 | 11 | 163 | 8 |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 86 | | | 65 | | | 55 | | | -- | | |
| | | PM | 157 | | | 78 | | | 101 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | 24 | | | 9 | | | 91 | | | -- | | |
| | | PM | 35 | | | 0 | | | 95 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | 8 | | | 24 | | | -- | | | 115 | | |
| | | PM | 10 | | | 23 | | | -- | | | 111 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | 0 | | | 31 | | | 0 | | | -- | | |
| | | PM | 0 | | | 49 | | | 0 | | | -- | | |
| STH 65 & Proposed Village Street | One-way Stop Control | AM | 221 | | | -- | | | 0 | | | 0 | | |
| | | PM | 71 | | | -- | | | 0 | | | 0 | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated that the EB queues at STH 65 & 70th Avenue will extend past the Flying J. All queues at the existing and proposed driveways are anticipated to be 125 feet or less.

WisDOT Improvements Dual NB Lefts

Under this scenario the geometry matches the WisDOT improvements described above.

Alternative 1

Under the alternative 1 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 24
WisDOT Improvements (Dual NB Lefts) LOS, by Movement – Alternative 1

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | D | C | C | D | A | D | B | A | A | C | A |
| | | PM | C | C | C | C | D | A | D | B | A | B | C | A |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | A | | | A | | | -- | | | D | | |
| | | PM | A | | | A | | | -- | | | C | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |

Table 25
WisDOT Improvements (Dual NB Lefts) 95th Percentile Queues – Alternative 1

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 109 | 160 | 90 | 88 | 81 | 0 | 275 | 98 | 0 | 23 | 204 | 70 |
| | | PM | 117 | 317 | 141 | 37 | 41 | 0 | 250 | 104 | 2 | 11 | 174 | 30 |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 86 | | | 83 | | | 56 | | | -- | | |
| | | PM | 151 | | | 104 | | | 115 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | 40 | | | 17 | | | 106 | | | -- | | |
| | | PM | 49 | | | 10 | | | 95 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | 39 | | | 69 | | | -- | | | 166 | | |
| | | PM | 71 | | | 29 | | | -- | | | 160 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | 0 | | | 22 | | | 0 | | | -- | | |
| | | PM | 5 | | | 40 | | | 0 | | | -- | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated that the EB queues at STH 65 & 70th Avenue will extend past the Flying J. All queues at the existing and proposed driveways are anticipated to be 170 feet or less.

Alternative 2

Under the alternative 2 analysis all movements are expected to operate with acceptable levels of service (LOS D or better) for the study area intersections.

Table 26
WisDOT Improvements (Dual NB Lefts) LOS, by Movement – Alternative 2

| Intersection | Traffic Control | Peak Hour | Level of Service | | | | | | | | | | | |
|---|------------------------|-----------|------------------|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue | Traffic Signal Control | AM | D | D | C | C | D | A | D | B | A | A | C | A |
| | | PM | C | C | C | C | D | A | D | B | A | B | C | A |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | A | | | A | | | B | | | -- | | |
| | | PM | A | | | A | | | B | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | A | | | A | | | -- | | | C | | |
| | | PM | A | | | A | | | -- | | | C | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | A | | | A | | | A | | | -- | | |
| | | PM | A | | | A | | | A | | | -- | | |
| STH 65 & Proposed Village Street | One-way Stop Control | AM | C | | | -- | | | A | | | A | | |
| | | PM | C | | | -- | | | A | | | A | | |

Table 23
WisDOT Improvements (Dual NB Lefts) 95th Percentile Queues – Alternative 2

| Intersection | Traffic Control | Peak Hour | 95 th Percentile Queues (Feet) | | | | | | | | | | | |
|---|------------------------|-----------|---|------|-------|-----------|------|-------|------------|------|-------|------------|------|-------|
| | | | Eastbound | | | Westbound | | | Northbound | | | Southbound | | |
| | | | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right | Left | Thru | Right |
| STH 65 & 70 th Avenue* | Traffic Signal Control | AM | 112 | 187 | 107 | 99 | 81 | 0 | 288 | 49 | 6 | 26 | 163 | 28 |
| | | PM | 111 | 346 | 143 | 32 | 73 | 0 | 286 | 126 | 1 | 11 | 159 | 5 |
| 70 th Avenue & Flying J Car Driveway | One-way Stop Control | AM | 45 | | | 73 | | | 54 | | | -- | | |
| | | PM | 146 | | | 102 | | | 85 | | | -- | | |
| 70 th Avenue & Flying J Truck Exit | One-way Stop Control | AM | 26 | | | 15 | | | 95 | | | -- | | |
| | | PM | 34 | | | 11 | | | 90 | | | -- | | |
| 70 th Avenue & Proposed Village Street | One-way Stop Control | AM | 0 | | | 62 | | | -- | | | 112 | | |
| | | PM | 10 | | | 37 | | | -- | | | 116 | | |
| 70 th Avenue & Flying J Truck Entrance | One-way Stop Control | AM | 0 | | | 25 | | | 0 | | | -- | | |
| | | PM | 0 | | | 42 | | | 0 | | | -- | | |
| STH 65 & Proposed Village Street | One-way Stop Control | AM | 144 | | | -- | | | 0 | | | 0 | | |
| | | PM | 67 | | | -- | | | 0 | | | 0 | | |

A queuing analysis was completed to determine if any potential blocking conditions would occur during the peak hour periods. It is anticipated that the EB queues at STH 65 & 70th Avenue will extend past the Flying J. All queues at the existing and proposed driveways are anticipated to be 120 feet or less.

Conclusion

It should be noted that this study is a conservative analysis of the proposed development. In general land use Code 950 and 960 trip generation rates do not correspond well with actual operations of fuel centers in Wisconsin. As an example, if all traffic traveling on the west leg of 70th Street is assumed to be traveling to the existing Flying J Travel Center with a McDonald's that site would generate 195 trips during the AM peak and 245 trips during the PM peak. In comparison the trip generation numbers for the proposed Kwik Trip site are showing 550 total trips in the AM peak and 475 in the PM peak. In addition, this study is also assuming that all peak periods occur at the same point in time. Typically, the peak for trucks occurs at different times of the day than the passenger cars.

Based on the conservative analysis, anticipated new traffic from the proposed development improvements will be required at the intersection of STH 65 & 70th Avenue. The following is a summary of the improvements:

Kwik Trip Improvements

These improvements are needed if the proposed development is opened prior to the completion of the WisDOT improvement project along STH 65 (see Attachment 4):

- Construct driveway configurations shown in Alternate 2 by including a right-in / right-out driveway along STH 65 at the northern side of the property. Include a 150-foot SB right turn lane.
- Install a EB right turn overlap phase at STH 65 & 70th Avenue
- Update traffic signal timings
- Extend the NB left turn to 250 feet.
- Construct a second WB lane from STH 65 past the proposed Kwik Trip Driveway on 70th Avenue. This lane will act as a bypass lane in order to minimize WB queueing between the eastern most Flying J Driveway and the STH 65 & 70th Avenue intersection.

Future WisDOT Improvements

Based on the anticipated future build out it is recommended to construct the improvements as shown with the following additions:

- Construct a second NB left turn lane
- Extend the EB left turn lane to 125 feet
- Begin the second SB through lane at the STH 65 & proposed village street. Provide separation to allow for a free flow EB right turn movement.

These improvements will adequately serve all existing traffic and the proposed Kwik Trip traffic (see Attachment 4).

Future Full Build Improvements

In addition to the improvements described above it is recommended to add a second EB through lane along 70th Avenue from the Flying J western driveway to STH 65. The second lane should become the designated left turn lane. This will provide for vehicles existing the Flying J eastern driveway with the ability to make the SB right turn at STH 65 with minimal queue blocking.

In addition, it should be noted that with the addition of future build traffic Alternate 2 provides operational and queue relief along 70th Avenue.

All movements at the study area intersections are expected to operate in an efficient manner with the improvements identified within this traffic impact analysis.

jmw

Attachments

Attachment A – Project Location Map / Proposed Site Plan

Attachment B – Traffic Volume Exhibits

Attachment C – Synchro/SimTraffic Outputs

Attachment D – Proposed Improvement Overview Maps

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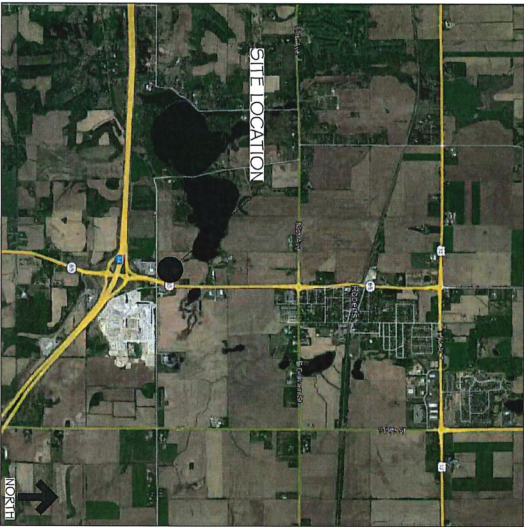
Attachment A

Project Location Map / Proposed Site plan

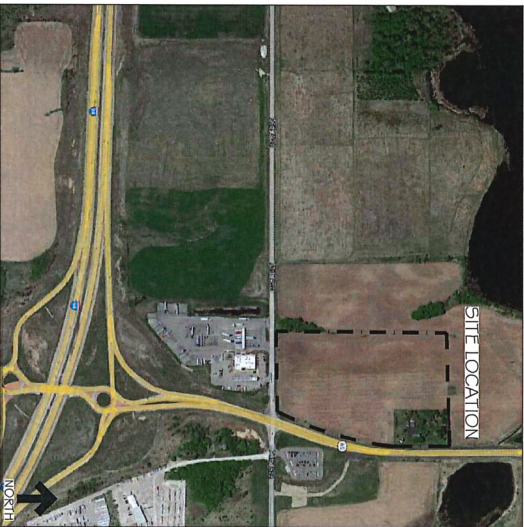
SITE IMPROVEMENT PLANS FOR:

KWK TRIP #1260
ROBERTS, WI

SITE LOCATION MAP:



SITE AERIAL MAP:



| DRAWING INDEX | | |
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| T1 | TITLE SHEET | |
| ALTA | ALTA SURVEY | |
| SPO | SITE CIRCULATION PLAN | |
| SP1 | SITE DIMENSION PLAN | |
| SP1.1 | SITE KENNOTE PLAN | |
| SP1.2 | SITE KENNOTE PLAN | |
| SP2 | GRADE PLAN OVERALL | |
| SP2.1.1 | GRADE PLAN ENLARGED | |
| SP2.1.2 | GRADE PLAN ENLARGED | |
| SP3.0 | STORM SEWER PLAN SOUTH | |
| SP3.1 | STORM SEWER PLAN NORTH | |
| SP3.2 | STORM SEWER NOTES & DETAILS | |
| SP4.0 | UTILITY PLAN SOUTH | |
| SP4.1 | UTILITY PLAN NORTH | |
| SP4.2 | UTILITY NOTES | |
| SP5 | SITE PLAN DETAILS | |
| SP6 | SITE PLAN DETAILS | |
| SP7 | SITE PLAN DETAILS (M DOT) | |
| SWP1 | EROSION CONTROL PLAN | |
| SWP2 | EROSION CONTROL NOTES | |
| SWP3 | EROSION CONTROL DETAILS | |
| SWP4 | EROSION CONTROL DETAILS | |
| L1.0 | LANDSCAPE PLAN | |
| L1.1 | LANDSCAPE PLAN ENLARGED | |
| L1.2 | LANDSCAPE PLAN ENLARGED | |

OWNER:
KWK TRIP INC.
1626 OAK STREET
LA CROSSE, WI 54602
NATE BYOM
608-791-7448
NByom@kwktrip.com

SITE PLANNER:
INSTES SITE PLANNING
3131 FERNBROOK LN N, SUITE 260
PLYMOUTH, MN 55447
BOB MUELLER
763-383-8400
Bob@instesinc.net

CIVIL ENGINEER:
SUNDE ENGINEERING
10830 NE58TH AVE SOUTH
BLOOMINGTON, MN 55437
952-881-3344

ARCHITECT:
VANTAGE ARCHITECTS
750 3RD ST N, SUITE F
LA CROSSE, WI 54601
608-784-2729

SURVEYOR:
REAL LAND SURVEYING, LLC
1360 INTERNATIONAL DRIVE SUITE 2
EAU CLAIRE, WI 54701
715-514-4116

**Kwik
TRIP**

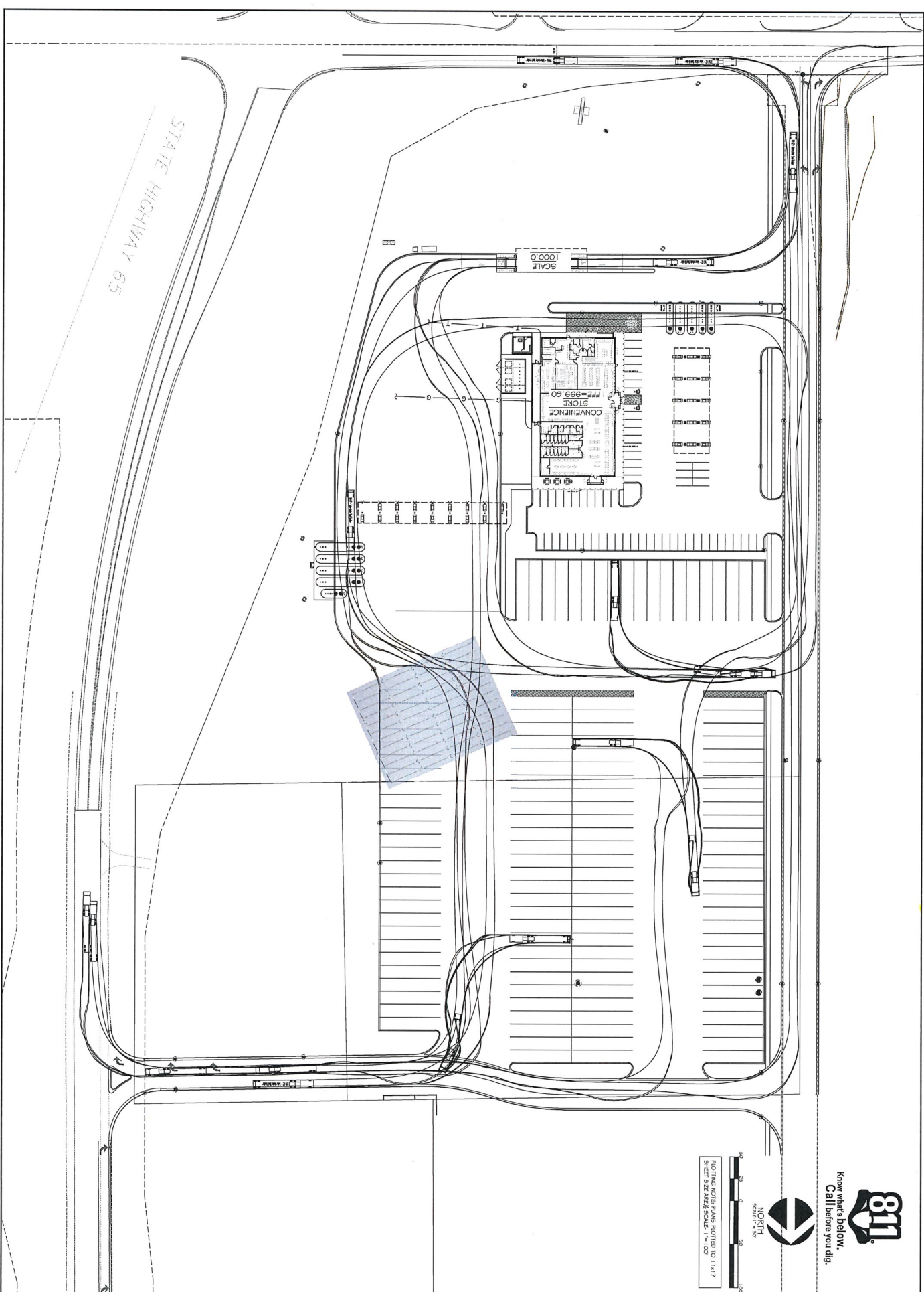
**Kwik
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KWK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LA CROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

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LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

INSTITES
SITE PLANNING LANDSCAPE ARCHITECTURE
3131 Fernbrook Lane North, STE 2
Plymouth, Minnesota 55447
763.363.6400
fax 763.363.6410



SITE CIRCULATION PLAN

CONVENIENCE STORE 1260

ROBERTS, WISCONSIN

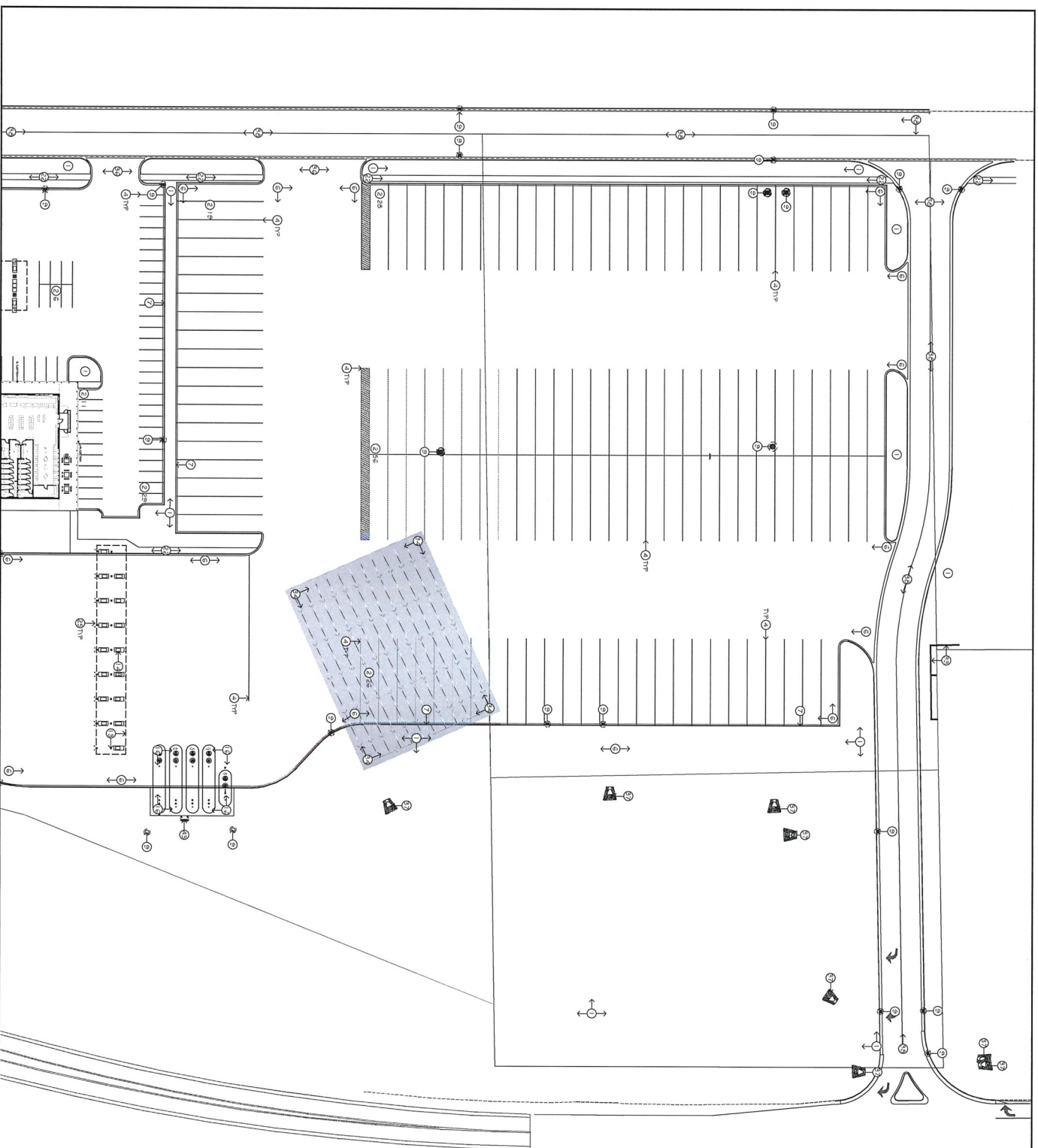
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LACROSSE, WI 54602-2107
PH. (608) 781-8988
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Know what's below.
Call before you dig.



40 20 0 20 40

PLOTTING NOTE: PLANS PLOTTED TO 11x17 SHEET SIZE AREA SCALE. 1"=60'

SITE KEYNOTE PLAN

CONVENIENCE STORE 1260

ROBERTS, WISCONSIN

| NO. | DATE | DESCRIPTION |
|-----|---------|---------------|
| - | 12JAN22 | SUBMITTAL |
| - | 07FEB22 | CITY COMMENTS |

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| DRAWN BY | |
| SCALE | GRAFTING |
| FRD. NO. | 21-126 |

SP1.2



INSTITES
SITE PLANNING LANDSCAPE ARCHITECTURE
3131 Fernbrook Lane North, STE 260
Plymouth Minnesota 55447
763.383.6400
fax 763.383.6400

P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960





KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

INSITES

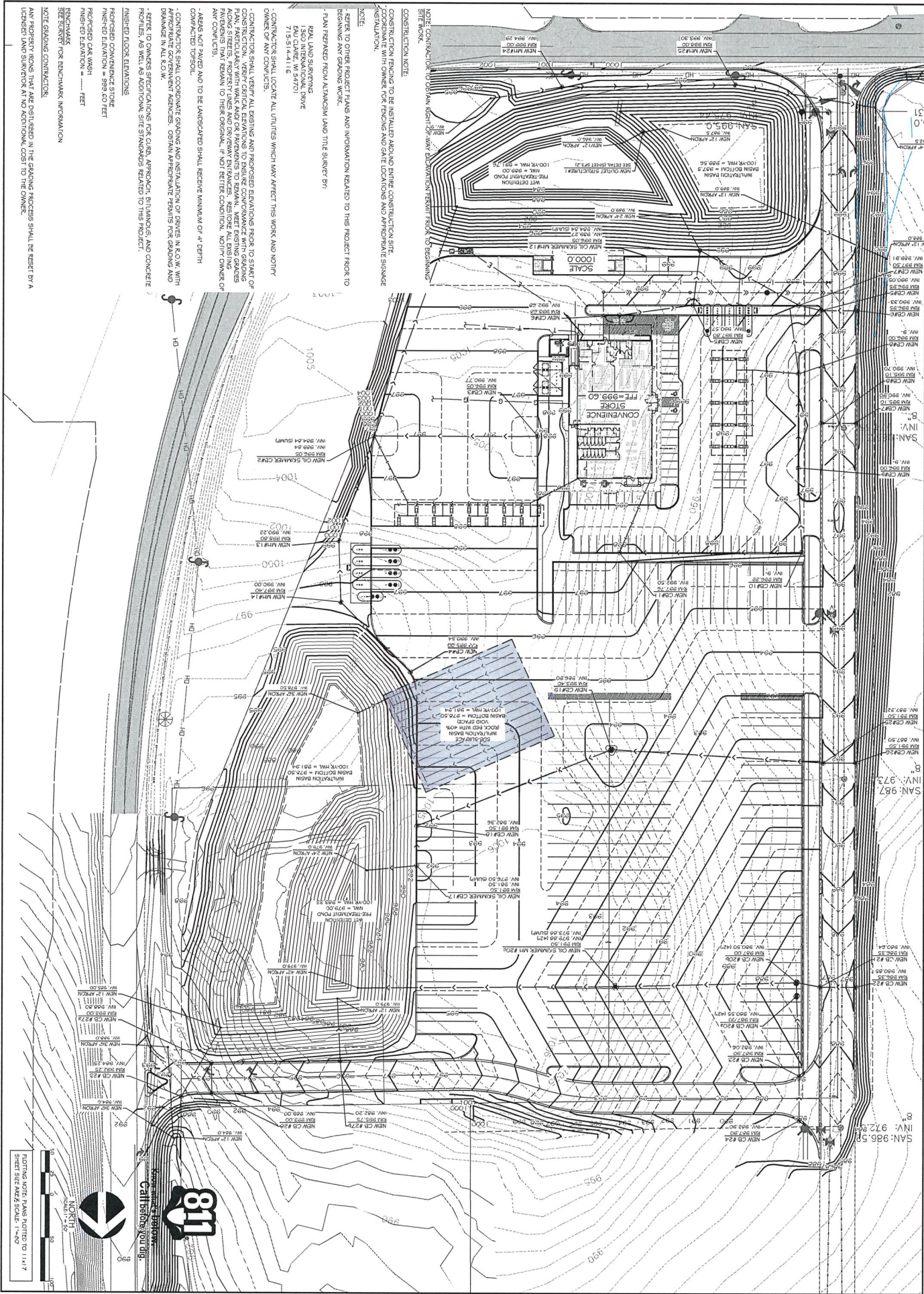
SITE PLANNING LANDSCAPE ARCHITECTURE
5131 Fairbrook Lane North, STE 360
Plymouth Minnesota 55447
763.836.6400



| | | | |
|----------------------|---------|------------|---------------------|
| NO. DATE DESCRIPTION | | GRADE PLAN | |
| 1 | 1-24-80 | 1 | GRADE SURVEY |
| 2 | 2-11-80 | 2 | OTHER CITY COMMENTS |
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SP2

ROBERTS, WISCONSIN





**Kwik
Stars**

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

INSITES

SITE PLANNING LANDSCAPE ARCHITECTURE
3131 Pembroke Lane North, Ste 260
Plymouth Minnesota 55441
763.383.6400
FAX 763.383.4400



GRADE PLAN ENLARGED

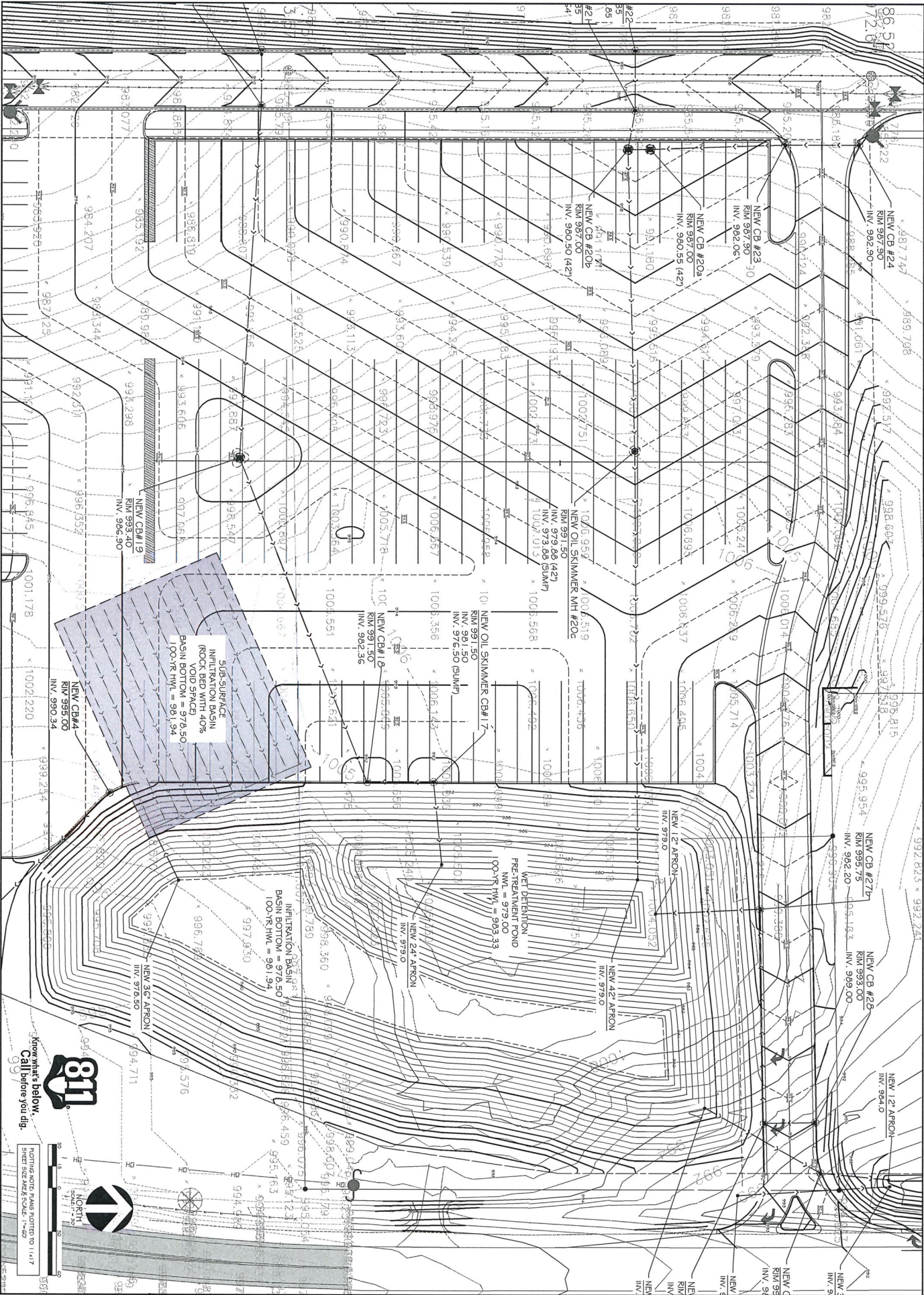
CONVENIENCE STORE 1260

ROBERTS, WISCONSIN

| NO. | DATE | DESCRIPTION |
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| - | <u>1 JAN 82</u> | SUPPLEMENTAL |
| - | <u>07 FEB 82</u> | CITY COMMENTS |
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| FOLD NO. _____ | | 2-1-1260 |
| DATE _____ | | 1 DEC 82 L |

KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960

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| GRADE PLAN ENLARGED | |
| CONVENIENCE STORE 1260 | |
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| ROBERTS, WISCONSIN | |



1. Unless otherwise indicated, use

-

- ## HDPE REQUIREMENTS:

- INFLTRATION AREA CONSTRUCTION

17. Stabilize the bottom and sidewalls of the infiltration area immediately following construction of the basin.

- INFILTRATION AREA PERFORMANCE TESTING

-

| STRUCTURE # | A | | | | | | | F | G |
|----------------|--------------------|--------------|-------------|-------------|------------|---|--|--------|--------|
| | B | C | D | E | D | E | | | |
| CB#2 | NEENAH R-5007 | 18" DR/DL | 12" HOPE | 12" HOPE | 7" DIA. | | | 989.04 | 984.04 |
| MH#12 | NEENAH R-3067 | 24" DR/DL | 12" HOPE | 24" HOPE | 6" DIA. | | | 989.27 | 984.27 |
| CB#17 | NEENAH R-3067 | 24" DR/DL | 24" HOPE | 24" HOPE | 6" DIA. | | | 981.50 | 976.50 |
| MH#19c | NEENAH R-3457-C | 36" HOPE | 36" HOPE | 36" HOPE | 6" DIA. | | | 979.88 | 973.88 |

[illegible]

A circular professional engineer seal for the State of Wisconsin. The outer ring contains the text "WISCONSIN PROFESSIONAL ENGINEER" with stars separating the words. The inner circle contains the text "BRIAN H. MUNSTOK", "E-3689", and "BLOOMINGTON, WI" arranged vertically.



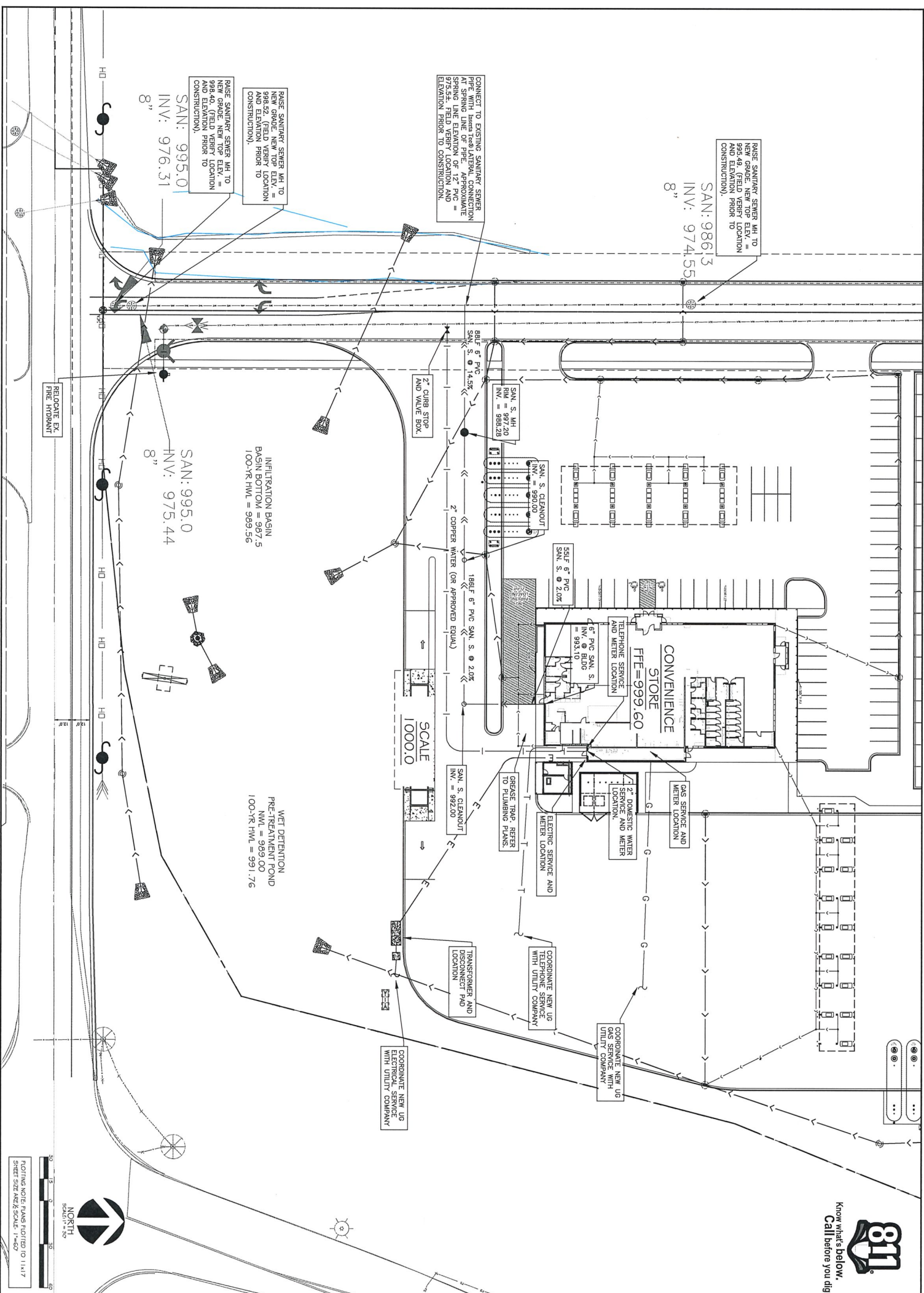
KWIK TRIP, Inc.
P.O. BOX 2107
1626 OAK STREET
LACROSSE, WI 54602-2107
PH. (608) 781-8988
FAX (608) 781-8960





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| PROJ. NO. | 21-1260 |
| DATE | 16DEC21 |
| SHEET | |

SP4.0





INSITES
SITE PLANNING LANDSCAPE ARCHITECTURE
3131 Fernbrook Lane North, STE 200
Plymouth Minnesota 55447
763.383.6400



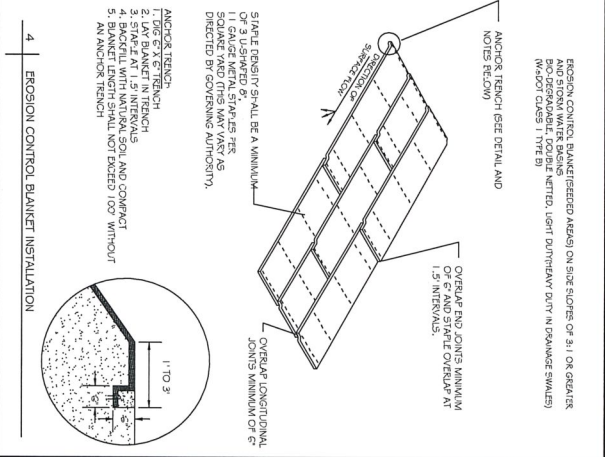
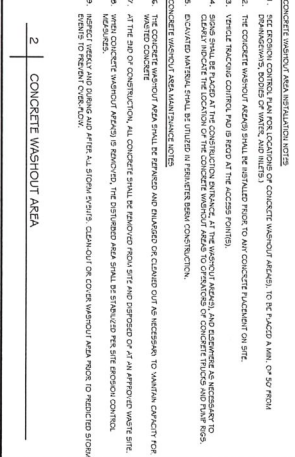
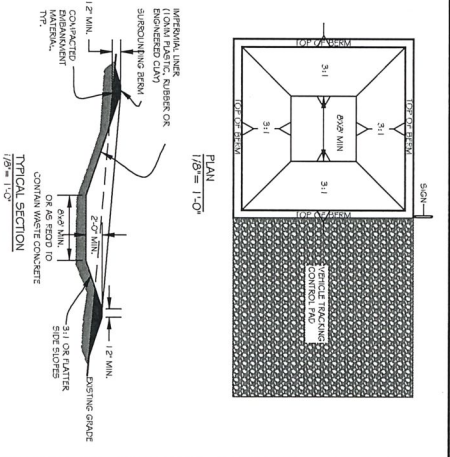
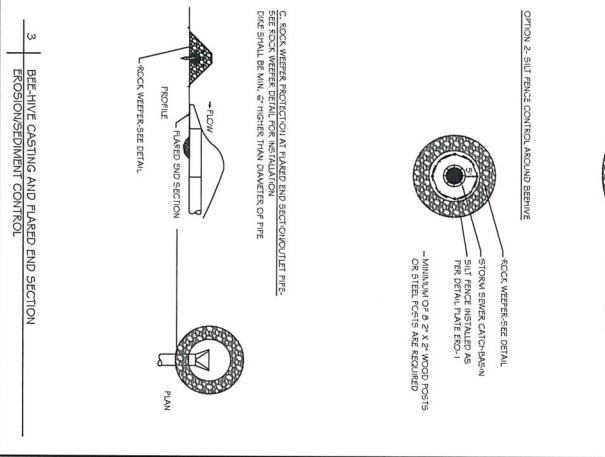
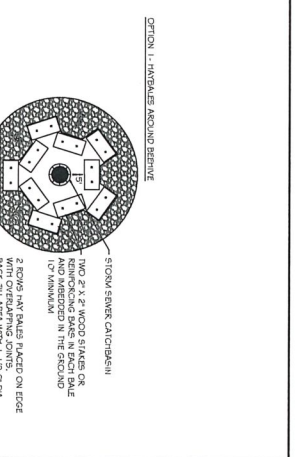
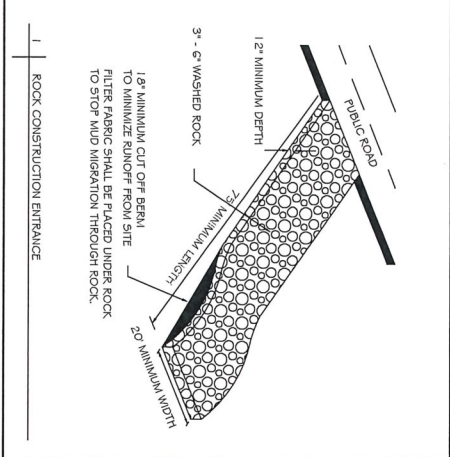
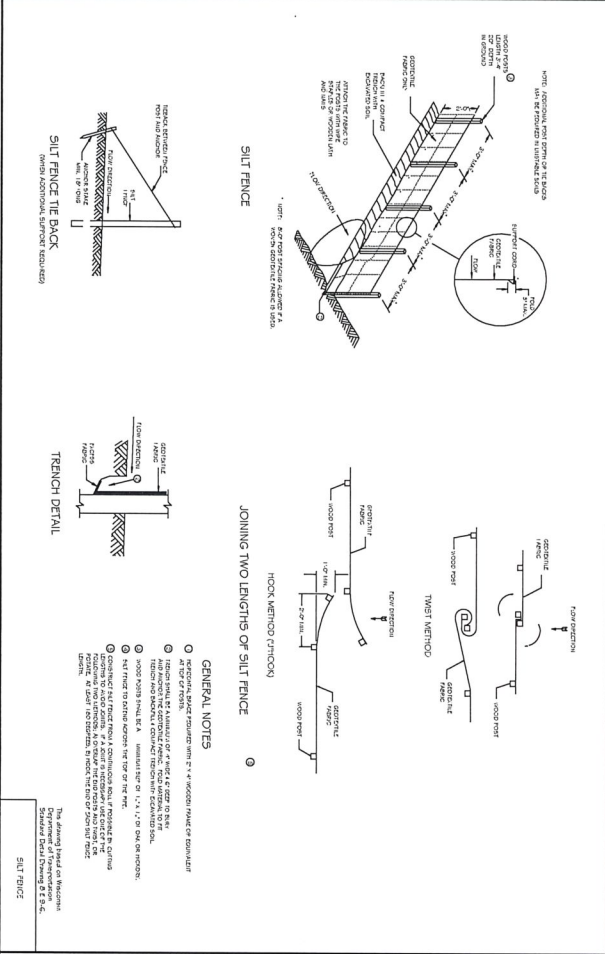
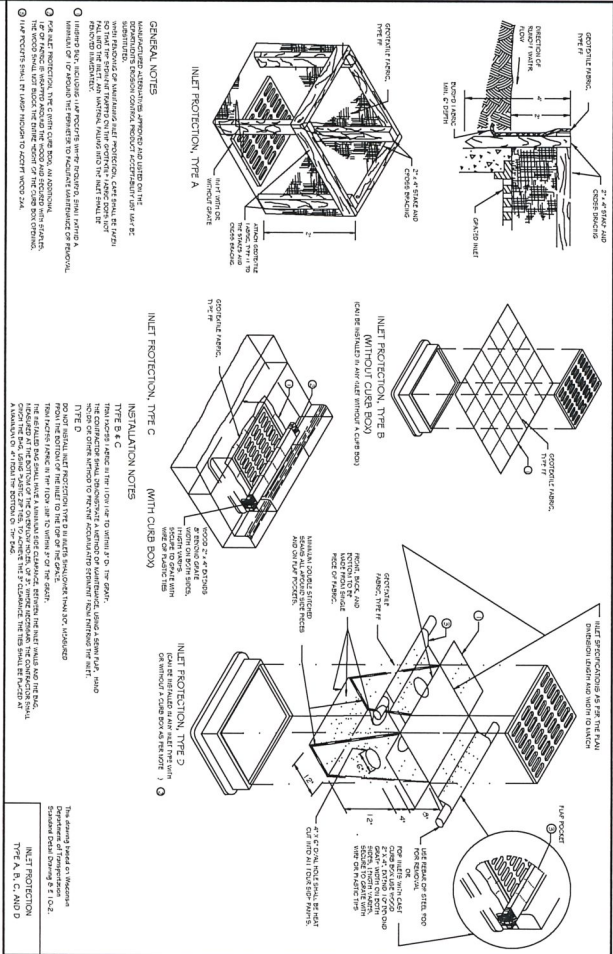
DATE 16DEC21
SHEET SP5

devices 'or all workers to access.

Kwik Trip

ALL EROSION CONTROL MEASURES TO BE
INSTALLED AND MAINTAINED PER WDNR STANDARDS

<http://dnr.wisconsin.gov/topic/water/p353waterwtrchdrbds.htm>



KWIK TRIP, Inc.
P.O. BOX 2107
WISCONSIN
PH. (608) 781-8988
FAX (608) 781-8960

INSITES
P.O. BOX 2107
WISCONSIN
PH. (608) 781-8988
FAX (608) 781-8960

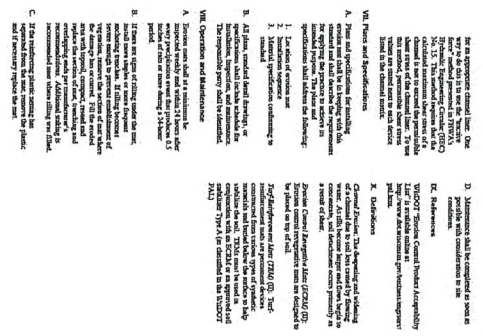
ROBERTS, WISCONSIN
P.O. BOX 2107
WISCONSIN
PH. (608) 781-8988
FAX (608) 781-8960

EROSION CONTROL BLANKET DETAILS
CONVENIENCE STORE 1260
ROBERTS, WISCONSIN

| NO. | DATE | DESCRIPTION |
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| 1 | 12/20/22 | BLANKET |
| 2 | 07/20/22 | CITY COMMENTS |
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| 6 | BIO ROLL INSTALLATION ("LOG WEEPERS") EROSION CONTROL |
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| 7 | DEWATERING BAG INSTALLATION, FOR DISCHARGING ERODED, SUSPENDED PARTICLES IN WATER NOT TO SCALE |
|---|--|

INSITES 21-042 PM N.B.

MEMORANDUM

To: Roberts Plan Commission

From: Angi Goodwin

Date: March 3, 2022 Meeting

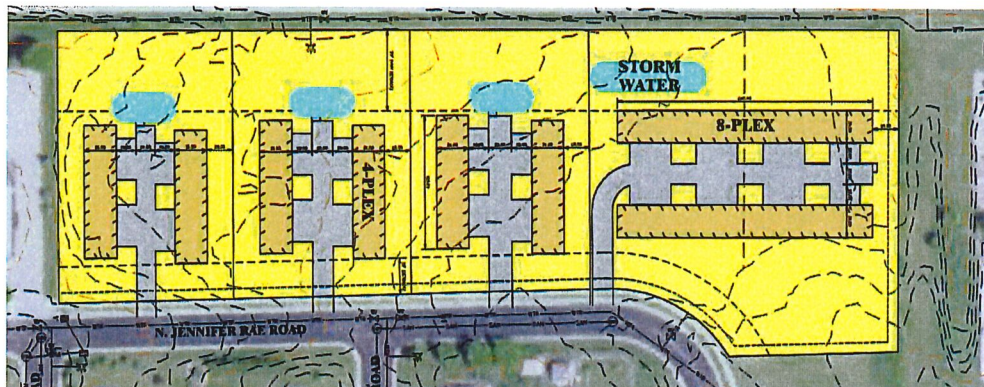
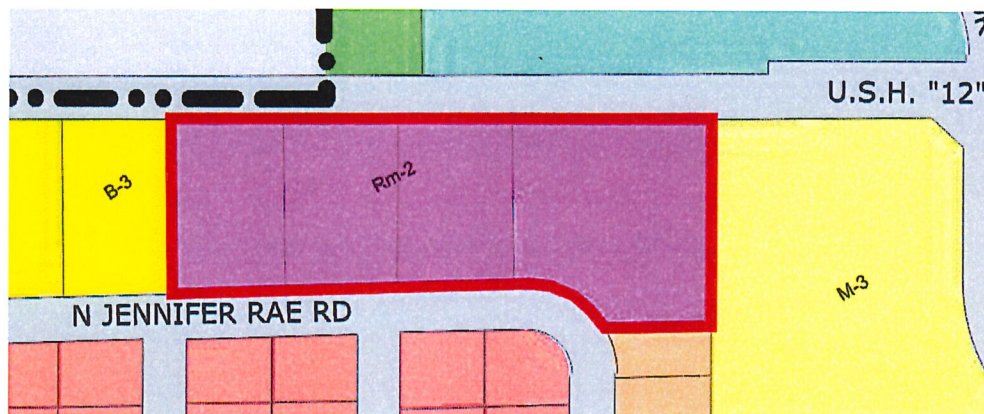
Project No.: 23-0737.19

Re: Concept Plan – Sharondale Multi Family (along STH 12) – Alex Miller

ITEMS MODIFIED FROM FEBRUARY MEETING ARE HIGHLIGHTED IN YELLOW

Concept Plan

Proposed concept plan includes (6) 4-plex buildings and (2) 8-plex buildings, for a total of 40 units. Lots are 1-acre, 1-acre, 1-acre, and 2-acres. **Developer may be combining two west 1-acre parcels to a single 2-acre parcel, as then setback variances would not be needed.** Parcels are in Village limit, currently zoned Rm-2, Multi-Family Residential.



Rm-2 allows 3-unit and 4-unit multiple family units not exceeding 9 dwelling units per net acre (net acre is without public roadway area so the actual lot area). 8-plex units are not allowed in Rm-2 district unless development is a PUD (Sharondale is not a PUD and this area is not large enough to create a PUD). Density on each lot is within allowed density of Rm-2. To develop as proposed, a variance for the 8-plex units would be required.

With combining two west parcels, site plan can meet the typical 24-foot drive lane between two 18-foot parking stalls, or 60-foot garage-to-garage distance required for turning movements.

Storm Water Treatment

- Storm water treatment is provided at regional pond in Sharondale subdivision, discharge allowed to street. Village requirements have increased so supplemental treatment likely required.
- Supplemental treatment, if provided in highway setback areas, would need to be relocated on-site if highway expands.

Water System Impacts

- Anticipated water use is 110 gallons per day per unit (40 gallons per person per day x 2.7 people per home), plus irrigation water. 40 units x 110 gpd/unit = 4,400 gpd plus irrigation water
- Current supply (well capacity) can serve approximately 460 equivalent residential homes, so after full development of proposed concept, 460-40 = approximately 420 units remaining

Wastewater Discharge Impacts

- Current wastewater average flow is 100,000 gpd, anticipated discharge from 40 units is 4,400 gpd which is an additional approximate 4% of current average flow.

Utility Services

- Review how utility billing is anticipated, one meter per lot and one bill per lot is simplest, multiple billing should have multiple meters and public versus private needs to be discussed

MILLER CORNER
T BUCK, INC.
VILLAGE OF ROBERTS, ST. CROIX COUNTY, WI

CONCEPT SITE PLAN



A.C. Architects & Planners, Inc.
408 Technology Drive East
Suite A
Madison, WI 53701
715-252-5490
715-251-5277
a.c.architects.com

| | |
|-----------------------|---------------------|
| CONTRACT NO. | 1800 |
| DRAWING PHASE: | CONCEPT SITE PLAN |
| DRAWN BY: | KLU |
| CHECKED BY: | MDH |
| DATE: | 02/07/22 |
| FOR CONSTRUCTION | NO |
| BD DOCUMENT | NO |
| DWG FILE: | C3-0-Site |
| REF FILE: | 5309-003 |
| JOB NUMBER: | 5309-003 |
| AS-BUILT DOCUMENT | NO |
| REVISION DESCRIPTION: | RELEASED FOR REVIEW |
| NAME: | MDH |
| DATE: | 02/07/22 |



SCALE: 0 75 150 300

DEVELOPER
T BUCK, INC.
634 COMMERCE DR B
HUDSON, WI 54016
715-253-0716

ENGINEER/ARCHITECT
A.C. ARCHITECTS & PLANNERS, INC.
2820 ENCLAVE STREET
HUDSON, WI 54016
715-381-5277

STORM WATER
MANAGEMENT
AREA

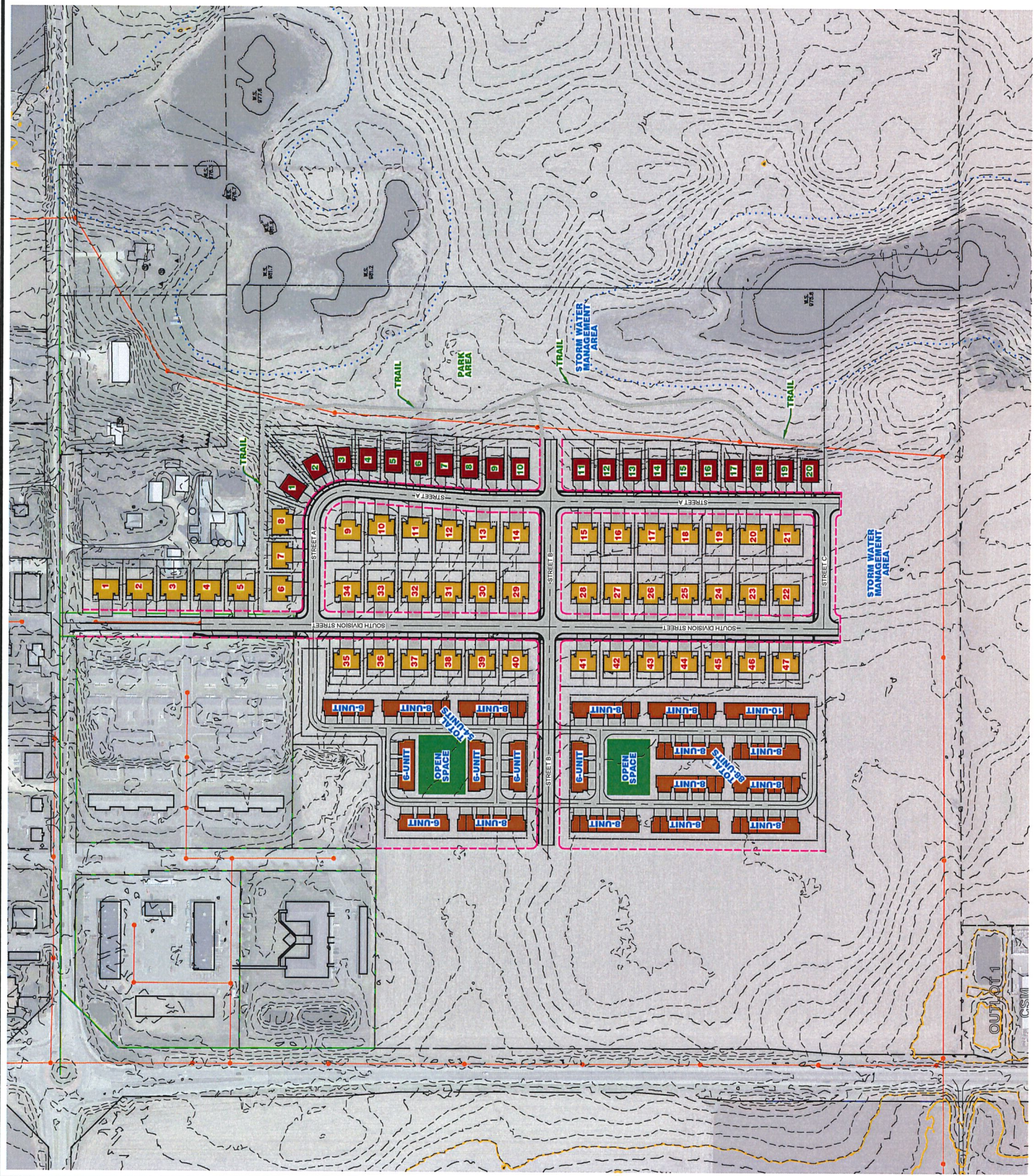
STORM WATER
MANAGEMENT
AREA

STORM WATER
MANAGEMENT
AREA

TRAIL

TRAIL

TRAIL



SITE
14.3 Acres
Required Zoning - R-6 PUD, Rd-2 PUD & Rm-3 PUD

OVERALL SUMMARY

20 Lots
47 Lots (94 Units)
142 Units
5,366 Lined Feet of New Public Streets

R-6 - Single-Family Residential District PUD

Minimum Lot Area = 3.5 Dwelling Units/Net Acre
Minimum Lot Width = 70 ft
Minimum Lot Width = 30 ft
Side Yard Building Setback = 10 ft
Rear Yard Building Setback = 23.5 ft

Rd-2 - Two-Family Residential District PUD

Minimum Lot Area = 4.8 Dwelling Units/Net Acre
Minimum Lot Width = 75 ft
Minimum Lot Width = 30 ft
Side Yard Building Setback = 10 ft
Rear Yard Building Setback = 25 ft

Rm-3 Multiple-Family Residential District PUD

Minimum Lot Area = 12,000 s.f.
Minimum Lot Width = 80 ft
Minimum Lot Width = 30 ft
Side Yard Building Setback = 10 ft
Rear Yard Building Setback = 25 ft

Rd-2 - Two-Family Residential District PUD

Minimum Lot Area = 13,000 s.f.
Minimum Lot Width = 100 ft
Minimum Lot Width = 30 ft
Side Yard Building Setback = 10 ft
Rear Yard Building Setback = 25 ft

Rm-3 Multiple-Family Residential District PUD

Minimum Lot Area = 12,0 Dwelling Units/Net Acre
Minimum Lot Width = 2,420 s.f. / dwelling unit
Minimum Lot Width = 16 ft / unit for townhome
Side Yard Building Setback = 24.5 ft
Rear Yard Building Setback = 24.5 ft

Rd-2 - Two-Family Residential District PUD

Minimum Lot Area = 13,0 Dwelling Units/Net Acre
Minimum Lot Width = 420 s.f. / dwelling unit
Minimum Lot Width = 30 ft
Side Yard Building Setback = 10 ft
Rear Yard Building Setback = 25 ft

DENSITY SUMMARY

R-6
Overall Area = 311,055 sf
ROW Area = 61,824 sf
Net Base Density (20 units) = 3.49 du/ac

Rd-2
Overall Area = 1,002,889 sf
ROW Area = 258,332 sf
Net Base Density (94 units) = 5.51 du/ac
Required Open Space (4.8du/ac) = 109,283 sf

Rm-3
Overall Area = 725,880 sf
ROW Area = 75,437 sf
Net Base Density (142 units) = 8.5 du/ac

Open Space
Overall Area = 728,021 sf
ROW Area = 31,643 sf
Required Open Space = 109,283 sf
Reserve Open Space = 596,895 sf
Units = 755
Density = 4.0 du/ac

MEMORANDUM

To: Roberts Plan Commission

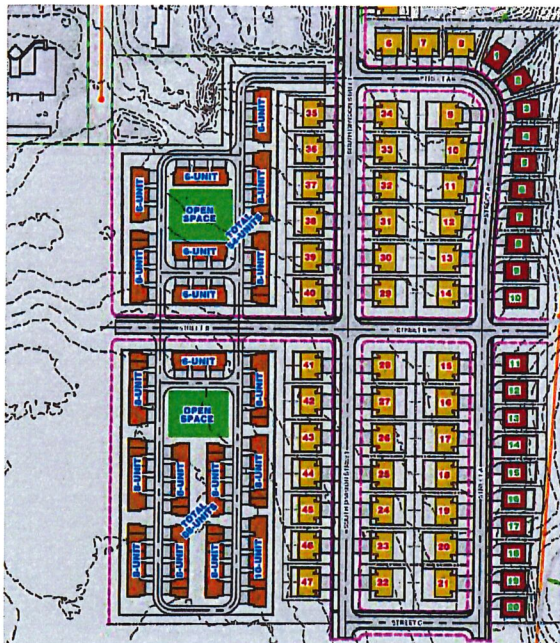
From: Angi Goodwin

Date: March 3, 2022 Meeting

Project No.: 23-0737.19

Re: T-Buck Inc (east of STH 65) – Concept Plan Private versus Public Streets

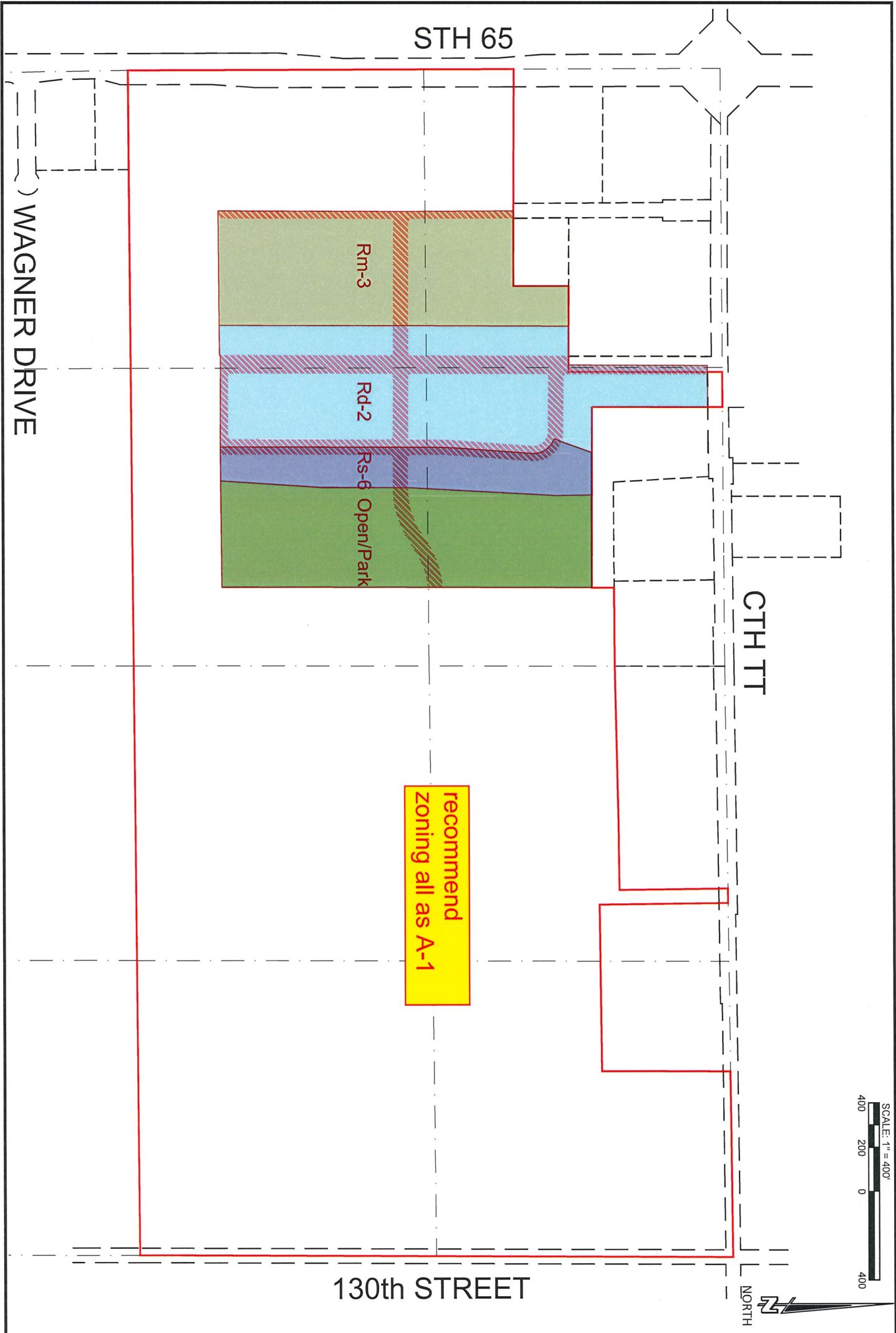
Concept Plan



Private versus Public Streets:

Multi-Family Residential, Rm-3, is shown as one lot with 54-units and one lot with 88-units, with 24-foot-wide private streets. Developer has noted that would like option to subdivide to individual lots and extend public utilities through private streets.

- If public utilities and/or public water metering and/or separate lots are created for individual units/building, recommend that streets are 66-foot R/W public streets that front each lot.
- Fire Department Input (safety and access concerns, public vs private hydrant concerns)
- Police Department Input (safety concerns)



| | | | | | | | | | | |
|---------------------|--|--|---|---|-----------------|--|----------------------|-----------------------|-------|-------|
| SHEET NO. 1 OF 1 | PROJECT: T BUCK, INC. MILLER CORNER VILLAGE OF ROBERTS, ST. CROIX COUNTY, WISCONSIN | |  Auth-Consulting/associates |  S&N Land Surveying | DRAWN BY: DJZ | | | | | |
| | ZONING DESIGNATION MAP | | | | CHECKED BY: | | | | | |
| | | | | | DATE: 01/20/22 | | | | | |
| | | | | | DWG FILE: ANNEX | | | | | |
| | | | | | REF FILE: | | | | | |
| | | | | | | | JOB NUMBER: 5309-003 | REVISION DESCRIPTION: | NAME: | DATE: |

Memo

**SUBJECT**

Local Approvals Requested from Village of Roberts, WI
for Nature Energy US Ventures 3, LLC Project

TO

Megan Dull – Village Clerk

DATE

February 17, 2022

OUR REF

Nature Energy – Roberts, WI

DEPARTMENT

Village of Robert Planning Department

ARCADIS PROJECT NUMBER

30112313

COPIES TO

Louise Skott Kristensen, Nature Energy
William Derrick, Crane I Holdings, LLC

NAME

John Berrigan
(612) 373-0221, John.Berrigan@arcadis.com

Nature Energy US Ventures 3, LLC, a Danish renewable natural gas company, is proposing to develop an anaerobic digester and nutrient recovery facility in Roberts, Wisconsin under the name “Nature Energy Roberts” (further: NER). The proposed facility would use anaerobic digestion to produce renewable natural gas, also referred to as biomethane, from turkey litter and dairy waste, food processing byproducts, and food waste. The renewable natural gas would be injected into the existing natural gas pipeline system. The anaerobic digester process results in nutrient-rich byproducts that would be recovered after digestion to produce three commercial fertilizer products: digestate directly from the anaerobic digester, nutrient water high in nutrients that are readily available for a growing crop, and a high-solids product rich in phosphorus and potassium. Attachment A shows the proposed Site Plan. Project contacts are listed below.

| | | | |
|--------------------|---|--------------------|---|
| Applicant: | Nature Energy US Ventures 3, LLC Louise Skott Kristensen 2550 University Avenue #320s St. Paul, MN 55114 | Engineer: | Arcadis U.S., Inc. John Berrigan 123 N 3 rd St #705 Minneapolis, MN 55401 |
| Site Owner: | Crane I Holdings, LLC William M. Derrick 1505 Hwy 65, P.O. Box 445 New Richmond, WI 54017 | Architect: | TBD |
| | | Contractor: | TBD |

NER is requesting a conditional use permit as described in Section 70-131.A(3)a/b, Municipal Code of the Village of Roberts. An application for the Planning Commission Appeals Review is included as Attachment B. A preliminary Erosion and Sediment Control Plan for construction is included as Attachment C and a photo log of existing conditions is included in Attachment D. NER is also requesting a variance for Building Height, as described in [Section 70-131.A\(5\)a](#), Municipal Code of the Village of Roberts. The Application for Variance is included as Attachment E. A summary of local approval requirements and the corresponding attachment is provided as Attachment F.

The proposed project site is described below.

Local Approvals Requested from Village of Roberts, WI for Nature Energy Roberts, LLC Project
Nature Energy Roberts, LLC
February 17, 2022

- **Abbreviated Legal Description (metes and bounds):** Portions of SEC 22 T29N R18W SE NE EXC CSM 30-6798 ([Parcel No. 176-1070-30-001](#)) and SEC 22 T29N R18W PT NE SE N OF RR EZ-U-1406/207 EZ-U-1540/265 FKA 042-1062-95 ([Parcel No. 176-1070-40-000](#))
- **Subject Site Address:** TBD 130th Street, Roberts, WI 54023
- **Zoning district within which the subject site is located:** The NER site is currently zoned as M-7 Industrial Rail Park District ([Sec. 70-131.A](#)).
- **Abutting property owners of record within 300 feet:**
 - Northern States Power Company, 874 130th St Roberts, WI 54023
 - Ambassador Steel Corporation, 1342 S Grandstaff Dr Auburn, IN 46706
 - Crane I Holdings LLC, 1505 Hwy 65 New Richmond, WI 54017
 - Sharon M Rev Tr Stewart, 750 112th St Roberts, WI 54023
 - Mark D Hamlin, 203 E Graham St Roberts, WI 54023
 - Emily Viertel and Zach Hilgert, 826 130th St Roberts, WI 54023
 - Earl F Pechuman, 1310 Cty Rd Tt Roberts, WI 54023
 - Walter & Elsa Carpenter Family LMTD PT, 9011 High Point Cir Eden Prairie, MN 55347
- **Minimal flood hazard,** as determined by the Federal Emergency Management Agency (Attachment G).

Proposed Operations

The proposed use of the site is the production of renewable natural gas from locally sourced agricultural and food waste using anaerobic digestion. The general process is shown in Attachment H with a general layout illustrated in Attachment I. Details of anticipated operation is included below, and odor, noise, and traffic are discussed in subsequent sections.

- **Proposed Operation of Site:**
 - Continuous monitoring and operations 24 hours, 7 days a week
 - Deliveries occurring primarily Monday – Friday: 6 am to 6 pm; Saturday: 8 am – 2 pm
 - No deliveries on Sunday
- **Number of Employees:** 8-10 employees
- **Proposed structures** are shown in the Site Plan (Attachment A) and include a complete biogas plant with:
 - Administration Building
 - Workshop and storage of spare parts/chemicals
 - Pre-storage and pre-treatment systems
 - Feeding systems for different biomasses
 - Digestion system
 - Digestate separation, post storage tanks, and storage building for fiber fraction
 - Gas cleaning, gas quality check, and odorization
 - Pressurization/compressor station before grid connection
 - Two emergency anaerobic digestion flares
 - Complete odor treatment and ventilation system
 - Production of liquid CO₂
 - Natural gas-fired boiler for heat production
 - Emergency gensets for power backup
- **Anticipated biomass list and truck requirements:**

- Delivery of biomass to the site and transport of digestate and fiber away from the site will account for approximately 90-95 transport trucks per full working day and approximately 40-50 on Saturdays. No transport truck operation will occur on Sundays.
- Biomass will contain various sources including slurry (dairy cattle), deep litter turkeys, food waste, dissolved air floatation, and water.

Odor

Although the raw materials are known to have odor, NER manages these materials indoors and the collected air is treated by the following means:

- Odor from receiving biomass will be minimized by delivering the material into an enclosed loading hall. Buildings with odorous air, such as the loading hall, will be ventilated to keep a small under pressure inside. Fresh heated ventilation air will be blown into the buildings in strategically chosen areas and polluted air will be extracted at the highest points in the buildings. Collected air will be treated with a biological biofilter treatment system.
- Tanks that store the anaerobic digestion byproducts will be ventilated to maintain a small under pressure inside the tanks. The air from the tanks will be treated in a pre-filter before entering the main biological treatment filter, where it will be blended with air extracted from the odorous buildings. This pre-filter will contain seashells for ammonia and hydrogen sulfide (H₂S) removal.
- Treated air from the biological treatment system will be lifted into a 60 m (196.85 ft) high stack (diameter approximately 2.8 m or 9.2 ft) to aid dispersion as it is released to the environment.

The project is not anticipated to generate significant odors during construction.

Noise

Beyond the construction of the proposed facility, NER anticipates that regular operating hours will range from six hours per day on weekends to 12 hours per day during the week, primarily during daytime hours. The process equipment will be enclosed within the biomass plant, with unloading and loading activities in an enclosed loading hall. The process equipment may create daily, sustained noise at steady and continuous low levels.

The proposed facility's location is directly north of the Union Pacific railroad and directly south of Harris Rebar, located in the Roberts Business Park. The closest noise-sensitive receptor (residence) to the proposed facility is located south of the Union Pacific railroad, approximately 300 feet south of the proposed property line. There is an existing tree line buffer along both sides of the railroad. Additional residents are located west of the proposed facility at distances exceeding 1,000 feet. It is anticipated that the 1,000-foot distance between the western edge of the proposed facility and the residences will remain undeveloped. The existing ambient sound is representative of typical sounds from light industrial and rail use.

During construction, noise levels would increase in the area immediately surrounding the proposed facility. The use of equipment will be limited to primarily during daytime hours for the construction of the proposed facility to limit the impact of additional noise.

During operation, the process equipment would be the primary source of facility noise. The noise contribution from the proposed facility is expected to be marginal, considering existing ambient sounds and the tree line between the site and closest noise-sensitive receptor and based on a study conducted by NIRAS A/S for Nature Energy A/S for a similar facility located in Denmark. This study, dated November 23, 2021, calculated the external

noise contributions to eight residential areas or calculation points ranging between 995 and 3,070 feet from the highest noise source within the facility (biofilter chimney, 198 feet high). The representative noise study is included in Attachment J.

Minor noise sources at the facility included pumps, fans, and air intakes. These sources are typically a lower source strength, placed at a low level, and often shielded from the surroundings. Therefore, these sources are not considered significant to the total noise contribution. The maximum noise contribution at night originated primarily from traffic entering and exiting the sites. The maximum was 50 dB (A) at all calculation points.

Traffic

Locally sourced biomass inputs for the anaerobic digesters will be delivered to NER on tank trucks. NER anticipates that trucks delivering liquid biomasses (dairy slurry and food waste) to the site would also take digestate or nutrient water away from the facility. NER estimates that at full production of the facility there will be approximately 90-95 transport trucks per full working day and approximately 40-50 on Saturdays. Transport trucks will not be in operation on Sundays.

NER will work to optimize the truck traffic patterns throughout the design phase to prevent off-site transport truck cueing that may present local traffic issues. It is anticipated that the transport trucks would remain at the facility for approximately 20 minutes, at which point they would deliver biomass to the facility and fill the trucks up with digestate before leaving the site.

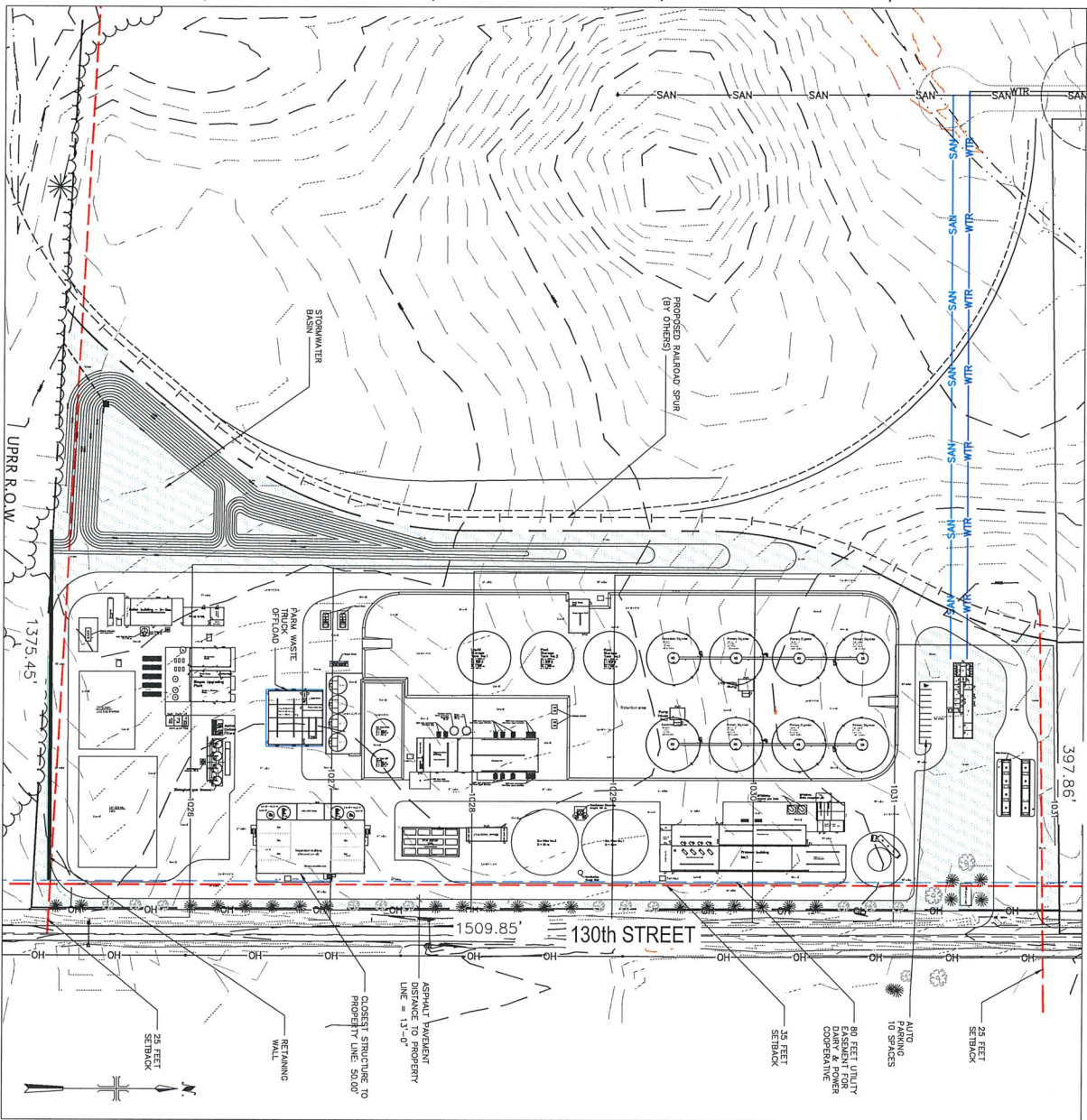
NER will be conducting a further traffic study to identify any potential traffic implications from the facilities required. The study will account for the existing traffic in this region as well as the need to upgrade 130th Street from the traffic circle to the facility entrance. NER will provide this to the Village for consideration when completed.

Enclosed

- Attachment A – Site Plan
- Attachment B – Planning Commission Appeals Review Application
- Attachment C – Erosion and Sediment Control Plan
- Attachment D – Photo Log
- Attachment E – Zoning Board of Appeals Application for Variance
- Attachment F – Local Approval Requirements
- Attachment G – FEMA Map
- Attachment H – General Process Flow Diagram
- Attachment I – General Process Layout
- Attachment J – Representative Noise Study

Attachment A

Site Plan



| LANDSCAPE BUFFER | |
|------------------|----------------------|
| RED MAPLE | ACER RUBRUM |
| WILD PLUM | PRUNUS AMERICANA |
| MOONGLOW JUNIFER | JUNIPERUS SCOPULORUM |
| BLUE ATLAS CEDAR | CEDRUS ATLANTICA |

MARK HAMLIN
PIN 042105300000
EMILY VERTEL
ZACH HILCHUT
PIN 176107030200

ADJACENT PROPERTY OWNERS
AMBAASSADOR STEEL
CORPORATION
PIN 176107030100
GRANE 1 HOLDINGS
LLC
PIN 176107040000
WALTER & ELSA
CARPENTER FAMILY
PIN 042105450000
EARL PECHUWAN
PIN 042105300000

ENGINEER:
ARCADIS
123 NORTH THIRD STREET, SUITE 705
MINNEAPOLIS, MN 55401
JOHN BERKMAN

APPLICANT:
NATURE ENERGY US VENTURES 3, LLC
2550 UNIVERSITY AVE. #5208
ST. PAUL, MN 55114
LOUISE SKOTT KRISTENSEN
OWNER/OVERSEER:
CRANE HOLDINGS LLC
1505 HWY 55, PO BOX 445
NEW RICHMOND, WI 54017
WILLIAM W. DERRICK

PROJECT NAME: NATURE ENERGY BLOCKS PRODUCTION FACILITY
LOCATION: 130TH STREET, BENSON, WI
LATITUDE 44.98 LONGITUDE -92.54
PROPERTY SIZE: 22.55 ACRES
PROPERTY ZONING: M-7 (INDUSTRIAL, RAIL PARK DISTRICT)
ADJACENT ZONING: M-7 AGRICULTURAL
CURRENT PROPERTY USE: INDUSTRIAL
PROPOSED PROPERTY USE: INDUSTRIAL
PROPOSED PROCESS TANKS & EQUIPMENT
NUMBER OF EMPLOYEES: 10 TOTAL
ZONING LIMITATIONS:
OFFSTREET PARKING: PROVIDED
LOADING: 3 10
FRONT YARD: 35 FT 35 FEET
SIDE/REAR YARD: 25 FEET 25 FEET
SURFACE PAVEMENT: ASPHALT
BUILDING MATERIALS: STEEL FRAMES AND PROCESS EQUIPMENT
STRUCTURE ELEVATIONS: VARIES FROM 10 FEET TO 35 FEET
UTILITIES:
WATER: AVAILABLE
SEWER: AVAILABLE
GAS: AVAILABLE
STORMWATER: DETENTION BASIN - 60,000SF/300,000GAL
FLOOD ZONE: ZONE X - AREA OF MINIMAL FLOOD HAZARD
SITE SOILS: S1B SATIRE SILT
SITE LIGHTING: POLE MOUNTED LED FIXTURES WITH DOWN LIGHT
FEATURES TO PREVENT LIGHT SPREAD OFF THE SITE.



LEGAL ENTITY:
ARCADIS U.S. INC.

CONSULTANTS

SCALE

NOT FOR CONSTRUCTION

NATURE ENERGY US VENTURES 3, LLC



ROBERTS, WI FACILITY

ARCADIS PROJ. NO. 3011249

COPYRIGHT: ARCADIS U.S. INC. 2019

DATE: FEBRUARY 2022

PROJECT NO.: 30112313

FILE NAME: ROBERTS C-100-6

DESIGNED BY: F. RAMPS

DRAWN BY:

CHECKED BY:

SHEET TITLE

SITE
LAYOUT
PLAN

C-100-6

SHEET 6 OF 6

2-15-22

Attachment B

Planning Commission Appeals Review Application



VILLAGE OF ROBERTS

| | | |
|---|--|--|
| Applicant's Name: | Nature Energy US, LLC Louise Skott Kristensen | Telephone No. (651) 319-2598 Fax No. NA |
| Address: | 2550 University Avenue #160 St. Paul, MN 55114 | |
| Property Owner: | Crane I Holdings, LLC William M. Derrick | Telephone No. Fax No. |
| Address: | 1505 Hwy 65, P.O. Box 445 New Richmond, WI 54017 | |
| **Request for: Zoning District Change (\$75) Special Use Permit (\$75) X Conditional Use Permit (\$100) Above may include advertising costs. Status of Applicant: Owner Agent X Buyer Other | | |
| Certified Survey Map Approval (\$75) X Board of Appeals (\$100) Other _____ | | |
| Present Zoning: | M-7 Industrial Rail Park District | Zoning Requested: NA |
| Uses Proposed: | Development and operation of an anaerobic digester and nutrient recover facility | |
| Acreage(s): | 22.55 AC | |
| Location: | TBD 130th Street, Roberts, WI 54023 | |
| Parcel I.D. Number | Portions of Parcel No. 176-1070-30-001 and Parcel No. 176-1070-40-000 | |
| Legal Description: | Portions of SEC 22 T29N R18W SE NE EXC CSM 30-6798 and SEC 22 T29N R18W PT NE SE N OF RR EZ-U-1406/207 EZ-U-1540/265 FKA 042-1062-95 | |
| The undersigned applicant or representative, thereof, certifies that he/she is familiar with the State and local code applicable to this request, the procedural requirements of the Village and/or Township, and all other application Village ordinances. | | |
| Signature of Applicant/Representative: | | |
| (print) | LOUISE SKOTT KRISTENSEN | Date 17.02.2022 |
| (signature) | | Date 17.02.2022 |
| Application received by: | Date | |
| Fees Paid and Date: | | |
| Zoning District Change | \$ _____ | Date _____ |
| Special Use Permit | \$ _____ | Date _____ |
| Conditional Use Permit | \$ _____ | Date _____ |
| Board of Appeals | \$ _____ | Date _____ |
| Other | \$ _____ | Date _____ |
| 2/17/22 **All fees listed above are subject to a \$500 down payment to cover other fees incurred with this request. This will cover any publishing, legal and engineering fees associated with this project. If needed refunds or invoices will be sent once final bills are submitted. | | |

Attachment C

Erosion and Sediment Control Plan

Nature Energy Biogas

Erosion and Sediment Control Plan

**Biogas Facility Project
Roberts, Wisconsin**

February 2022



Erosion and Sediment Control Plan

**Biogas Facility Project
Roberts, Wisconsin**

February 2022

Prepared By:

Arcadis U.S., Inc.
123 North Third Street, Suite 705
Minneapolis
Minnesota 55401
Phone: 612 339 9434
Fax: 612 336 4538

Prepared For:

Village of Roberts
107 E Maple Street
Roberts, WI 54023

Our Ref: 30112313

1 Project Description

Nature Energy Biogas US Ventures 3, LLC, a Danish bio-fermentation company, is proposing to develop an anaerobic digester and nutrient recovery facility in Roberts, Wisconsin under the name "Nature Energy Roberts" (further: NER). The proposed facility would use anaerobic digestion to produce renewable natural gas, also referred to as biomethane, from turkey litter and dairy waste, food processing byproducts, and food waste. The renewable natural gas would be injected into the existing natural gas pipeline system. The anaerobic digester process results in nutrient-rich byproducts that would be recovered after digestion to produce three commercial fertilizer products: digestate directly from the anaerobic digester, nutrient water high in nutrients that are readily available for a growing crop, and a high-solids product rich in phosphorus and potassium.

Part of the local approvals requirements to develop, construct, and operate this facility include the preparation of an erosion and sediment control plan. A detailed discussion of the site-specific applicable standards and erosion and sediment control best management practices are discussed below.

2 Performance Standards Applicable to Site

The outline for the organization of this Site Erosion and Sediment Control Plan follows the Wisconsin Department of Natural Resources (WDNR) requirements as described in NR 216.46 Erosion control plan requirements under subch. III of ch. NR 216, Wis. Adm. Code. A copy of the erosion control plan requirements is provided as an attachment (see Appendix A).

The following construction site erosion control plan meets the applicable performance standard in s. NR 151.11, Wis. Adm. Code for construction sites that are not transportation facilities.

2.1 Proposed Project Site Description

2.1.1 Site location

Nature Energy Roberts will be located within the Industrial Rail Park District in the Village of Roberts, WI. The site is bordered by 130th street on the east, Union Pacific Rail Road (UPRR) on the south, empty land on the west, and developed sites on the north. Approximate latitude and longitudes is 44.984607, -92.538955 respectively.

2.1.2 Total area of the site and total area of the construction site that is expected to be disturbed by construction activities.

A map showing the location of the proposed project site and the limits of land disturbance on a USGS 7.5-minute series topographical map can be found in Appendix B. The total area of the site is approximately 23 acres. Due to the size of the proposed parcel, most of the project site will be disturbed.

2.1.3 Surface Soil and Subsurface Soil Description

Soils characteristics were identified and retrieved using the U.S. Department of Agriculture, Natural Resource Conservation Service's (USDA NRCS's) [Web Soil Survey](http://www.nrcs.usda.gov/soilweb/). This is an online resource providing soil data and

information produced by the National Cooperative Soil Survey. Additionally, the most recent published soils surveys by the USDA NRCS for St. Croix County, Wisconsin were consulted.

The proposed project site consists of six different mapped soil series, described below.

- The Arland series consists of moderately deep, well drained soils formed in 50 to 100 centimeters of till underlain by sandstone bedrock. These soils are on knolls, ridge tops, and side slopes of glaciated bedrock-controlled uplands. Slope ranges from 6 to 12%.
- The Jewett series consists of well drained soils that are moderately deep to a densic contact with till. These soils formed in a mantle of wind or water laid loamy deposits in the underlying reddish dense loamy glacial till on ground moraines. Permeability is moderate in the silty and loamy mantle, slow or moderately slow in the till subsoil, and slow in the substratum. Slopes range from 2 to 6%.
- The Nickin series consists of very deep, well drained soils that are moderately deep to siliceous sandy pedisegment or residuum. These soils formed in a mantle of wind or water-laid loamy deposits; in loamy till; and in the underlying siliceous sandy pedisegment or residuum on hills. Permeability is moderate in the loamy mantle and in the till; moderately rapid or rapid in the sandy part of the subsoil; and rapid or very rapid in the substratum. Slopes range from 2 to 6%.
- The Onamia-Antigo series consists of very deep, well drained soils formed in 50 to 100 centimeters of loess or silty alluvium and in loamy alluvium and in the underlying stratified sandy outwash. These soils are on outwash plains, stream terraces, eskers, kames, glacial lake plains, and moraines. Slope ranges from 6 to 12%.
- The Saprists and aquents series consists of very poorly drained soils consisting of organic material and drift as parent material. These soils are on depressions of flood plains, and drainageways on flood plains. Slope ranges from 0 to 2%.
- The Sattre series consists of very deep, well drained soils that formed in 50 to 100 centimeters of loamy alluvium and the underlying sandy and gravelly sediments. These soils are on outwash areas and on treads and risers on stream terraces in river valleys. Slope ranges from 2 to 6%.

A review of the U.S. Geological Survey (USGS) [Mineral Resource Online Spatial Data](#) identified that the Project is located on a carbonate karst as part of the Ancell Group from the Ordovician period. Topographically, elevations above mean sea level across the project site range from approximately 1,020 feet to 1,040 feet.

2.1.4 Land Disturbance and Sequence of Construction Activities

The project will be completed in a manner that minimizes the potential for erosion and sedimentation during the proposed construction and allows for effective restoration of disturbed areas. A site map with property lines, disturbed limits, drainage patterns, and limits of land disturbance is included in Appendix C.

Construction activities will begin upon approval of the required permits and construction is anticipated to consist of the following general sequence/activities:

- **Clearing and Grading:** a contractor will be selected to complete the installation of stormwater best management practices prior to any ground disturbing activities. Construction will commence with removing obstacles if needed (large rocks, tree branches, brush, and logs) and grading the disturbance area to smooth any abrupt changes in ground contour as needed.
- **Excavation/Rip Rap Placement:** excavation of the trench to install pipelines, excavation to create the stormwater pond. This step will also involve the construction of the rip rap culvert pipe ditch check.

- **Construction of the Biogas Plant**
- **Backfilling and Grade Restoration:** repair and replacement of spoils within excavated trenches and removal of extra spoils from the workspaces.
- **Cleanup and Restoration:** disturbed areas will be graded, and debris will be properly disposed of.

Construction equipment will consist of standard construction equipment (e.g., backhoe) and local and commercially available construction materials (e.g., Wisconsin Department of Transportation (WDOT) sized heavy rip rap).

2.1.5 Name of immediate named receiving water from the United States geological service 7.5-minute series topographic maps

The nearest receiving water for the Roberts site is an Unnamed open water feature to the southwest of the site. The distance from the southwest corner of the site to the "unnamed open water feature" is approximately 1500 feet. The nearest named receiving water are the Twin Lakes, approximately 7250 feet southwest of the proposed project site.

2.2 Erosion and Sediment Control Plan

2.2.1 Erosion Control Plan Site Map

The Construction Site Erosion Control Plan Site Map, shown in Appendix C, includes the following:

- i. Existing topography and drainage patterns, roads and surface waters.
- ii. Boundaries of the construction site.
- iii. Drainage patterns and approximate slopes anticipated after major grading activities.
- iv. Areas of soil disturbance.
- v. Location of major structural and non-structural controls identified in the construction site erosion control plan.
- vi. Location of areas where stabilization practices will be employed.
- vii. Areas that will be vegetated following land disturbing construction activities.
- viii. Area and location of wetland acreage on the construction site and locations where storm water is discharged to a surface water or wetland within one-quarter mile downstream of the construction site.
- ix. Areas used for infiltration of post-construction storm water runoff.
- x. An alphanumeric or equivalent coordinate system for the entire construction site.

2.2.2 Erosion and Sediment Control Best Management Practices

The construction site erosion control plan includes descriptions below of appropriate erosion and sediment control BMPs that will be installed and maintained at the construction site to prevent pollutants from reaching waters of the State of Wisconsin. Erosion and sediment control BMPs will be implemented in accordance with s. NR 151.11, Wis. Adm. Code, for construction sites that are not transportation facilities.

Contractor shall install appropriate erosion control measures as the first construction activity and these measures shall include:

- Adjust or add silt fence as needed to prevent sediments from leaving the construction site.
- Install silt fence as needed around any temporary soil storage piles.
- Install a stone tracking pad to ensure vehicles that drive over exposed soil exit along the full length of the pad. Use hard, durable, angular stone or recycled concrete meeting the gradation in WI Standard Specification, Section 312, Select Crushed Material. Use material substantially free from dirt, debris, steel, vegetable matter, and other deleterious material.
- Remove and replace aggregates when voids become filled with sediment or if surface openings become plugged so that tracking area does not function.
- All waste and unused building material shall be removed from the site and disposed of and not allowed to be carried off by stormwater runoff.
- Stormwater pond may be used as sediment basin during construction. Any accumulated sediment shall be removed before final pond restoration. The entrance of the stormwater pond shall be protected from further sedimentation after the restoration of stormwater ponds has been completed.
- Riprap and ditch check shall be placed at discharge locations to serve as velocity dissipation devices and to provide a non-erosive flow from the structure to a watercourse.
- Install Inlet protection where they occur.
- Supply erosion control mat as per WI DOT Product Acceptability List (PAL) requirements. Install erosion control mat as per manufacturer's specifications.
- All disturbed areas left for more than 14 days shall be stabilized with seed and mulch for prevent erosion.
- Topsoil shall be supplied and installed in accordance with WI DOT standard specifications for highway and structure construction, section 625.
- Seed, mulch, and fertilize all disturbed areas over 5 inches of topsoil.
- Seeding shall be seed mixture No. 40 as per Wisconsin Department of Transportation (WI DOT) standard specifications for highway and structure construction, latest edition.
- Seed shall be sown in accordance with WI DOT standard specifications for highway and structure construction, section 630.3 either method A or B.
- Seed mulch shall be in accordance with WI DOT standard specifications for highway and structure construction, section 627.2.
- Seed mulch shall be applied in accordance with WI DOT standard specifications for highway and structure construction, section 627.3.2, method B or C.
- The contractor shall follow all practices as defined in the WI DNR Technical standards for Construction Site Erosion and Sediment Control Standards.

2.2.3 Inspections

Qualified inspectors will provide inspection to ensure compliance with the Erosion and Sediment Control Plan. Inspection will occur weekly, and within 24 hours following a rainfall of 0.5 inches or greater. Written documentation of each inspection will be maintained at the construction site and will include the time, date and location of inspection, the phase of land disturbance at the construction site, person conducting the inspection, assessment of control practices, and a description of any erosion or sediment control measure installation or maintenance performed in response to the inspection.

Appendix A

Wisconsin Department of Natural Resources, NR 216.46 Erosion control plan requirements

road shoulder grading, the activity is not regulated under this subchapter.

(8) **ROUTINE MAINTENANCE.** Routine maintenance for project sites that involve under 5 acres of land disturbance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility is not regulated under this subchapter.

(10) **OIL AND GAS INDUSTRY.** Storm water discharges from construction sites that disturb from one to 5 acres of land and that are associated with construction activity at oil and gas exploration, production, processing or treatment operations or transmission facilities are exempt from this subchapter until March 10, 2005.

(11) **QUARTER MILE SEPARATION.** Where discrete construction projects within a larger common plan of development or sale are located at least 1/4 mile apart and the area between the projects is not being disturbed, each individual project may be treated as a separate plan of development or sale provided any interconnecting road, pipeline or utility project that is part of the same "common plan" is not concurrently being disturbed.

History: CR 03-028: cr. Register July 2004 No. 583, eff. 8-1-04; correction in (4), (9) made under s. 13.92 (4) (b) 6., 7., Stats., Register December 2011 No. 672; CR 19-053: r. (4), (5), (9) Register January 2020 No. 769, eff. 2-1-20.

NR 216.43 Notice of intent requirements. (1) **FORMS.** The landowner shall submit a notice of intent to the department on forms available from the department. Data submitted in the notice of intent forms shall be used as a basis for conferring coverage under a WPDES storm water permit.

Note: The notice of intent form is available from the department website at <http://dnr.wi.gov/topic/Stormwater/construction/forms.html> or by contacting the storm water program in the bureau of watershed management at (608) 267-7694.

(2) **APPLICATION FEE.** A storm water construction site application fee defined by Table 5 shall be submitted to the department with the notice of intent.

Table 5

| Acres of Land Disturbance | Application Fee |
|----------------------------|-----------------|
| Less than 5 | \$140 |
| 5 or more and less than 25 | \$235 |
| 25 or greater | \$350 |

(3) **SIGNATURE REQUIREMENTS.** The notice of intent form shall be signed by the landowner as follows:

(a) In the case of a corporation, by a principal executive officer of at least the level of vice president or by the officer's authorized representative having overall responsibility for the operation of the site for which a permit is sought.

(b) In the case of a limited liability company, by a member or manager.

(c) In the case of a partnership, by a general partner.

(d) In the case of a sole proprietorship, by the proprietor.

(e) For a unit of government, by a principal executive officer, ranking elected official or other duly authorized representative.

History: CR 03-028: cr. Register July 2004 No. 583, eff. 8-1-04.

NR 216.44 Notice of intent deadline. (1) Except as provided under sub. (3), a landowner required to obtain WPDES permit coverage for storm water discharges from a construction site shall submit a completed notice of intent, via certified or registered mail, in accordance with the requirements of this subchapter. The notice of intent shall be submitted so that it is received by the department at least 14 working days prior to the commencement of any land disturbing construction activities. Unless notified by the department to the contrary, a landowner who has submitted a notice of intent in accordance with the provisions of this subchapter is authorized to discharge storm water from a construction site under the terms and conditions of the general construction site storm water discharge permit 14 working days after the date that the department receives the notice of intent or upon receipt of notification from the department that the construction site is covered under the general construction site discharge permit. The landowner becomes the permittee once the construction site is authorized permit coverage.

(2) A site-specific erosion control and storm water management plan pursuant to ss. NR 216.46 and 216.47 shall be completed by the landowner prior to submitting the notice of intent to the department under sub. (1) and shall be updated as appropriate pursuant to s. NR 216.50. The erosion control and storm water management plans shall be submitted to the department upon request so that it may evaluate whether the plans comply with ss. NR 216.46 and 216.47. The department may withhold permit coverage as necessary until it verifies that the plans comply with ss. NR 216.46 and 216.47.

Note: The department encourages landowners and their representatives to consult with the department's regional storm water staff prior to local plan approval on the conceptual plans for erosion control and storm water management. Contact information for department regional storm water staff is available from the department website at <http://dnr.wi.gov/topic/stormwater/contacts.html> or by contacting the storm water program in the bureau of watershed management at (608) 267-7694.

(3) If the construction site is located in an area regulated by an authorized local program pursuant to s. NR 216.415, the landowner shall apply for storm water discharge approval to the authorized local program.

History: CR 03-028: cr. Register July 2004 No. 583, eff. 8-1-04.

NR 216.45 Incomplete notice of intent and time limit for department decision. (1) Within 14 working days after the date the department receives the notice of intent, the department may require an applicant to submit data that the department has identified as being necessary to complete any deficient notice of intent or may require the applicant to submit a complete new notice of intent when the deficiencies are extensive or the appropriate form has not been used.

(2) The department shall refund to the applicant the stormwater construction site storm water discharge permit application fee paid under s. NR 216.43 (2) if the department does not make a determination on the permit application within 45 business days of receipt of the information required under sub. (1). In this subsection, "business day" means any day except Saturday, Sunday and state holidays as designated in s. 230.35 (4) (a), Stats. This subsection does not apply to permit applications related to mining, as defined in s. 293.01 (9), Stats., prospecting, as defined in s. 293.01 (18), Stats., or nonmetallic mining, as defined in s. 295.11 (3), Stats.

History: CR 03-028: cr. Register July 2004 No. 583, eff. 8-1-04.

NR 216.455 Proof of permit coverage. (1) A copy of the notice of intent or other documentation that storm water discharges from the site are covered under a construction site storm water discharge permit shall be kept with building plans on the construction site and with the landowner.

(2) The permittee shall post a permit certificate in a conspicuous place on the construction site. The department shall make a permit certificate available. An authorized local program under s. NR 216.415 may make its own permit certificate or equivalent notice for posting.

History: CR 03-028: cr. Register July 2004 No. 583, eff. 8-1-04.

NR 216.456 Responsible parties. (1) The permittee or landowner required to submit a notice of intent under this subchapter is responsible for complying with this subchapter.

(2) An operator shall comply with this subchapter where the operator has a contract or other agreement with the landowner to meet the requirement.

Note: General contractors, landscape architects, project designers and inspectors are responsible for the particular services that they provide to a landowner to comply with the requirements of this subchapter.

History: CR 03-028: cr. Register July 2004 No. 583, eff. 8-1-04.

NR 216.46 Erosion control plan requirements. (1) **SITE-SPECIFIC PLAN.** The permittee or landowner required to submit a notice of intent under this subchapter shall develop a

site-specific erosion control plan for each construction site regulated by this subchapter. The permittee or landowner required to submit a notice of intent under this subchapter, or their representative, shall implement and maintain as appropriate all best management practices specified in the erosion control plan from the start of land disturbing construction activities until final stabilization of the construction site.

(2) **PERFORMANCE STANDARDS.** The construction site erosion control plan shall meet the applicable performance standards in either s. NR 151.11 for construction sites that are not transportation facilities or s. NR 151.23 for transportation facility construction sites.

Note: Pursuant to s. NR 151.32 (2), the department maintains a list of technical standards that it has determined adequate and effective for designing best management practices to control erosion and sediment runoff. Contact the department storm water program in the Bureau of Watershed Management at (608) 267-7694 to obtain a copy of this list. Transportation facilities regulated under ch. Trans 401 generally have a 2-step plan development process of an erosion control plan (ECP) that contains design requirements and then development of an erosion control implementation plan (ECIP) that includes implementation details. This subchapter requires an erosion control plan that is equivalent to the ch. Trans 401 ECP and ECIP plans put together.

(3) **PLAN COMPLETION.** The erosion control plan shall be completed prior to the submittal of a notice of intent to the department and shall be updated as appropriate pursuant to s. NR 216.50.

(4) **REQUIRED INFORMATION.** The construction site erosion control plan shall include, at a minimum, the following items:

(a) Description of the construction site and the nature of the land disturbing construction activity, including representation of the limits of land disturbance on a USGS 7.5-minute series topographical map.

(b) Description of the intended sequence of major land disturbing construction activities for major portions of the construction site, such as grubbing, excavation or grading.

(c) Estimates of the total area of the construction site and the total area of the construction site that is expected to be disturbed by land disturbing construction activities.

(d) Available data describing the surface soil as well as subsoils.

(e) Wherever permanent infiltration devices will be employed or were evaluated, the depth to the nearest seasonal high groundwater elevation or top of bedrock shall be identified as outlined in s. NR 216.47 (3).

(f) Name of immediate named receiving water from the United States geological service 7.5-minute series topographic maps.

(5) **SITE MAP REQUIREMENTS.** Each construction site map shall include all of the following:

(a) Existing topography and drainage patterns, roads and surface waters.

(b) Boundaries of the construction site.

(c) Drainage patterns and approximate slopes anticipated after major grading activities.

(d) Areas of soil disturbance.

(e) Location of major structural and non-structural controls identified in the erosion control plan.

(f) Location of areas where stabilization practices will be employed.

(g) Areas that will be vegetated following land disturbing construction activities.

(h) Area and location of wetland acreage on the construction site and locations where storm water is discharged to a surface water or wetland within one-quarter mile downstream of the construction site.

(i) Areas used for infiltration of post-construction storm water runoff.

(j) An alphanumeric or equivalent grid overlying the entire construction site.

(6) **EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES.** The erosion control plan shall include a description of appropriate erosion and sediment control best management practices that will be installed and maintained at the construction site to prevent pollutants from reaching waters of the state. The erosion control plan shall clearly describe the appropriate erosion and sediment control best management practices for each major land disturbing construction activity and the timing during the period of land disturbing construction activity that the erosion and sediment control best management practices will be implemented. The description of erosion and sediment control best management practices shall include the following requirements:

(a) Description of any interim and permanent stabilization practices, including a schedule for implementing the practices. The erosion control plan shall ensure that existing vegetation is preserved where attainable and that disturbed portions of the construction site are stabilized.

(b) Description of any structural practices to divert flow away from exposed soils, store flows or otherwise limit runoff and the discharge of pollutants from the construction site. Unless otherwise specifically approved in writing, structural measures shall be installed on upland soils.

(c) Management of overland flow at all areas of the construction site, unless otherwise controlled by outfall controls.

(d) Trapping of sediment in channelized flow.

(e) Staging land disturbing construction activities to limit exposed soil areas subject to erosion.

(f) Protection of downslope drainage inlets where they occur.

(g) Minimization of tracking at all vehicle and equipment entry and exit locations of the construction site.

(h) Clean up of off-site sediment deposits.

(i) Proper disposal of building and waste material.

(j) Stabilization of drainage ways.

(k) Installation of permanent stabilization practices as soon as possible after final grading.

(L) Minimization of dust to the maximum extent practicable.

(7) **MATERIAL.** No solid materials, including building materials, may be discharged in violation of ch. 30 or 31, Stats., or 33 USC 1344 or an U.S. army corps of engineers section 404 permit issued under 33 USC 1344.

(8) **NON-EROSIVE FLOW.** Velocity dissipation devices shall be placed at discharge locations and along the length of any outfall channel as necessary to provide a non-erosive flow from the structure to a watercourse so that the natural physical and biological characteristics and functions are maintained and protected.

(9) **INSPECTIONS.** The landowner, or the landowner's representative, shall inspect erosion and sediment control practices weekly, and within 24 hours following a rainfall of 0.5 inches or greater. Written documentation of each inspection shall be maintained at the construction site and shall include the time, date and location of inspection, the phase of land disturbance at the construction site, person conducting the inspection, assessment of control practices, and a description of any erosion or sediment control measure installation or maintenance performed in response to the inspection.

History: CR 03-028: cr. Register July 2004 No. 583, eff. 8-1-04.

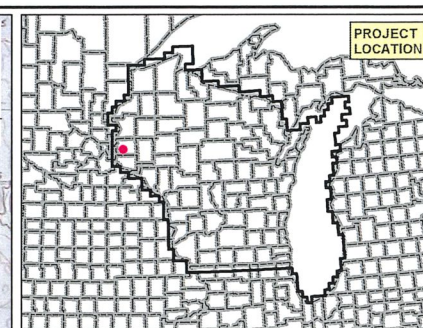
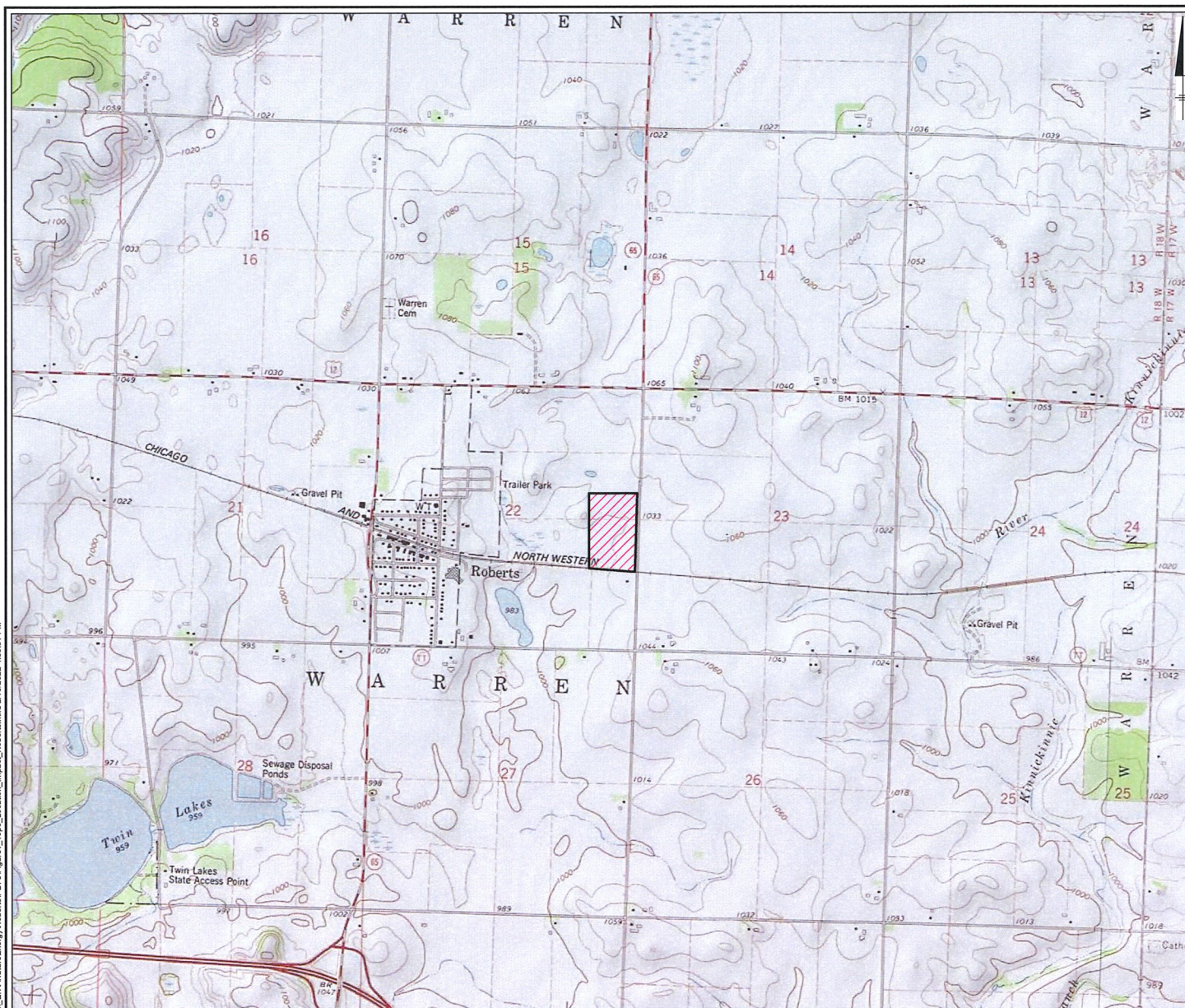
NR 216.47 Storm water management plan requirements. Pollution caused by storm water discharges from the construction site after construction is completed, including rooftops, parking lots, roadways and the maintenance of grassed areas, shall be addressed by a storm water management plan. A storm water management plan shall be developed prior to submitting a notice of intent to the department and shall comply with all of the following:


(1) **PERFORMANCE STANDARDS.** The storm water management plan shall meet the applicable performance standards in either s.

Appendix B

Project Location

City: CN DWGroup: EPP Created By: AGoodall Last Saved By: AGoodall
T:\ENV\NatureEnergy\Roberts\PE\Figure1_topo_Location_Impact_Roberts.mxd 21/02/2022 4:55:31 PM



Legend
 Approximate Limits of Land Disturbance

0 1,000 2,000
Feet

GRAPHIC SCALE

0 250 500
Meters

GRAPHIC SCALE

NOTE:
1. 2013 NATIONAL GEOGRAPHIC SOCIETY

NATURE ENERGY BIOGAS US VENTURES 3, LLC
EROSION AND SEDIMENT CONTROL PLAN
ROBERTS, WISCONSIN

Project Location

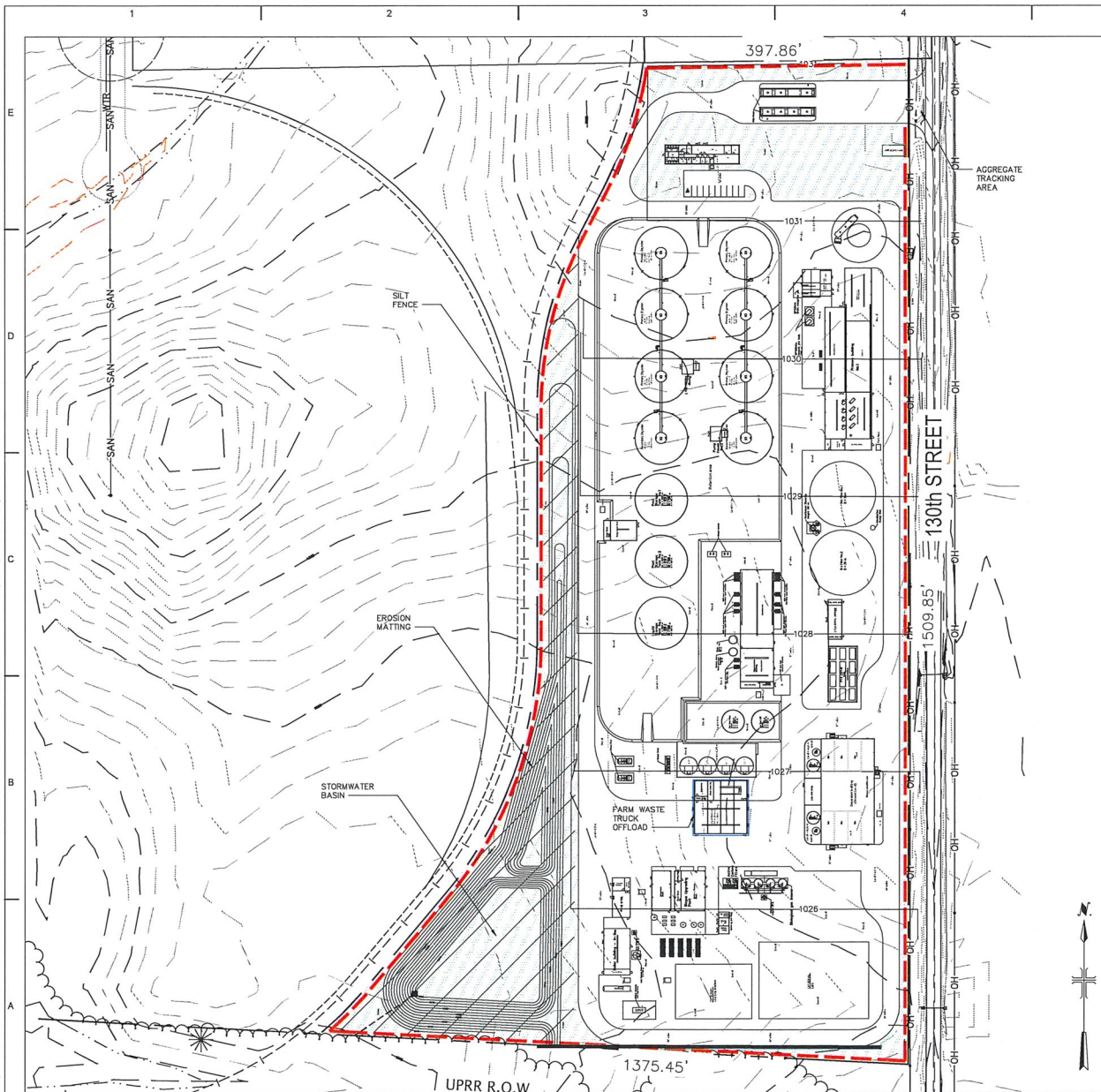
 **ARCADIS**

Attachment
B

Appendix C

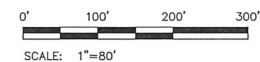
Site Plan

\\user\ramps\proj\13011249\13011249-ROBERTS E&SC PLAN.DWG Sub 11 2-14-2022 2:10:02 PM 08/05 Plot Date: Ramps, Frank 2/10/2022 08:06 Layout: V0017



E&SC NOTES

1. CONTRACTOR TO INSTALL AGGREGATE TRACKING AREA AT THE NORTHEAST ENTRANCE TO THE SITE.
2. CONTRACTOR TO INSTALL SILT FENCE AROUND THE PERIMETER OF THE SITE PRIOR TO STARTING CONSTRUCTION ACTIVITIES.
3. CONTRACTOR TO INSTALL EROSION MATTING CLASS 1, TYPE B DOUBLE NET STRAW BLANKET OVER ALL SLOPES IN THE STORMWATER BASIN AND UPSTREAM SWALE.



LEGAL ENTITY:
ARCADIS U.S., INC.

CONSULTANTS

SEALS

NOT FOR CONSTRUCTION

NATURE ENERGY US VENTURES 2, LLC



ROBERTS, WI FACILITY

ARCADIS PROJ. NO. 30111249

| NO. | DATE | CLIP REVIEW | FR |
|-----|-----------|-------------|----|
| 0 | 2-14-2022 | | |

COPYRIGHT: ARCADIS U.S., INC.
2018

DATE: FEBRUARY 2022

PROJECT NO.: 30112313

FILE NAME: ROBERTS E&SC PLAN

DESIGNED BY: F. RAMPS

DRAWN BY:

CHECKED BY:

SHEET TITLE

SITE
SEDIMENT &
EROSION CONTROL
PLAN

SCALE:

ESCP

SHEET ____ OF ____

Arcadis U.S., Inc.
123 North Third Street, Suite 705
Minneapolis
Minnesota 55401
Phone: 612 339 9434
Fax: 612 336 4538
www.arcadis.com

Attachment D

Photo Log

Photograph Log

Nature Energy Roberts – Proposed Site



Photograph 1: Nature Energy Site Photo 2 2022 18 Jan



Photograph 2: Nature Energy Site Photo 2 2021 13 Sep



Photograph 3: Nature Energy Site Photo 1 2022 18 Jan



Photograph 4: Nature Energy Site Photo 1 2021 13 Sep

Attachment E

Zoning Board of Appeals Application for Variance

| |
|----------------------------------|
| Date Draft Submitted _____ |
| Date Application Submitted _____ |
| Fee Paid _____ |

Application for Variance

Owner (must be the applicant) Nature Energy US Ventures 3, LLC, Louise Skott Kristensen

Parcel Address TBD 130th Street, Roberts, WI 54023

Parcel Number Portions of Parcel Nos. 176-1070-30-001 and 176-1070-40-000

Owner Address 2550 University Avenue #160, St. Paul, MN 55114 Daytime Phone (651) 319-2598

Present Use of the Property Vacant

Zoning Classification M-7 Industrial Park District

The following items must be submitted with each application. Additional site plan information as described in Section 70-325 may be required by the Zoning Administrator (Ordinance section referenced in this application are available upon request):

(1) **Map of the property showing the following:**

- Entire property
- All lot dimensions
- Existing structures with dimensions to property lines (buildings, fences, walls etc)
- Proposed structures with written dimensions to property lines
- Existing paved surfaces (driveways, walks, decks, etc)
- Proposed paved surfaces with dimensions to property lines
- Written dimensions to buildings on adjoining properties if setback variance is requested
- Zoning of adjacent parcels
- Street(s) which are adjacent to the parcel
- Graphic scale and north arrow
- Changes in land use intensity due to the variance (additional dwelling units, more customers, more parking, outside lighting, outside storage, etc)

(2) **Written description of proposed variance** answering the following questions:

Village of Roberts Ordinance Section #70-131.A cannot be entirely satisfied because:

Some operational components of the anaerobic digester and nutrient recovery facility, including some buildings, tanks, and stacks will exceed the maximum structure height identified within the M-7 Industrial Park District (35 feet) to efficiently operate and maintain compliance with state and federal air regulations. The stack heights will be designed at a height that will ensure that the facility meets National Ambient Air

Quality Standards (NAAQS) established in the Clean Air Act by the United States Environmental Protection Agency (USEPA) (40 CFR part 50) and contained in Chapter NR 404.04 (Ambient Air Quality) of the Wisconsin Administrative Code.

Additionally, the stack heights will also be designed to meet ambient concentrations for noncriteria pollutants criteria as referenced in Chapter NR 445, Wis. Adm. Code. In addition, industry standardized sizes associated with equipment within the buildings and the digesters themselves dictate the heights of said equipment and digesters.

In lieu of complying with the ordinance, the following alternative is proposed (please describe the proposal in detail):

Nature Energy is proposing to install the following items associated with the renewable natural gas production facility which exceed the 35-foot maximum structure height:

1. Five buildings with an anticipated maximum height ranging from approximately 36-feet to approximately 51-feet.
2. Six primary and two secondary digesters with an anticipated maximum height of approximately 85-feet.
3. Three storage tanks with an anticipated maximum height of approximately 47-feet.
4. Three process stacks with anticipated maximum heights of: approximately 66-100 feet (two stacks) and 197 feet (one stack). Actual stack heights are dependent upon air dispersion modeling which will be conducted during future design activities.

Please see Conditional Use Permit Attachment A, Site Plan, for additional information.

- (3) **Written justification of the requested variance** with reasons why the Applicant believes the proposed variance is appropriate. Before the Zoning Board of Appeals can grant a variance, they must find that the following criteria have been satisfied. Describe how your request meets the following criteria: (section 70-327)

What exceptional or extraordinary circumstances or special factors are present which apply only to the subject property? The response to this question shall clearly indicate how the subject property contains factors that are not present on other properties in the same zoning district.

The Village of Roberts currently does not have a renewable natural gas production facility within the Village limits. To allow for this facility to operate efficiently and in

accordance with applicable state and federal rules and regulations, select buildings, digesters, and stacks must exceed the zoning height restriction of 35 feet. The stack heights will be designed at a height that will ensure that the facility meets NAAQS for criteria pollutants established in the Clean Air Act by the USEPA (40 CFR part 50) and contained in Chapter NR 404.04 (Ambient Air Quality) of the Wisconsin Administrative Code. Additionally, the stack heights will also be designed to meet ambient concentrations for noncriteria pollutants criteria as referenced in Chapter NR 445, Wis. Adm. Code. In addition, industry standardized sizes associated with equipment within the buildings and the digesters themselves dictate the heights of said equipment and digesters.

- The hardship or difficulty shall be peculiar to the subject property and different from that of other properties and not one that affects all properties similarly. Such a hardship or difficulty shall have arisen because of the unusual shape of the original acreage parcel; unusual topography or elevation; or because the property was created before the passage of the current, applicable zoning regulations, or will not accommodate a structure of reasonable design for a permitted use if all area, yard, green space, and setback requirements are observed;
- Loss of profit or pecuniary hardship shall not, in and of itself, be grounds for a variance;
- Self-imposed hardship shall not be grounds for a variance. Reductions resulting from the sale of portions of a property reducing the remainder of said property below buildable size or cutting-off existing access to a public right-of-way or deed restrictions imposed by the owner's predecessor in title are considered to be such self-imposed hardships;
- Violations by, or variances granted to, neighboring properties shall not justify a variance;
- The alleged hardship shall not be one that would have existed in the absence of a zoning ordinance. (For example, if a lot were unbuildable because of topography in the absence of any or all setback requirements.)

In what manner do the factors identified in 1., above, prohibit the development of the subject property in a manner similar to that of other properties under the same zoning district? The response to this question shall clearly indicate how the requested variance is essential to make the subject property developable so that property rights enjoyed by the owners of similar properties can be enjoyed by the owners of the subject property.

To the Applicant's knowledge, several other properties including Harris Rebar and Northern States Power Company have been developed within the M-7 zoning district. To allow for the renewable natural gas production to operate efficiently and in accordance with applicable

state and federal rules and regulations, select buildings, digesters, and stacks must exceed the zoning height restriction of 35 feet. In addition, industry standardized sizes associated with equipment within the buildings and the digesters themselves dictate the heights of said equipment and digesters.

Would the granting of the proposed variance be of substantial detriment to adjacent properties? The response to this question shall clearly indicate how the proposed variance will have no substantial impact on adjacent properties.

The proposed variance would not be of substantial detriment to adjacent properties. Properties to the north are zoned M-7 and M-3, Industrial, and are of a similar industrial nature as the proposed site activities. Adjacent properties to the northwest are zoned RM-2, Multiple-Family Residential, and P-1, Park and Recreation; however, the western half of the property for the renewable natural gas production facility will be vacant and provide a buffer between sites activities and these properties. The adjacent property to the southwest is currently vacant and contains a waterbody. The site is bordered on the south by a Union Pacific Railroad right-of-way and on the west by 130th Street and across 130th Street by vacant/agricultural lands.

Would the granting of the proposed variance as depicted on the required site plan, result in a substantial or undue adverse impact on the character of the neighborhood, environmental factors, traffic factors, parking, public improvements, public property or rights-of-way, or other matters affecting the public health, safety, or general welfare, either as they now exist or as they may in the future be developed as a result of the implementation of the intent, provisions, and policies of this Chapter, the Master Plan, or any other plan, program, map, or ordinance adopted or under consideration pursuant to official notice by the Village or other governmental agency having jurisdiction to guide growth and development? The response to this question shall clearly indicate how the proposed variance will have no substantial impact on such long-range planning matters.

The proposed variance will have no substantial impact on the long-range planning matters identified above. The facility will operate in an area with other industrial activities and utilize similar truck routes as these facilities. Parking will be available onsite for visitors and employees. Details associated with odor, noise, and traffic are provided in the Conditional Use Permit memo, which this variance request was submitted as part of.

Have the factors causing the variance request been created by the act of the applicant or previous property owner or their agent (for example: previous development decisions such as building placement, floor plan, or orientation, lotting pattern, or grading) after the effective date of this Chapter. The response to this question shall clearly indicate that such factors existed prior to the effective date of this Chapter and were not created by action of the Applicant, a previous property owner, or their agent.

The factors causing the variance request are associated with the operation of a renewable natural gas production facility. Industry standardized sizes for equipment within buildings and the digesters themselves dictates the heights of said items. In turn, the equipment sizes dictate the building heights. As indicated above, state and federal rules and regulations dictate stacks sizes.

Does the proposed variance involve the regulations of Subsection 22.304 or the district use regulations in each zoning district of Section 22.700? The response to this question shall clearly indicate that the requested variance does not involve the provisions of this Subsection.

Verification by applicant: I, LOUISE SKOTT KRISTENSEN, owner for which relief is sought, certify that the application and the above information is truthful and accurate to the best of my ability.

Applicant Signature [Signature] Date 2/17/2022
Applicant Signature [Signature] Date 17.02.2021

| | | |
|--|---------------|--------------|
| Consideration for Approval: | Granted _____ | Denied _____ |
| | | Date _____ |
| Chairman, Village of Roberts Zoning Board of Appeals | | |

Attachment F

Local Approval Requirements

Roberts Local Approvals

This table includes the requirements for a Variance Application and Conditional Use Permit Application, as described in the [Municipal Code of the Village of Roberts](#). For convenience, the requirements of Site, Building, and Operations Plans are also listed. The final column describes the location of the information (Memo or Attachment), and notes if this information is preliminary or provided in a future submittal.

| | Application for Variance | Conditional Use Permit | Site, Building and Operations Plan | Included in Memo or Attachment, and Notes |
|---|--------------------------------|---------------------------|--|---|
| Planning Commission Appeals Review Application | X | X | | Attachment B |
| Application for Variance | X | | | Attachment E |
| Legal Description | | X | | Memo |
| Project Name and Date of Plan Submittal | | | X | Memo |
| Names and addresses of the applicant, owner of the site, architect, professional engineer, and contractor | | X | X | Memo |
| Lot, block, and recorded subdivision or by metes and bounds | | X | | Memo |
| Address of the subject site | | X | | Memo |
| Type of structure | | X | | Memo |
| Proposed operation or use of the structure or site | | X | | Memo |
| Number of employees | | X | | Memo |
| Zoning district within which the subject site is located | | X | | Memo |
| Map / Site Plan (Showing entire property with graphic scale and north arrow) | X | X | X | Attachment A |
| All lot dimensions | X | X | X | Attachment A |
| Existing structures with size, location, and spatial arrangement, and dimensions to property lines (buildings, fences, walls etc) | X | X | | Attachment A |

| | | | | |
|---|---|---|---|--------------|
| Proposed structures with size, location, and spatial arrangement, and written dimensions to property lines | X | X | X | Attachment A |
| Existing paved surfaces (driveways, walks, decks, etc) | X | X | | Attachment A |
| Proposed paved surfaces with dimensions to property lines | X | X | | Attachment A |
| Street(s) which are adjacent to the parcel | X | X | | Attachment A |
| Written dimensions to buildings on adjoining properties if setback variance is requested | X | | | N/A |
| Zoning of adjacent parcels | X | | | Attachment A |
| Changes in land use intensity due to the variance (additional dwelling units, more customers, more parking, outside lighting, outside storage, etc) | X | | | Attachment E |
| Elevations or contours of the ground at two-foot intervals | | X | X | Attachment A |
| Proposed changes in topography | | | X | Attachment A |
| Characteristics of soils related to contemplated uses | | | X | Attachment C |
| Fill or storage elevations | | X | | Attachment A |
| First-floor elevations of structures | | X | | Attachment A |
| Size, location, and spatial arrangement of all existing and proposed structures on the site | | X | | Attachment A |
| Location and elevation of streets, water supply, and sanitary facilities | | X | | Attachment A |
| Photographs showing existing land uses and vegetation upstream and downstream | | X | | Attachment D |
| Mean and historic high-water lines and floodlands on or within 40 feet of the subject premises and existing and proposed landscaping | | X | | Attachment G |

| | | | |
|--|---|---|---|
| Existing and proposed easements, streets, and other public ways | X | | Attachment A |
| Existing and proposed off-street parking, loading areas, and driveways | X | X | Attachment A |
| Storage areas | | X | Attachment A |
| Existing and proposed street, side, and rear yards | X | | Attachment A |
| Locations, elevations, and uses of any abutting lands and their structures within 40 feet of the subject site | X | | Memo & Attachment A |
| Erosion control and grading plan as may be required by state, county, or village regulation | X | | Attachment C |
| Primary building materials used in construction of all structures | | X | Attachment A |
| Height of building | | X | Attachment A & Attachment E |
| Location and size of existing and proposed sanitary sewers, septic tanks and disposal fields, holding tanks, storm sewers, and water mains | | X | Attachment A (Preliminary) |
| Location, size and capacity of proposed stormwater detention/retention areas | | X | Attachment A (Preliminary) |
| Location of proposed solid waste (refuse) storage area. | | X | Locations will be identified during Building Permit Process |
| Location of pedestrian sidewalks and walkways. | | X | Locations will be identified during Building Permit Process |
| Existing and proposed public right-of-way widths. | | X | Attachment A |
| Existing and proposed street names. | | X | Attachment A |
| Location, type, height and intensity of proposed lighting. | | X | Attachment A - Locations will be identified during |

| | | |
|---|---|--|
| | | Building Permit Process |
| Location of existing trees and extent, and type of proposed plantings including type and extent of erosion control. | X | Attachment A & Attachment C - Locations will be finalized during Building Permit Process |
| A graphic delineation of any planned development staging. | X | Staging will be identified during Building Permit Process |
| Architectural plans, elevations, and perspective drawings and sketches illustrating the design and character of proposed structures. | X | Attachment F |
| Any other site or use information, such as 100-year internal flood lines, which will assist the plan commission in making a determination and recommendation on the proposal. | X | Attachment G |
| Operational Plan | X | Formal plan will be identified during Building Permit Process |
| Specific use of site and buildings. | X | Memo |
| Hours of operations. | X | Memo |
| Number of full- and part-time employees. | X | Memo & Attachment A |
| Estimate of daily truck and auto trips to the site. | X | Memo |
| Type of materials and equipment to be stored on-site. | X | Memo |
| Method of handling solid and liquid waste disposal. | X | Method will be identified during Building Permit Process |
| Method of exterior maintenance (site and buildings). | X | Method will be identified during |

| | | Building Permit Process |
|---|---|--|
| Method of site and building security other than local police. | X | Method will be identified during Building Permit Process |
| Copies of all special use permits issued by state or county agencies. | X | Copies will be provided when received |

Attachment G

Federal Emergency Management Agency Map

If you have questions about this map or questions concerning the National Flood Insurance Program in general, please call 1-877-FEMA-MAP (1-877-336-2627) or visit the FEMA website at <http://www.fema.gov>.

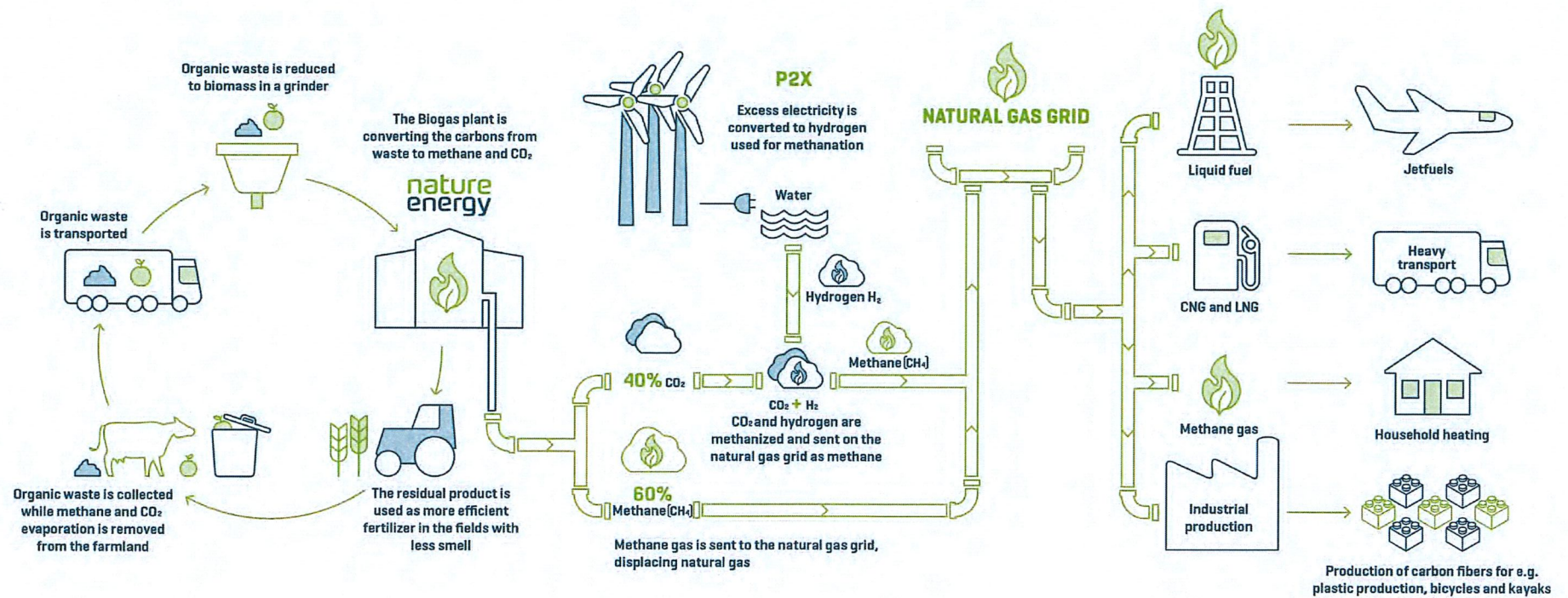


53109C0360E
EFFECTIVE DATE

Attachment H

General Process Flow Diagram

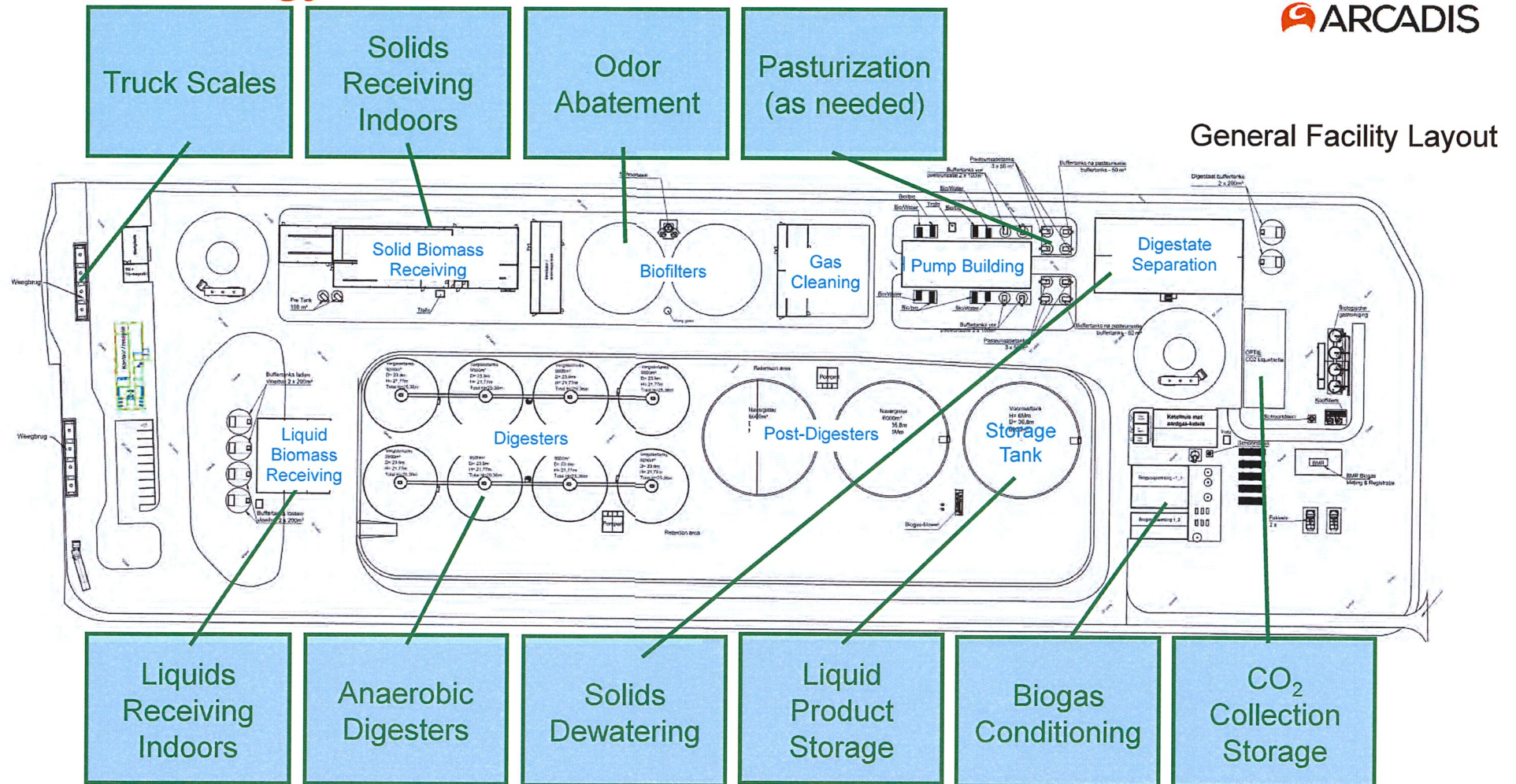
**Nature Energy General
Process Flow Diagram**



Attachment I

General Process Layout

Nature Energy – General Process Overview



Attachment J

Noise Study



Environmental measurement

External noise

Report no. 21.74
Nature Energy Kværs

NATURE ENERGY CRUSH

NOVEMBER 23, 2021

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Summary

Client

Nature Energy A / S
Ørbækvej 260
5220 Odense SØ

Measurement site

Nature Energy Kværs A / S
Felstedvej 35C
Cross
6300 Gråsten

Measuring company

NIRAS A / S
Ceres Allé 3
8000 Aarhus C

Report Date: December 6, 2021

Report No. 21.74

Result summary

Nature Energy A / S has asked NIRAS to calculate the external noise contribution from a new biogas plant south of Kværs.

This report deals with updated calculations for the operational phase. In relation to report no. 21.59 of 6 June 2021, adjustments have been made to the course of the access road as well as adjustments to the traffic during the night period.

The main results, expressed by the resulting equivalent corrected sound pressure level L_r [dB (A) re. 20 μ Pa], is intended for (compared to the noise conditions in the company's environmental approval):

Table 1.1: Calculated noise contribution L_r in dB (A). The maximum noise contribution in the night period is indicated in parentheses and the noise limit for this in the night period.

| Calculation point | Address | Resulting Noise contribution, Lr | | | Terms | Expand it uncertainty |
|-------------------|---------------|-------------------------------------|---------|--------------|------------------------------|--------------------------|
| | | [dB (A)] | | | | |
| | | Day | Evening | Night (Lmax) | Day / Evening / Night (Lmax) | |
| 1 | Avntoftvej 2 | 38 | 38 | 37 (39) | 55/45/40 (55) | 3/3/3 |
| 2 | Limbækvej 1 | 29 | 28 | 27 (34) | 55/45/40 (55) | |
| 3 | Avntoftvej 9 | 40 | 39 | 38 (47) | 55/45/40 (55) | |
| 4 | Avntoftvej 5 | 33 | 33 | 30 (39) | 55/45/40 (55) | |
| 5 | Avntoftvej 3 | 35 | 34 | 31 (40) | 55/45/40 (55) | |
| 6 | Avntoftvej 1 | 34 | 33 | 30 (36) | 55/45/40 (55) | |
| 7 | Felstedvej 35 | 41 | 40 | 36 (50) | 55/45/40 (55) | |
| 8 | Snurom 26 | 40 | 39 | 35 (50) | 45/40/35 (50) | |

The uncertainty of the calculations is estimated at 3 dB.

However, the uncertainty has not been used in the assessments of whether the noise limits can be complied with, as this is a planning situation, and it is normal practice in such situations that the noise limits must be complied with without the uncertainty being deducted.

No noise contribution is stated for Saturdays, as well as Sundays and public holidays.

The noise contribution during the weekend period is less than the noise contribution on weekdays, as the same amount of driving does not occur. Saturday until 14 there may be the same amount of driving as on weekdays. As the noise contribution in the day period on weekdays is less than the noise limit value for the day period in the weekend (45 dB (A)), the noise limits can therefore also be complied with in the weekend.

The maximum noise contribution at night (L_{max}) originates primarily from traffic and is calculated net to max. 50 dB (A) at all calculation points. The noise limit for maximum contribution during the night period of 50 or 55 dB (A) is thus complied with. The maximum noise contribution comes from the truck, as it enters the site via the access road.

Conclusion

The company complies with the noise limits at all calculation points.

Hans Drejer
hkd@niras.dk
 Tel. 20 32 90 37

A. Emil M. Schrøder
aes@niras.dk
 Tel: 27 61 88 49

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Revision 2

Prepared by AES / HKD
Controlled by HKD
Approved by LWE

1. Introduction

This report is an update of report no. 21.59 of 6 June 2021 and deals with the noise contribution from the operation of the biogas plant Nature Energy Kværs. The calculation must document compliance with the noise limit values at neighbors at maximum operation at the detailed projected system.

In relation to report 21.59, there have been adjustments to the alignment of the access road in relation to what was previously planned. The access road was basically located within the boundaries of the local plan area with a alignment distributed on the 2 possible land registers. As part of a possible expropriation, it has been investigated whether it is possible to obtain a voluntary agreement on the transfer of land to the access road. This investigation has resulted in owner-A, who owns the southern cadastre, having entered into an agreement to cede land for the location of the access road, where owner-B, who owns the northern cadastre, has not wanted to sell area for the access road.

As it has not been possible to reach a voluntary agreement with both owners, a new detailed design of the access road has been made, so that this is exclusively located on the area belonging to owner-A. The detailed design shows that it is possible to place the access road so that it is kept on the southern land register and within the boundaries of the local plan area. It is therefore not a necessity to expropriate parts of the northern equal cadastre belonging to owner-B.

This report thus deals with the calculation of the external noise contribution from operation of the company after the plant is completed with the new detailed design of the access road, ie. where the line source for noise from transport on the access road is changed. In addition, an adjustment has been made to the number of vehicles during the night period, cf. section 5.1.

The changed access route is shown in **Appendix 1: Situation plan** and **Appendix 2: Situation plan for model**.

2 Noise conditions

The noise condition is cf. the company's environmental approval of 30 September 2021:

6. STØJ

- 6.1. Virksomhedens eksterne støjbelastning må ikke overstige nedenstående værdier. De angivne værdier for støjbelastningen er de ækvivalente, korregerede lydniveauer i dB(A).

I. Ved enkeltboliger i det åbne land.

II. Ved boligområde i Kværs (kommuneplanens rammeområde 7.4.011B), samt ved beboelse uden landbrugspligt i Snur-Om.

| | Kl. | Reference-tidsrum (timer) | I dB(A) | II dB(A) |
|--------------------|-------|---------------------------|---------|----------|
| Mandag-fredag | 07-18 | 8 | 55 | 45 |
| Lørdag | 07-14 | 7 | 55 | 45 |
| Lørdag | 14-18 | 4 | 45 | 40 |
| Søn- og helligdage | 07-18 | 8 | 45 | 40 |
| Alle dage | 18-22 | 1 | 45 | 40 |
| Alle dage | 22-07 | 0,5 | 40 | 35 |
| Spidsværdi | 22-07 | - | 55 | 50 |

I landzone skal støjgrænserne overholdes ved boligen eller på uden-dørs opholdsarealer i op til 15 meters afstand fra boligen. Hvor skel-grænsen er nærmere end 15 meter fra boligen, skal støjgrænserne overholdes i skel.

8 calculation points have been selected, which represent the most noisy points on the surrounding properties (housing in the open country and Snur-Om).

| Calculation point | Address | Area type | Terms dB (A) Day / evening / night |
|-------------------|---------------|-----------|---------------------------------------|
| 1 | Avntoftvej 2 | 3 | 55/45/40 |
| 2 | Limbækvej 1 | 3 | 55/45/40 |
| 3 | Avntoftvej 9 | 3 | 55/45/40 |
| 4 | Avntoftvej 5 | 3 | 55/45/40 |
| 5 | Avntoftvej 3 | 3 | 55/45/40 |
| 6 | Avntoftvej 1 | 3 | 55/45/40 |
| 7 | Felstedvej 35 | 3 | 55/45/40 |
| 8 | Snurum 26 | 5 | 45/40/35 |

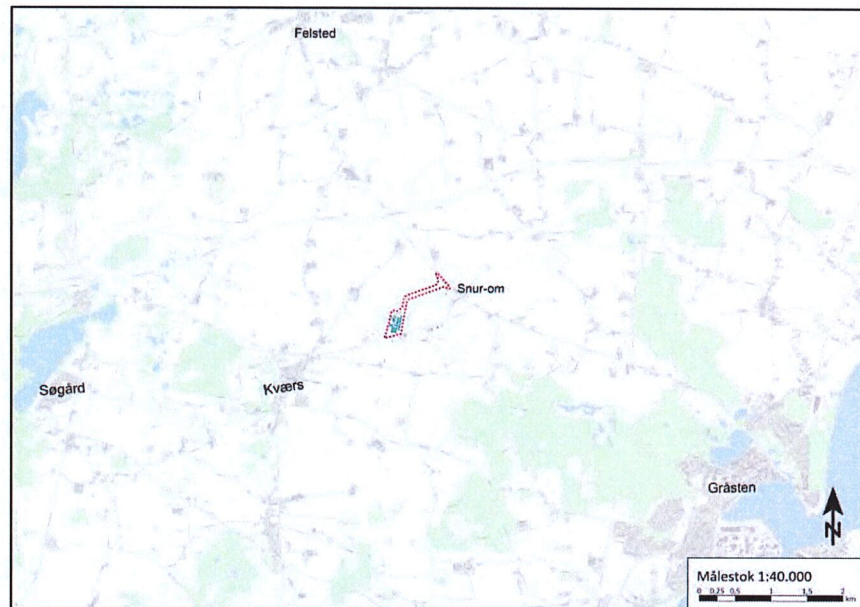
The points are located 1.5 m above ground in outdoor living areas. The location of the selected reference points is shown in **Appendix 2: Situation plan for model**.

3 Existing conditions

3.1 The company

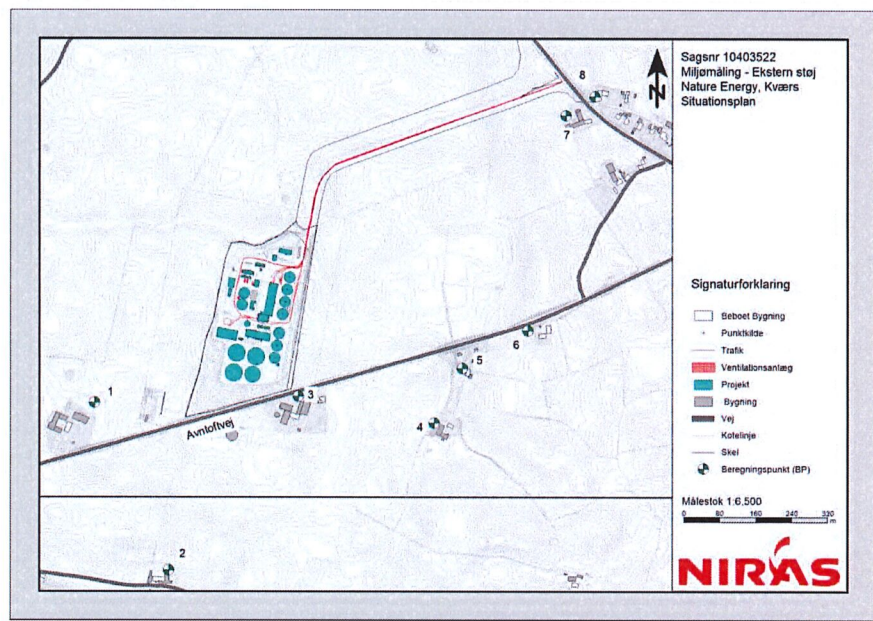
The project area is located approx. 1,250 m east of Kværs and approx. 850 m southwest of the village Snur-Om, in the southeastern part of Southern Jutland (**Figure 3.1**).

Figure 3.1: Shows the location of the planned facility (red dotted line) in the local area.



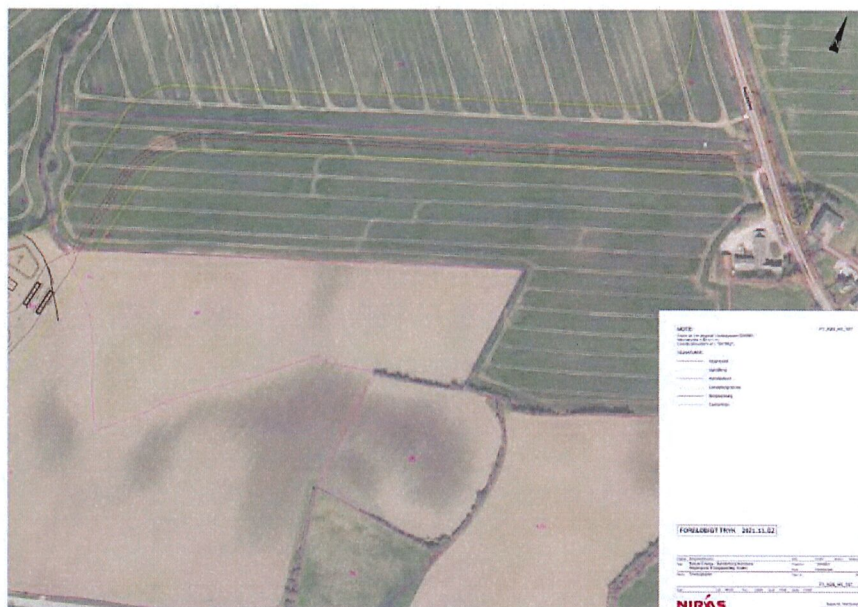
There is currently no completed facility on the site (**Figure 3.2**). The final location of the road access is shown in **Figure 3.3**.

Figure 3.2: Shows the cadastre with the project area, indicated by a red dotted line.



The company is planned to receive up to 800,000 tonnes of biomass per year. The biogas produced is upgraded to natural gas quality and sold to the natural gas network.

Figure 3.3: Shows the final location of the road access.



The company receives livestock manure and cultivated biomass from the local area as well as organic biomass residue fractions from various industries.

The detailed planned facility consists of i.a. of:

- Office and crew facilities
 - Receiving tanks for residual products and liquid livestock manure
 - Loading / unloading hall with laundry hall - liquid biomasses •
 - Reception hall for solid biomasses incl. pre-treatment hall, sanitation facilities - height for tipping <15 m
 - Indoor storage for cultivated biomass. • Up to 7 process tanks - height <26 m
 - After-storage tanks for degassed biomass and liquid fraction from separation
 - Gas storage <3,500 m³
 - Building for boiler plant with chimney (process heat)
 - Biofilter with chimney
 - Div. small technical facilities (workshop, torch, exchanger equipment, pumps and bladder sere)
 - Possibly. separation plant with storage units for fiber fraction
 - Upgrade plant with air purification plant and chimney
 - Road bridge
 - Measurement and regulator station at the biogas plant (BMR station) •
- Gas pipeline to Dansk Gasdistribution's connection station

A situation plan of the planned facility can be seen in **Figure 5.1** and **Appendix 1: Situation plan**.

Liquid raw materials in the form of manure are received by tankers and unloaded in a closed loading hall. Delivery of degassed biomass takes place at the same place, and takes place in the same process as well as to the same tanker as used for the delivery of manure. Thus, as a general rule, empty driving with own tankers is avoided.

The solid biomass and the liquid industrial biomass are fed into vehicles that cannot be used to export degassed biomass. There is therefore a need for extra clay with the delivery of degassed biomass. These will be as empty runs.

Definition: 1 transport = 1 exit and 1 entrance.

From a computational point of view, one transport (route) may well have been divided into several sub-sources (sub-routes). In these calculations, the delivery of manure is thus divided into two separate ones sources, which overall represent a transport route on the site's area - ie one for the entrance to the loading hall and one from the loading hall for the exit. Where the other transport routes are gathered in one source starting from driveway to exit.

In addition, there will be an average transport of 10 passenger cars per day. day.

3.2 Calculation points

8 points have been selected for the nearest neighboring dwellings in the open country and for the nearest dwelling in Snur-Om, where the noise contribution has been calculated. The location of the calculation points is shown in the overview plan in **Appendix 2: Situation plan for model**, numbered 1-8. The points are located 1.5 m above local terrain and 15 m from facades when living in dwellings in open country, cf. normal practice and at boundaries for dwellings in Snur. About.

3.3 Existing noise conditions

Noise sources in open rural areas mainly include traffic, including transport to and from agricultural properties and the associated application areas. The operation of agricultural properties can also give rise to noise of a local nature in connection with the daily work and driving on the individual property.

4 Certification

NIRAS A / S is approved by the Danish Environmental Protection Agency to perform "ENVIRONMENTAL MEASUREMENT - EXTERNAL NOISE".

Measurements and calculations have been carried out in accordance with the Danish Environmental Protection Agency's guideline no. 5/1984 on external noise from companies and no. 5/1993 on calculation of external noise from companies.

When interpreting whether noise conditions have been complied with, the point calculations must be used, as the noise maps are only informative and used in connection with the location of the reference points. Noise maps are not covered by the certified measurement, as they have been obtained by interpolation between calculation points in a grid of 5 * 5 m.

5 Operating phase

5.1 Noise sources

The calculations are based on noise measurements on noise sources made at other of Nature Energy's plants as well as experience figures from similar plants. Source strengths from these measurements have been used in the calculations of the expected noise from the planned plant, as these are the same noise sources / components used on the various biogas plants belonging to Nature Energy.

Figure 5.1 shows the situation plan for the planned facility.

Figure 5.1: Situation plan for facility

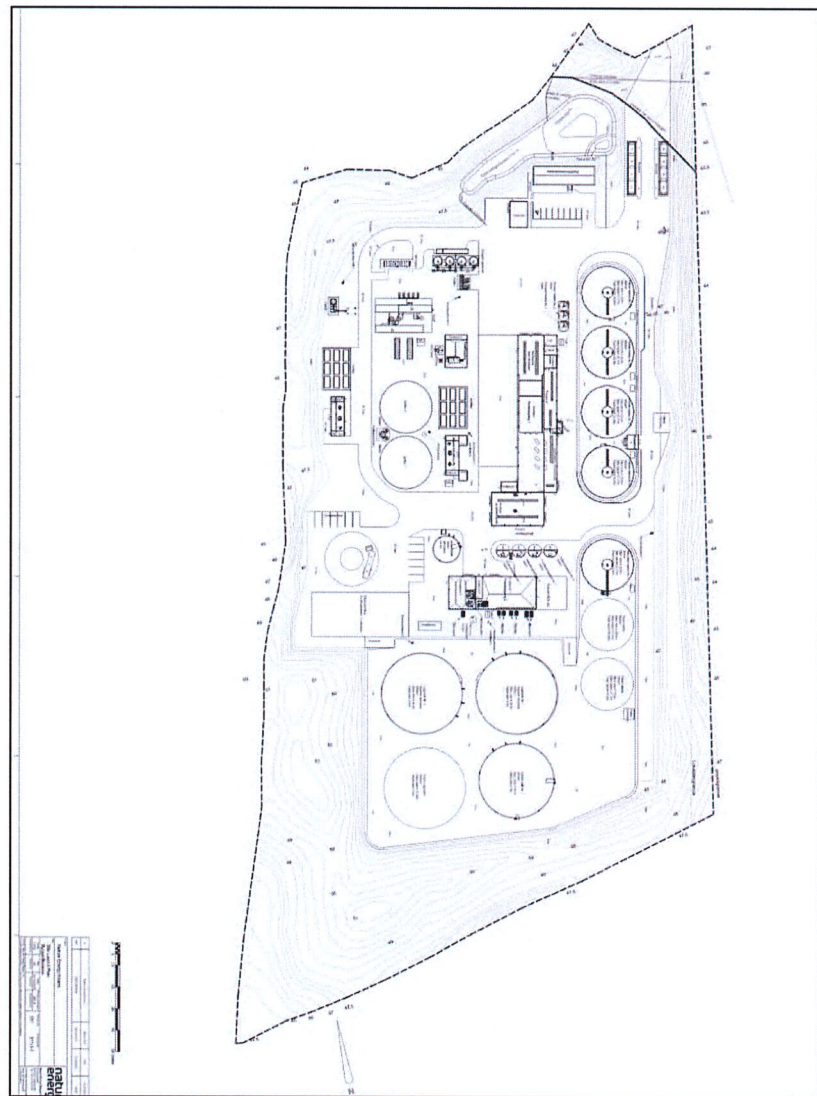
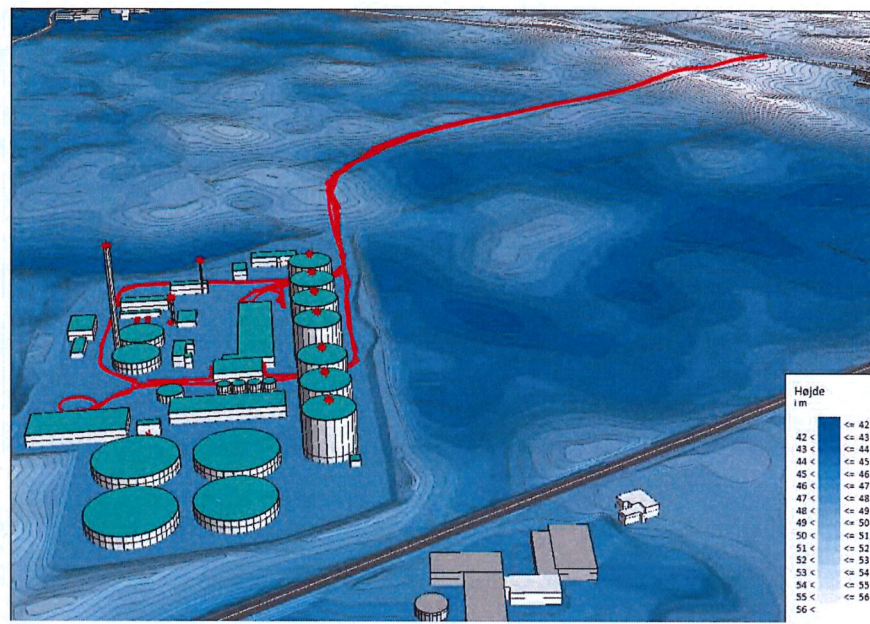


Figure 5.2 shows the model of the planned system, seen from the south, as it looks in SoundPLAN. Noise sources are indicated by red stars, lines and surfaces.

Figure 5.2: Shows the SoundPLAN model above the system, including sources marked in red stars, surface areas and lines for point sources, area sources (ventilation) and drive seals with trucks (lines), respectively.



The following source strengths have been used in the calculations:

Table 5.1: Source strengths statio near noise sources

| Noise source | Source strength LWA [dB (A)] | Height [m] |
|--|------------------------------|----------------------------------|
| Closed gates - unloading / technical installations etc. (8 pcs.) | 81.6 | 3.0 |
| Stirrer, process tanks (7 pcs.) | 83.7 | 25.5 |
| Gas upgrade system (3 pcs.) | 85.7 / 78.2 / 78.2 | 2.5 / 3.0 / 3.0 |
| Chimney biofilter (1 pc.) | 90.0 | 60.5 (top of Shoe stone + 0.5 m) |
| Chimney gas upgrade (1 pc.) | 90.0 | 20.5 (top of Shoe stone + 0.5 m) |
| Boiler chimney (1 pc.) | 80.0 | 16.5 (top of Shoe stone + 0.5 m) |
| Fan before the boiler chimney (1 pc.) | 83.1 | 1.5 |
| Fan before biofilter (2 pcs.) | 80.6 | 0.5 |
| Refrigeration system (2 pcs.) | 97.0 | 1.5 |
| Gas blower | 80.9 | 0.5 |

All stationary noise sources can be in operation around the clock.

There will also be a number of minor noise sources on the plant (pumps, fans, air intakes, etc.). These sources typically have a lower source strength, place is quite low and often shielded from the surroundings. These sources are therefore considered to be of no significance for the total noise contribution.

The location of the noise sources is shown in **Figure 5.2** and **Appendix 2: Situation plan for mo share**.

For the associated traffic, standard truck data from the Noise Data Port has been used. The following source strengths have been used:

Table 5.2: Source forces drive clothing

| Source | Source strength LWA [dB (A)] | Source type | Kildedø opinions | Corrected source strength LWA [dB (A)] | Remark |
|-----------------------------|------------------------------|-------------|-------------------------------------|--|--|
| Truck, idle - bridge weight | 90.8 | Point | REACH | REACH | Truck, Noise Data Book |
| Reading, outdoors | 95.8 | | | | Truck forced empty aisle, Noise data book |
| Driving with a carriage | 100.7 | Line | Delivery of slurry - 900 m | 74.8 (ind), 73.6 (out) | Truck, Noise Data Book Manure delivery has two corrected source strengths as it is divided into two separate line sources, in and out. All Trucks run with 4 m / s (approx. 15 km / h) |
| | | | Delivery of Plantebio lot - 1.366 m | 69.3 | |

There will be most traffic during the day on weekdays, but there will also be activity in the evening and night and on weekends. Here the intensity will be less, cf. below.

There will be an average traffic of approx. 96 vehicles per days at full expansion of the plant, corresponding to approx. 7 pr. hour on average in the normal opening hours from kl. 6 - 20. (1 transport equals 1 approach and 1 exit). The transport varies over the year and around the clock, to and from the facility. The noise calculations have therefore been made on the basis of a worst case situation, where several vehicles may arrive in a few days or periods.

To ensure a certain degree of spaciousness, including variations in traffic from day to day, the following traffic on weekdays has been taken into account in the calculations:

| Route | Number of transports per hour | | |
|-------------------------------|-------------------------------|-----------------|---------------|
| | Day (07-18) | Evening (18-22) | Night (22-07) |
| Delivery of slurry | 7-8 | 8 | 3 * |
| Delivery of pumpable outdoors | 1 | 0 | 0 |
| Delivery of non-pumpable | 3 | 0 | 0 |
| Pickup from screw press | 1 | 0 | 0 |
| Total | 12-13 | 8 | 3 |

* Adjusted from 6 to 3 pcs. transporter. (3 transports provide space for 3 entrances and 3 exits every hour = 6 exits on the access road).

The following remarks must be made to the above:

During the day period (7-18) there can be up to approx. 100 (8 * 12-13) transports within a reference period for the day period of 8 hours, 8 per. hour. Within the reference period of 1 hour in the evening period (18-22) and 3 transports per. hour during the night period corresponding to 1.5 transports (3 runs on the access road) in the reference time space of ½ hour during the night period (22-07), provided that the 3 transports comes evenly distributed over 1 hour. Please note that each transport counts for both an inbound and outbound journey so that the number of journeys on the access road is double the number of transports.

All cars can idle on the bridge weight for 1 minute. Both entry and exit have been taken into account.

Delivery of manure is recorded as 2 routes per. transport. One for drive to port (full), and one subsequent drive out of port (empty). Delivery of pumpable outdoors and non-pumpable indoors is calculated as the entire route, ie from entrance to exit (approach and exit = 1 transport). The figures for bridge weight indicate the total number of entrances and exits (weigh-in and weigh-out). Unloading of pumpable biomass outdoors takes approx. 30 minutes per. lorry.

The number of cars with slurry is adjusted from 6 pcs. for 3 pcs. transports in the night period per. hour compared to the previous calculation.

1 Transport = 1 driveway + 1 exit.

When, for example, there are 3 transports per. hour, this means that there can be 3 entrances and 3 exits per. hour, but it can also be 6 entrances or 6 exits, it simply means that the number of exits on the access road regardless of direction must be a maximum of 6 per hour. hour.

Noise during the night period is calculated as an average over ½ hour, which is why the specified number of transports per. hour at night must be evenly distributed so that eg 3 transports per. hour, which is 6 runs on the access road must be distributed with 3 runs per. ½ time.

The company's operations can be adapted to the conditions used for driving during the night period, where there is a maximum of 6 journeys on the access road, trucks leave every morning after filling, after which it takes a relatively long time before they return, which is why 6 runs on the access road per. hour in the noise calculation is considered to be adequate for maximum traffic during the night period.

Traffic with passenger cars is assessed to be of no significance in relation to the external noise contribution.

5.2 Measurement and calculation methods

The calculations performed have been performed in accordance with the Danish Environmental Protection Agency's guideline 5/93 using the General Prediction Method 2019.

The program SoundPLAN v. 8.2 has been used for the calculations. Update: 22-03-2021, where maps with scale conditions, buildings, screens, reflective objects, terrain, reference points and source data are entered / digitized, after which SoundPLAN calculates the noise in the selected points in accordance with the common Nordic calculation method for industrial noise.

Elevation conditions etc. for the area are retrieved in digital form, from Kortforsyningen's home page, and included in SoundPLAN.

The elevation conditions have been adjusted around the plant to reflect the future elevations for the plant.

5.3 Sound propagation conditions

The project area is primarily acoustically hard.

The area outside the project area is primarily acoustically porous.

Buildings will to a certain extent act as noise shielding for certain noise sources in the various calculation points.

5.4 Tones and impulses

No clearly audible tones or impulses are expected from any of the noise sources (subjective assessment based on experience from similar systems). Thus, no basis is considered for providing surcharges for either impulses or clearly audible tones in the noise.

5.5 Results

The following equivalent corrected noise contribution from the plant has been calculated [dB (A)]. Lmax is indicated in parentheses, which is the maximum noise contribution during the night period (not corrected for operating time) and the noise limit for this during the night period:

Table 5.3: Calculated noise contribution Lr in dB (A)

| Calculation point | Address | Resulting Noise contribution, Lr | | Terms | Extended uncertainty |
|-------------------|---------------|-------------------------------------|-----------|-----------------------|------------------------------|
| | | [dB (A)] | | | |
| | | Day | Of ten | Nat (Lmax) | Day / Evening / Night (Lmax) |
| 1 | Avntoftvej 2 | 38 | 38 | 37 (39) 55/45/40 (55) | |
| 2 | Limbækvej 1 | 29 | 28 | 27 (34) 55/45/40 (55) | |
| 3 | Avntoftvej 9 | 40 | 39 | 38 (47) 55/45/40 (55) | |
| 4 | Avntoftvej 5 | 33 | 33 | 30 (39) 55/45/40 (55) | |
| 5 | Avntoftvej 3 | 35 | 34 | 31 (40) 55/45/40 (55) | |
| 6 | Avntoftvej 1 | 34 | 33 | 30 (36) 55/45/40 (55) | |
| 7 | Felstedvej 35 | 41 | 40 | 36 (50) 55/45/40 (55) | |
| 8 | Snurum 26 | 40 | 39 | 35 (50) 45/40/35 (50) | |

Noise maps for the operating phase during the day, evening and night period can be seen in Appendix 3: External noise - operation during the day period, Appendix 4: External noise - operation during the evening period and Appendix 5: External noise - operation during the night period. The noise maps are not covered by the certified measurement, as they were obtained by interpolation by point calculations in a grid of 5 * 5 m.

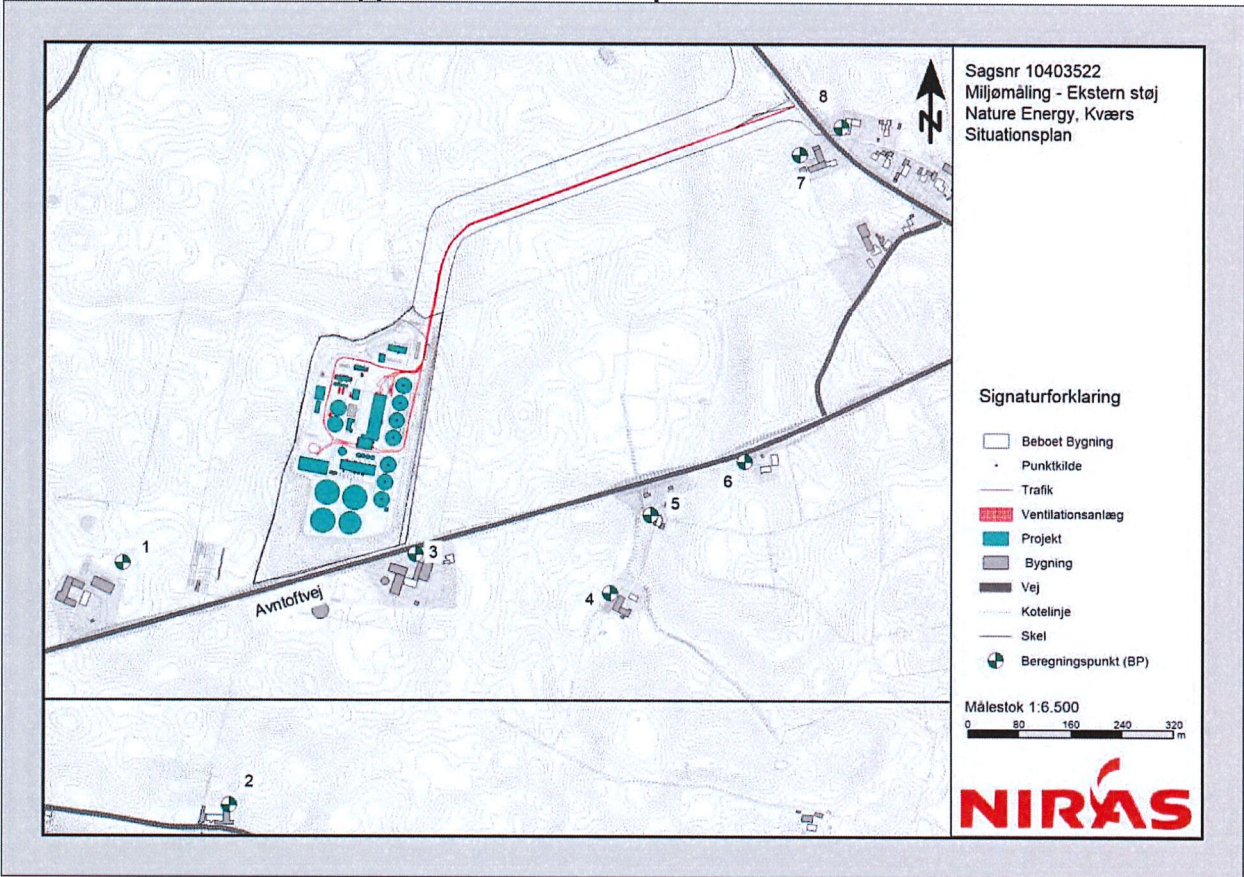
The maximum noise contribution at night (L_{max}) originates primarily from traffic and is calculated net to max. 50 dB (A) at all calculation points. The noise limit for maximum contribution of 50 - or 55 dB (A) is thus complied with. The maximum noise contribution comes primarily from truck, as it enters the plot along the access road at the homes closest to the driveway. In other points, it also originates primarily from driving on the plot at the point that is closest to the individual home.

6 Conclusion

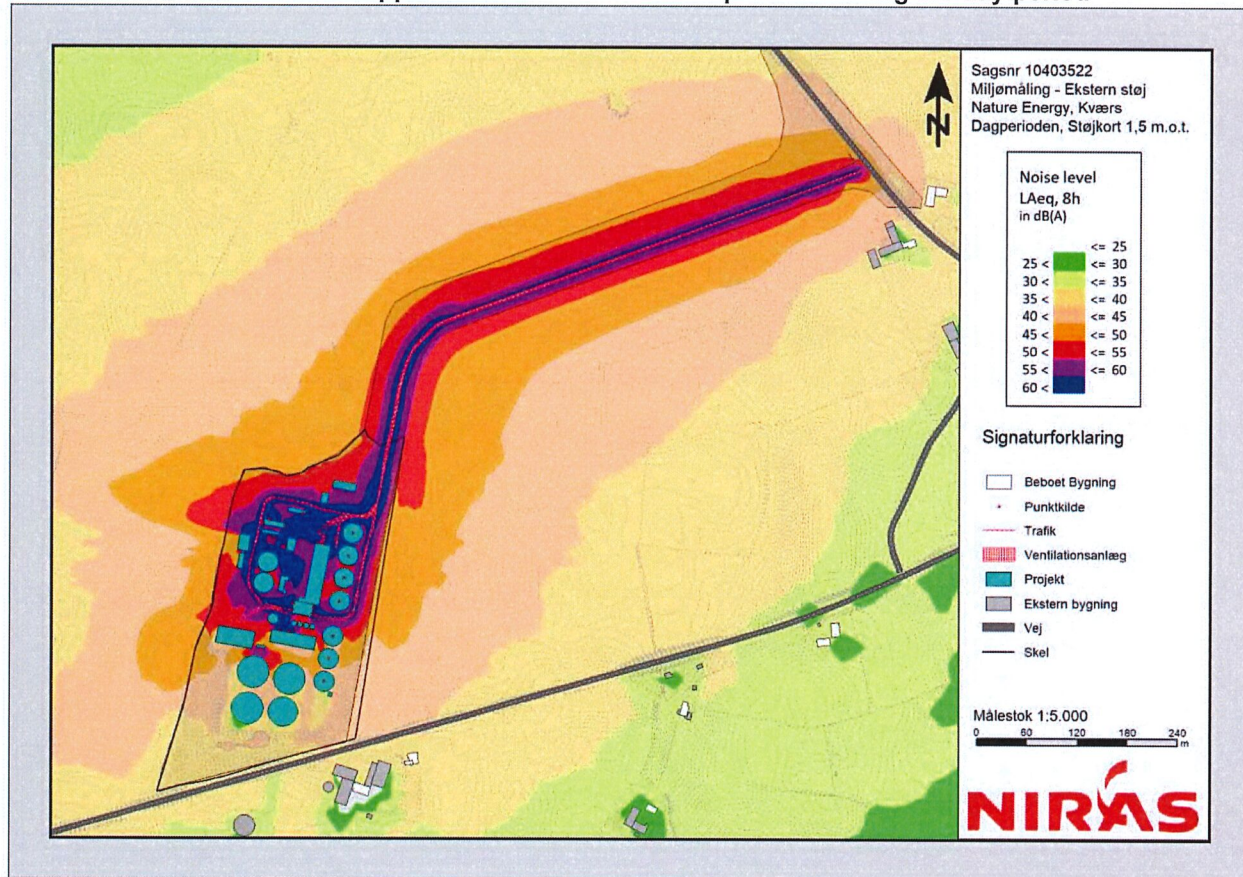
The company complies with the Danish Environmental Protection Agency's indicative noise limits in all calculation points for the applied design and operation.

The uncertainty is not included in the assessments, as it is normal for the company to be able to comply with the noise limits in planning situations without deducting the uncertainty. Appendix 6 contains calculation results from SoundPLAN, where the individual noise source's noise contribution i.a. appears.

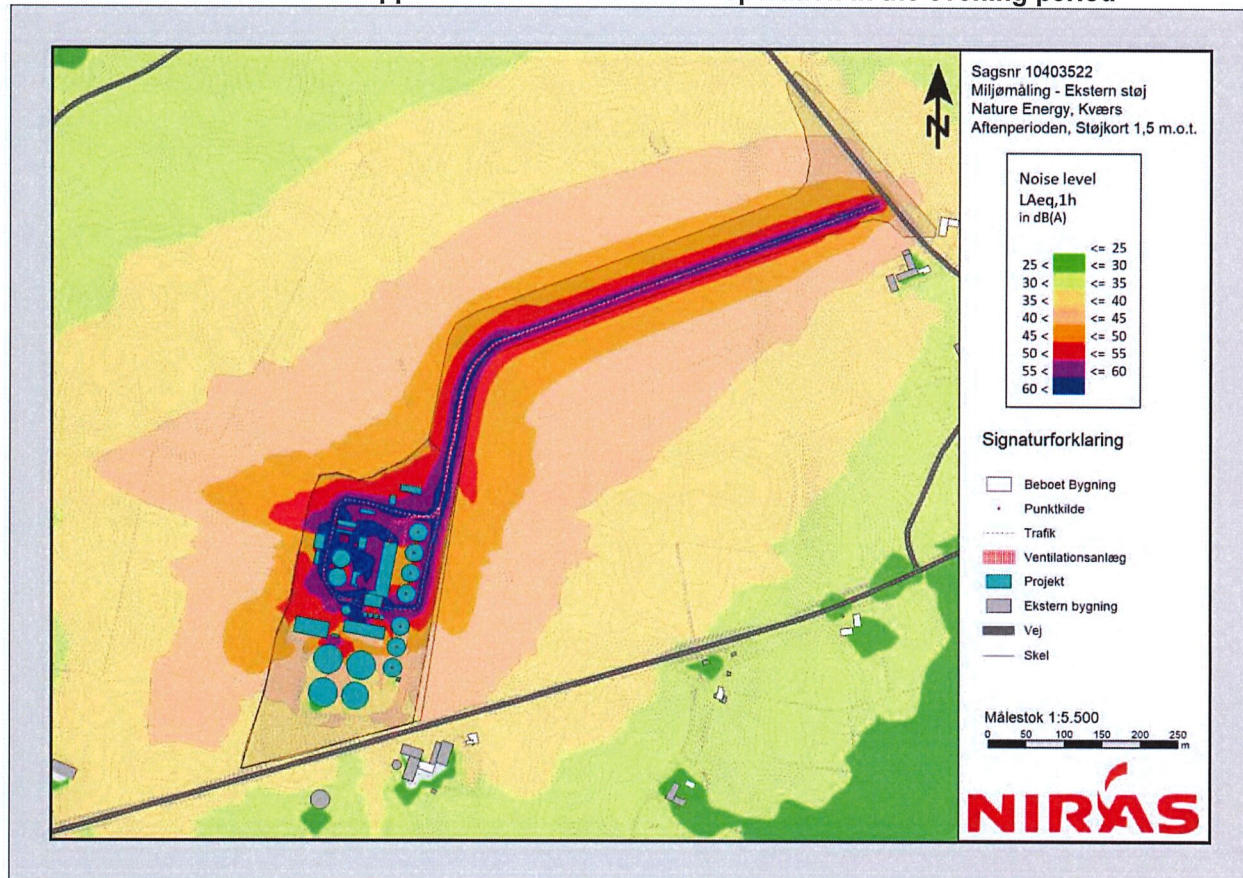
Appendix 2: Situation plan for model



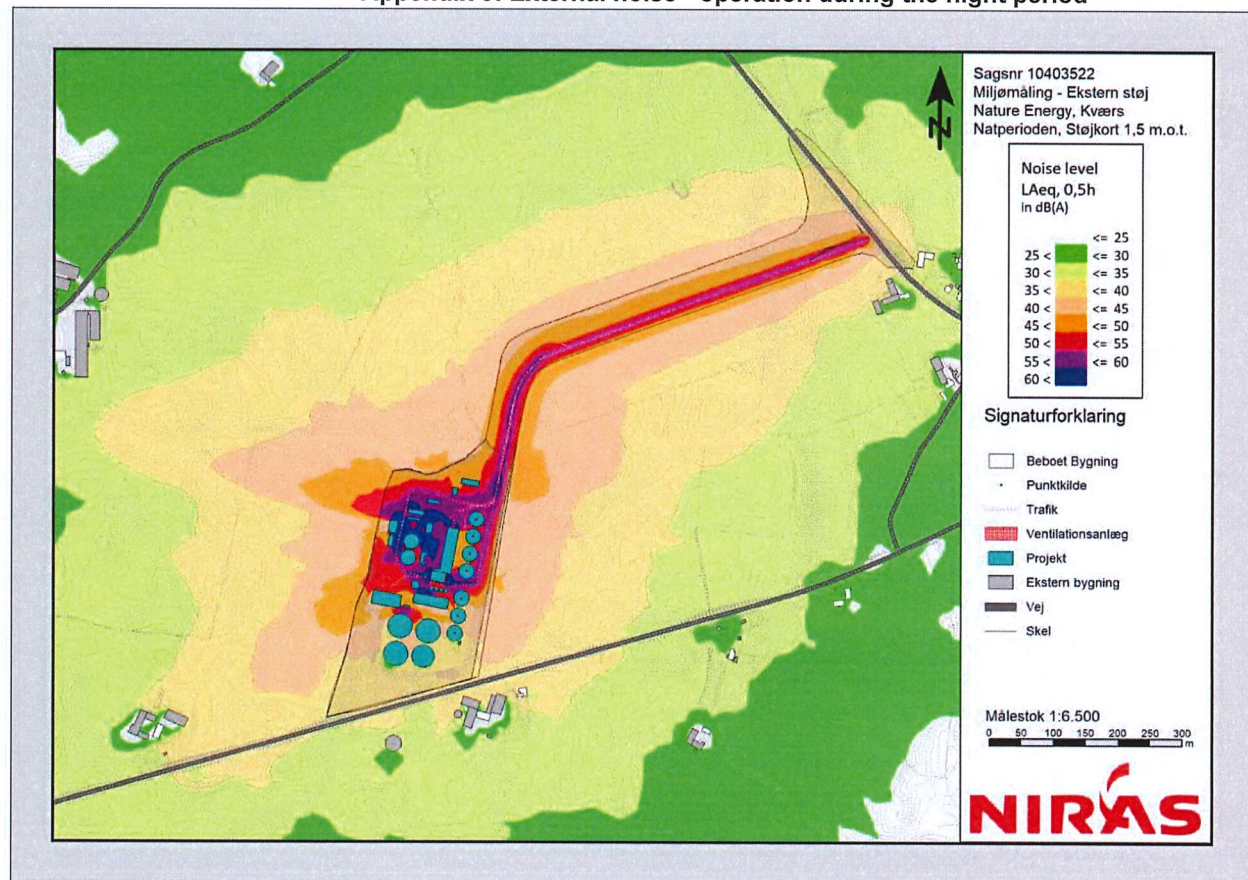
Appendix 3: External noise - operation during the day period



Appendix 4: External noise - operation in the evening period



Appendix 5: External noise - operation during the night period



Appendix 6: SoundPLAN printout

| Kilde | Kildetype | Lw dB(A) | Lw pr. m.m² dB(A) | Kilde str. m.m² | Afstand til modtager m | Afstandslørr. dB | Terrænkorr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | L _{Aeq, 8h} dB(A) | L _{Aeq, 1h} dB(A) | L _{Aeq, 0.5h} dB(A) |
|---|-----------|-------------|----------------------|--------------------|---------------------------|---------------------|-------------------|---------------------|-------------------|-------------------------|--------------------------|-------------------------------|-------------------------------|---------------------------------|
| Receiver BP01 - Avntoftevej 2 L _{Aeq, 8h} 38,0 dB(A) L _{Aeq, 1h} 37,8 dB(A) L _{Aeq, 0.5h} 37,4 dB(A) L _{max} 39,0 dB(A) | | | | | | | | | | | | | | |
| Afhentning af gyle fra Skruetpresse | Line | 100,7 | 67,2 | 2195,5 | 815,7 | -66,8 | 0,1 | -3,7 | -3,0 | 1,0 | 26,3 | 11,3 | | |
| Brovægt | Point | 90,8 | 90,8 | | 572,3 | -66,1 | 1,1 | 0,0 | -2,7 | 0,0 | 23,1 | 16,7 | 17,4 | 11,5 |
| Gasblæser | Point | 90,9 | 90,9 | | 354,2 | -62,0 | 0,4 | -9,4 | -1,4 | 0,0 | 11,5 | 11,5 | 11,5 | 11,5 |
| Gasopgradering | Point | 78,2 | 78,2 | | 438,8 | -63,8 | -0,9 | -18,4 | -1,4 | 6,2 | 2,8 | 2,8 | 2,8 | 2,8 |
| Gasopgradering | Point | 78,2 | 78,2 | | 455,4 | -64,2 | -0,4 | -14,9 | -0,9 | 10,7 | 11,5 | 11,5 | 11,5 | 11,5 |
| Gasopgradering - Åben port | Point | 85,7 | 85,7 | | 446,1 | -64,0 | 0,0 | -19,6 | -2,6 | 0,0 | 2,4 | 2,4 | 2,4 | 2,4 |
| Gasrenser - Afkast | Point | 80,0 | 80,0 | | 482,0 | -64,7 | -0,2 | 0,0 | -5,3 | 0,0 | 9,8 | 9,8 | 9,8 | 9,8 |
| Indpumpning | Point | 95,8 | 95,8 | | 496,0 | -64,9 | 0,8 | -15,5 | -1,4 | 7,2 | 22,1 | 19,1 | | |
| Kedelskorsten | Point | 90,0 | 90,0 | | 439,5 | -63,9 | -0,4 | 0,0 | -4,9 | 0,0 | 20,8 | 20,8 | 20,8 | 20,8 |
| Kaleanlæg | Area | 97,0 | 83,3 | 23,3 | 430,2 | -63,7 | 0,3 | -0,3 | -2,0 | 1,9 | 33,1 | 33,1 | 33,1 | 33,1 |
| Kaleanlæg | Area | 97,0 | 83,3 | 23,6 | 433,4 | -63,7 | 0,3 | -0,2 | -2,0 | 2,5 | 33,9 | 33,9 | 33,9 | 33,9 |
| levering af gyle - ind | Line | 100,7 | 70,1 | 1126,0 | 811,5 | -66,7 | 0,0 | -3,0 | -2,9 | 1,1 | 29,1 | 26,8 | 27,0 | 21,2 |
| levering af gyle - ud | Line | 100,7 | 70,8 | 959,6 | 709,2 | -68,0 | 0,3 | -3,8 | -3,8 | 0,3 | 26,0 | 23,0 | 23,2 | 20,3 |
| Levering af ikke-pumpbart udendørs | Line | 100,7 | 68,3 | 1740,2 | 759,9 | -68,6 | 0,0 | -2,1 | -3,5 | 0,4 | 26,8 | 21,6 | | |
| Levering af pumpbart - udendørs | Line | 100,7 | 68,2 | 1744,0 | 760,4 | -68,6 | 0,0 | -2,1 | -3,6 | 0,8 | 27,2 | 18,8 | | |
| Områder | Point | 83,7 | 83,7 | | 440,2 | -63,9 | 0,1 | 0,0 | -4,2 | 0,0 | 15,8 | 15,8 | 15,8 | 15,8 |
| Områder | Point | 83,7 | 83,7 | | 427,0 | -63,6 | 0,1 | 0,0 | -4,1 | 0,0 | 16,2 | 16,2 | 16,2 | 16,2 |
| Områder | Point | 83,7 | 83,7 | | 414,8 | -63,3 | 0,1 | 0,0 | -4,0 | 0,0 | 16,5 | 16,5 | 16,5 | 16,5 |
| Områder | Point | 83,7 | 83,7 | | 480,6 | -64,6 | 0,2 | 0,0 | -4,5 | 0,0 | 14,9 | 14,9 | 14,9 | 14,9 |
| Områder | Point | 83,7 | 83,7 | | 516,5 | -65,3 | 0,2 | 0,0 | -4,8 | 0,0 | 14,0 | 14,0 | 14,0 | 14,0 |
| Områder | Point | 83,7 | 83,7 | | 498,2 | -64,9 | 0,3 | 0,0 | -4,6 | 0,0 | 14,4 | 14,4 | 14,4 | 14,4 |
| Områder | Point | 83,7 | 83,7 | | 463,9 | -64,3 | 0,1 | 0,0 | -4,4 | 0,0 | 15,2 | 15,2 | 15,2 | 15,2 |
| Port | Point | 81,6 | 81,6 | | 478,9 | -64,6 | 0,0 | -19,7 | -2,8 | 16,7 | 14,2 | 14,2 | 14,2 | 14,2 |
| Port | Point | 81,6 | 81,6 | | 431,6 | -63,7 | -0,1 | -19,7 | -2,6 | 6,9 | 5,4 | 5,4 | 5,4 | 5,4 |
| Port | Point | 81,6 | 81,6 | | 383,5 | -62,7 | -0,7 | -19,5 | -2,3 | 0,0 | -3,5 | -3,5 | -3,5 | -3,5 |
| Port | Point | 81,6 | 81,6 | | 393,4 | -62,9 | -0,4 | -19,5 | -2,3 | 0,0 | -3,5 | -3,5 | -3,5 | -3,5 |
| Port | Point | 81,6 | 81,6 | | 427,3 | -63,6 | -0,2 | -19,7 | -2,6 | 0,0 | -1,4 | -1,4 | -1,4 | -1,4 |
| Port | Point | 81,6 | 81,6 | | 408,0 | -63,2 | -0,1 | -19,7 | -1,9 | 0,2 | 10,9 | 10,9 | 10,9 | 10,9 |
| Port | Point | 81,6 | 81,6 | | 474,8 | -64,5 | -0,1 | -19,7 | -2,8 | 13,8 | 11,3 | 11,3 | 11,3 | 11,3 |
| Port | Point | 81,6 | 81,6 | | 412,8 | -63,3 | -0,1 | -19,7 | -2,4 | 0,0 | 12,7 | 12,7 | 12,7 | 12,7 |
| Ventilationsafkast | Point | 90,0 | 90,0 | | 400,6 | -63,0 | -0,5 | 0,0 | -4,6 | 0,0 | 21,9 | 21,9 | 21,9 | 21,9 |
| Ventilatorer for kedelskorsten | Point | 83,1 | 83,1 | | 438,5 | -63,8 | 1,1 | -18,8 | -3,3 | 16,2 | 14,5 | 14,5 | 14,5 | 14,5 |
| Ventilatorer for biofilter | Point | 80,6 | 80,6 | | 395,3 | -62,9 | 0,4 | 0,0 | -3,0 | 2,1 | 17,3 | 17,3 | 17,3 | 17,3 |

| Kilde | Kildetype | Lw dB(A) | Lw pr. m.m² dB(A) | Kilde str. m.m² | Afstand til modtager m | Afstandslørr. dB | Terrænkorr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | L _{Aeq, 8h} dB(A) | L _{Aeq, 1h} dB(A) | L _{Aeq, 0.5h} dB(A) |
|---|-----------|-------------|----------------------|--------------------|---------------------------|---------------------|-------------------|---------------------|-------------------|-------------------------|--------------------------|-------------------------------|-------------------------------|---------------------------------|
| Receiver BP02 - Limbækvej 1 L _{Aeq, 8h} 29,3 dB(A) L _{Aeq, 1h} 28,2 dB(A) L _{Aeq, 0.5h} 27,0 dB(A) L _{max} 33,7 dB(A) | | | | | | | | | | | | | | |
| Ventilatorer for biofilter | Point | 80,6 | 80,6 | | 397,9 | -63,0 | 0,9 | -20,1 | -2,7 | 0,0 | -4,3 | -4,3 | -4,3 | -4,3 |
| Afhentning af gyle fra Skruetpresse | Line | 100,7 | 67,2 | 2195,5 | 853,5 | -69,6 | 0,7 | -5,4 | -4,0 | 1,0 | 23,3 | 6,3 | | |
| Brovægt | Point | 90,6 | 90,6 | | 767,8 | -68,7 | 1,5 | -18,0 | -2,0 | 0,0 | 3,6 | -0,7 | -2,1 | -6,0 |
| Gasblæser | Point | 90,9 | 90,9 | | 539,3 | -65,6 | 0,5 | -19,0 | -2,1 | 1,0 | -1,3 | -1,3 | -1,3 | -1,3 |
| Gasopgradering | Point | 78,2 | 78,2 | | 686,3 | -67,7 | 0,5 | -18,1 | -1,8 | 0,2 | -5,8 | -5,8 | -5,8 | -5,8 |
| Gasopgradering | Point | 78,2 | 78,2 | | 688,6 | -67,8 | 0,8 | -17,5 | -1,6 | 0,0 | -4,8 | -4,8 | -4,8 | -4,8 |
| Gasopgradering - Åben port | Point | 85,7 | 85,7 | | 690,3 | -67,8 | 1,8 | -23,7 | -2,8 | 0,0 | -3,8 | -3,8 | -3,8 | -3,8 |
| Gasrenser - Afkast | Point | 80,0 | 80,0 | | 709,0 | -68,0 | 0,3 | 0,0 | -7,2 | 0,0 | 5,2 | 5,2 | 5,2 | 5,2 |
| Indpumpning | Point | 95,8 | 95,8 | | 693,6 | -67,8 | 1,0 | -11,3 | -2,0 | 8,4 | 24,0 | 21,0 | | |
| Kedelskorsten | Point | 90,0 | 90,0 | | 663,8 | -67,4 | 1,8 | 0,0 | -6,8 | 1,4 | 18,7 | 18,7 | 18,7 | 18,7 |
| Kaleanlæg | Area | 97,0 | 83,3 | 23,3 | 667,5 | -67,5 | 0,9 | -15,1 | -1,6 | 5,3 | 19,1 | 19,1 | 19,1 | 19,1 |
| Kaleanlæg | Area | 97,0 | 83,3 | 23,6 | 667,8 | -67,5 | 0,9 | -15,5 | -1,6 | 6,2 | 19,6 | 19,6 | 19,6 | 19,6 |
| levering af gyle - ind | Line | 100,7 | 70,1 | 1126,0 | 858,2 | -69,7 | 0,7 | -4,6 | -3,9 | 1,2 | 24,5 | 22,2 | 22,4 | 16,5 |
| levering af gyle - ud | Line | 100,7 | 70,8 | 959,6 | 914,7 | -70,2 | 0,7 | -5,8 | -4,5 | 0,2 | 21,0 | 18,0 | 18,3 | 15,4 |
| Levering af ikke-pumpbart udendørs | Line | 100,7 | 68,3 | 1740,2 | 979,7 | -70,8 | 0,8 | -4,6 | -4,5 | 1,4 | 22,7 | 17,4 | | |
| Levering af pumpbart - udendørs | Line | 100,7 | 68,2 | 1744,0 | 979,0 | -70,8 | 0,8 | -4,7 | -4,5 | 1,6 | 22,8 | 13,6 | | |
| Områder | Point | 83,7 | 83,7 | | 583,9 | -66,3 | 0,0 | 0,0 | -5,2 | 0,0 | 12,2 | 12,2 | 12,2 | 12,2 |
| Områder | Point | 83,7 | 83,7 | | 557,9 | -65,9 | -0,1 | 0,0 | -5,0 | 0,0 | 12,7 | 12,7 | 12,7 | 12,7 |
| Områder | Point | 83,7 | 83,7 | | 531,0 | -65,5 | -0,1 | 0,0 | -4,8 | 0,0 | 13,3 | 13,3 | 13,3 | 13,3 |
| Områder | Point | 83,7 | 83,7 | | 852,9 | -67,3 | 0,1 | 0,0 | -5,7 | 0,0 | 10,9 | 10,9 | 10,9 | 10,9 |
| Områder | Point | 83,7 | 83,7 | | 706,8 | -68,0 | 0,2 | 0,0 | -6,0 | 0,0 | 10,0 | 10,0 | 10,0 | 10,0 |
| Områder | Point | 83,7 | 83,7 | | 679,8 | -67,6 | 0,2 | 0,0 | -5,8 | 0,0 | 10,5 | 10,5 | 10,5 | 10,5 |
| Områder | Point | 83,7 | 83,7 | | 625,6 | -66,9 | 0,1 | 0,0 | -5,5 | 0,0 | 11,4 | 11,4 | 11,4 | 11,4 |
| Port | Point | 81,6 | 81,6 | | 681,3 | -67,7 | 0,2 | -19,3 | -3,3 | 0,0 | -5,4 | -5,4 | -5,4 | -5,4 |
| Port | Point | 81,6 | 81,6 | | 605,5 | -66,6 | 0,0 | -19,3 | -3,0 | 0,0 | -4,3 | -4,3 | -4,3 | -4,3 |
| Port | Point | 81,6 | 81,6 | | 566,9 | -66,1 | -0,1 | -19,3 | -2,9 | 16,3 | 9,5 | 9,5 | 9,5 | 9,5 |
| Port | Point | 81,6 | 81,6 | | 568,8 | -66,1 | -0,1 | -19,3 | -2,9 | 4,2 | -2,7 | -2,7 | -2,7 | -2,7 |
| Port | Point | 81,6 | 81,6 | | 599,3 | -66,5 | 0,0 | -19,3 | -3,0 | 0,0 | -4,2 | -4,2 | -4,2 | -4,2 |
| Port | Point | 81,6 | 81,6 | | 595,4 | -66,5 | 0,1 | -19,6 | -2,2 | 0,0 | 5,2 | 5,2 | 5,2 | 5,2 |
| Port | Point | 81,6 | 81,6 | | 680,5 | -67,6 | 0,2 | -19,2 | -3,2 | 0,0 | -5,1 | -5,1 | -5,1 | -5,1 |
| Port | Point | 81,6 | 81,6 | | 603,0 | -66,6 | 0,1 | -8,6 | -2,6 | 0,1 | 7,1 | 7,1 | 7,1 | 7,1 |
| Ventilationsafkast | Point | 90,0 | 90,0 | | 629,3 | -67,0 | -0,3 | 0,0 | -6,6 | 0,0 | 16,2 | 16,2 | 16,2 | 16,2 |
| Ventilatorer for kedelskorsten | Point | 83,1 | 83,1 | | 663,8 | -67,4 | 1,7 | -14,0 | -3,7 | 0,2 | 0,0 | 0,0 | 0,0 | 0,0 |

| Kilde | Kildetype | Lw dB(A) | Lw pr. m,m² dB(A) | Kilde str. m,m² | Afstand til modtager m | Afstandslørr. dB | Terrænlørr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | L _{Aeq} 8h dB(A) | L _{Aeq} 1h dB(A) | L _{Aeq} 0,5h dB(A) |
|--|-----------|-------------|----------------------|--------------------|---------------------------|---------------------|-------------------|---------------------|-------------------|-------------------------|--------------------------|------------------------------|------------------------------|--------------------------------|
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 625,8 | -66,9 | 0,9 | -19,7 | -3,9 | 3,0 | -6,1 | -6,1 | -6,1 | -6,1 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 629,2 | -67,0 | 0,7 | -20,0 | -4,1 | 2,0 | -7,7 | -7,7 | -7,7 | -7,7 |
| Receiver BP03 - Avntoftevej 9 L _{Aeq} 8h 39,6 dB(A) L _{Aeq} 1h 39,2 dB(A) L _{Aeq} 0,5h 38,0 dB(A) L _{max} 46,6 dB(A) | | | | | | | | | | | | | | |
| Afhentning af gyle fra Skruapresse | Line | 100,7 | 67,2 | 2195,5 | 354,3 | -62,0 | 0,5 | -4,0 | -1,7 | 0,8 | 34,2 | 17,2 | | |
| Brovægt | Point | 90,8 | 90,8 | | 315,6 | -61,0 | 0,2 | 0,0 | -1,6 | 2,1 | 30,6 | 26,2 | 24,9 | 19,0 |
| Gasblæser | Point | 80,9 | 80,9 | | 179,0 | -56,1 | 0,9 | -16,5 | -0,6 | 2,7 | 14,3 | 14,3 | 14,3 | 14,3 |
| Gasopgradering | Point | 78,2 | 78,2 | | 303,6 | -60,6 | 1,5 | -22,5 | -0,7 | 0,0 | -1,2 | -1,2 | -1,2 | -1,2 |
| Gasopgradering | Point | 78,2 | 78,2 | | 289,6 | -60,2 | 1,5 | -17,2 | -0,5 | 0,0 | 4,8 | 4,8 | 4,8 | 4,8 |
| Gasopgradering - Åben port | Point | 85,7 | 85,7 | | 302,3 | -60,6 | 1,5 | -25,0 | -1,8 | 0,0 | 2,8 | 2,8 | 2,8 | 2,8 |
| Gasrensner - Afkast | Point | 80,0 | 80,0 | | 297,8 | -60,5 | 0,9 | -14,9 | -1,3 | 0,0 | 4,1 | 4,1 | 4,1 | 4,1 |
| Indpumpning | Point | 95,8 | 95,8 | | 259,5 | -59,3 | 1,1 | -23,0 | -0,7 | 0,0 | 13,9 | 10,9 | | |
| Kedelskorsten | Point | 90,0 | 90,0 | | 286,5 | -59,5 | 1,0 | -16,4 | -1,3 | 0,0 | 13,8 | 13,8 | 13,8 | 13,8 |
| Kaleanlæg | Area | 97,0 | 83,3 | 23,3 | 281,8 | -60,0 | 1,5 | -22,6 | -0,9 | 4,0 | 19,1 | 19,1 | 19,1 | 19,1 |
| Kaleanlæg | Area | 97,0 | 83,3 | 23,6 | 275,5 | -59,9 | 1,5 | -21,1 | -0,8 | 1,6 | 18,3 | 18,3 | 18,3 | 18,3 |
| levering af gyle - ind | Line | 100,7 | 70,1 | 1126,0 | 376,4 | -62,6 | 0,8 | -5,6 | -2,2 | 0,6 | 31,7 | 29,4 | 29,4 | 23,6 |
| levering af gyle - ud | Line | 100,7 | 70,8 | 959,6 | 365,6 | -62,3 | -0,2 | -1,0 | -1,6 | 1,8 | 36,6 | 33,6 | 30,9 | |
| Levering af ikke-pumpbart udendørs | Line | 100,7 | 68,3 | 1740,2 | 471,2 | -64,5 | -0,2 | -1,8 | -2,2 | 0,5 | 32,5 | 27,2 | | |
| Levering af pumpbart - udendørs | Line | 100,7 | 68,2 | 1744,0 | 468,9 | -64,4 | -0,2 | -1,8 | -2,2 | 0,6 | 32,5 | 23,3 | | |
| Omrører | Point | 83,7 | 83,7 | | 147,1 | -54,3 | 0,2 | 0,0 | -1,8 | 0,0 | 27,8 | 27,8 | 27,8 | 27,8 |
| Omrører | Point | 83,7 | 83,7 | | 124,4 | -52,9 | 0,2 | 0,0 | -1,5 | 0,0 | 29,5 | 29,5 | 29,5 | 29,5 |
| Omrører | Point | 83,7 | 83,7 | | 102,7 | -51,2 | 0,2 | 0,0 | -1,3 | 0,0 | 31,4 | 31,4 | 31,4 | 31,4 |
| Omrører | Point | 83,7 | 83,7 | | 211,9 | -57,5 | 0,2 | 0,0 | -2,4 | 0,0 | 24,1 | 24,1 | 24,1 | 24,1 |
| Omrører | Point | 83,7 | 83,7 | | 284,6 | -59,4 | 0,3 | 0,0 | -2,9 | 0,0 | 21,7 | 21,7 | 21,7 | 21,7 |
| Omrører | Point | 83,7 | 83,7 | | 238,1 | -58,5 | 0,3 | 0,0 | -2,6 | 0,0 | 22,8 | 22,8 | 22,8 | 22,8 |
| Omrører | Point | 83,7 | 83,7 | | 186,0 | -56,4 | 0,2 | 0,0 | -2,2 | 0,0 | 25,4 | 25,4 | 25,4 | 25,4 |
| Port | Point | 81,6 | 81,6 | | 255,4 | -59,1 | 1,0 | -24,8 | -1,3 | 1,9 | 2,3 | 2,3 | 2,3 | 2,3 |
| Port | Point | 81,6 | 81,6 | | 105,6 | -56,4 | 1,5 | -22,7 | -0,6 | 1,4 | 7,8 | 7,8 | 7,8 | 7,8 |
| Port | Point | 81,6 | 81,6 | | 180,6 | -56,1 | 1,5 | -25,0 | -1,0 | 3,2 | 4,2 | 4,2 | 4,2 | 4,2 |
| Port | Point | 81,6 | 81,6 | | 172,4 | -55,7 | 1,5 | -25,0 | -0,9 | 0,3 | 1,8 | 1,8 | 1,8 | 1,8 |
| Port | Point | 81,6 | 81,6 | | 179,6 | -56,1 | 1,5 | -18,6 | -0,4 | 0,0 | 11,0 | 11,0 | 11,0 | 11,0 |
| Port | Point | 81,6 | 81,6 | | 193,9 | -56,7 | 1,5 | -25,0 | -1,0 | 0,0 | 3,3 | 3,3 | 3,3 | 3,3 |
| Port | Point | 81,6 | 81,6 | | 257,7 | -59,2 | 1,4 | -24,6 | -1,3 | 0,0 | 0,7 | 0,7 | 0,7 | 0,7 |
| Port | Point | 81,6 | 81,6 | | 200,0 | -57,0 | 1,5 | -25,0 | -1,1 | 0,0 | 3,0 | 3,0 | 3,0 | 3,0 |
| Ventilationsafkast | Point | 90,0 | 90,0 | | 281,7 | -59,3 | 0,8 | -6,1 | -3,2 | 0,0 | 27,9 | 27,9 | 27,9 | 27,9 |

| Kilde | Kildetype | Lw dB(A) | Lw pr. m,m² dB(A) | Kilde str. m,m² | Afstand til modtager m | Afstandslørr. dB | Terrænlørr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | L _{Aeq} 8h dB(A) | L _{Aeq} 1h dB(A) | L _{Aeq} 0,5h dB(A) |
|--|-----------|-------------|----------------------|--------------------|---------------------------|---------------------|-------------------|---------------------|-------------------|-------------------------|--------------------------|------------------------------|------------------------------|--------------------------------|
| Ventilator for kedelskorsten | Point | 83,1 | 83,1 | | 266,7 | -59,5 | 1,5 | -22,4 | -2,2 | 0,0 | 0,5 | 0,5 | 0,5 | 0,5 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 253,3 | -59,1 | 1,5 | -25,0 | -1,6 | 2,4 | -1,2 | -1,2 | -1,2 | -1,2 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 255,7 | -59,1 | 1,5 | -25,0 | -1,7 | 1,7 | -2,0 | -2,0 | -2,0 | -2,0 |
| Receiver BP04 - Avntoftevej 5 L _{Aeq} 8h 32,5 dB(A) L _{Aeq} 1h 32,5 dB(A) L _{Aeq} 0,5h 30,2 dB(A) L _{max} 38,7 dB(A) | | | | | | | | | | | | | | |
| Afhentning af gyle fra Skruapresse | Line | 100,7 | 67,2 | 2195,5 | 565,8 | -66,0 | -0,5 | -2,2 | -2,6 | 0,7 | 29,8 | 12,8 | | |
| Brovægt | Point | 90,8 | 90,8 | | 474,5 | -64,5 | -1,4 | 0,0 | -2,4 | 0,0 | 22,5 | 16,2 | 16,9 | 11,0 |
| Gasblæser | Point | 80,9 | 80,9 | | 470,0 | -64,4 | 1,3 | -20,1 | -1,9 | 1,4 | 0,2 | 0,2 | 0,2 | 0,2 |
| Gasopgradering | Point | 78,2 | 78,2 | | 545,5 | -65,7 | 1,4 | -21,6 | -1,3 | 0,0 | -5,9 | -5,9 | -5,9 | -5,9 |
| Gasopgradering | Point | 78,2 | 78,2 | | 522,6 | -65,4 | 1,3 | -19,2 | -1,8 | 0,0 | -3,9 | -3,9 | -3,9 | -3,9 |
| Gasopgradering - Åben port | Point | 85,7 | 85,7 | | 540,5 | -65,6 | 1,6 | -24,9 | -2,9 | 0,0 | -3,1 | -3,1 | -3,1 | -3,1 |
| Gasrensner - Afkast | Point | 80,0 | 80,0 | | 518,3 | -65,3 | -0,3 | -8,8 | -4,2 | 0,0 | 1,7 | 1,7 | 1,7 | 1,7 |
| Indpumpning | Point | 95,8 | 95,8 | | 466,4 | -64,4 | 0,8 | -20,1 | -2,0 | 0,0 | 10,1 | 7,0 | | |
| Kedelskorsten | Point | 90,0 | 90,0 | | 507,7 | -65,1 | 0,1 | -5,3 | -4,7 | 0,2 | 15,3 | 15,3 | 15,3 | 15,3 |
| Kaleanlæg | Area | 97,0 | 83,3 | 23,3 | 527,7 | -65,4 | 1,3 | -19,9 | -1,6 | 5,1 | 16,3 | 16,3 | 16,3 | 16,3 |
| Kaleanlæg | Area | 97,0 | 83,3 | 23,6 | 522,4 | -65,4 | 1,3 | -18,4 | -1,7 | 3,4 | 16,3 | 16,3 | 16,3 | 16,3 |
| levering af gyle - ind | Line | 100,7 | 70,1 | 1126,0 | 577,8 | -66,2 | -0,2 | -3,1 | -3,0 | 0,5 | 28,6 | 26,4 | 26,5 | 20,7 |
| levering af gyle - ud | Line | 100,7 | 70,8 | 959,6 | 561,9 | -66,0 | -1,4 | -0,2 | -2,8 | 1,1 | 31,5 | 29,5 | 29,7 | 25,6 |
| Levering af ikke-pumpbart udendørs | Line | 100,7 | 68,3 | 1740,2 | 599,5 | -66,5 | -1,1 | -0,8 | -3,0 | 0,4 | 29,6 | 24,3 | | |
| Levering af pumpbart - udendørs | Line | 100,7 | 68,2 | 1744,0 | 597,9 | -66,5 | -1,1 | -0,9 | -3,0 | 0,3 | 29,5 | 20,3 | | |
| Omrører | Point | 83,7 | 83,7 | | 400,1 | -63,0 | -0,2 | 0,0 | -3,9 | 0,0 | 16,6 | 16,6 | 16,6 | 16,6 |
| Omrører | Point | 83,7 | 83,7 | | 392,2 | -62,9 | -0,2 | 0,0 | -3,9 | 0,0 | 16,6 | 16,6 | 16,6 | 16,6 |
| Omrører | Point | 83,7 | 83,7 | | 385,5 | -62,7 | -0,2 | 0,0 | -3,8 | 0,0 | 17,0 | 17,0 | 17,0 | 17,0 |
| Omrører | Point | 83,7 | 83,7 | | 428,7 | -63,6 | -0,2 | 0,0 | -4,1 | 0,0 | 15,8 | 15,8 | 15,8 | 15,8 |
| Omrører | Point | 83,7 | 83,7 | | 457,4 | -64,2 | -0,2 | 0,0 | -4,3 | 0,0 | 15,0 | 15,0 | 15,0 | 15,0 |
| Omrører | Point | 83,7 | 83,7 | | 442,4 | -63,9 | -0,2 | 0,0 | -4,2 | 0,0 | 15,4 | 15,4 | 15,4 | 15,4 |
| Omrører | Point | 83,7 | 83,7 | | 418,3 | -63,4 | -0,2 | 0,0 | -4,0 | 0,0 | 16,1 | 16,1 | 16,1 | 16,1 |
| Port | Point | 81,6 | 81,6 | | 473,5 | -64,5 | 0,3 | -22,2 | -2,4 | 0,0 | -4,2 | -4,2 | -4,2 | -4,2 |
| Port | Point | 81,6 | 81,6 | | 437,3 | -63,8 | -0,9 | 0,0 | -3,0 | 0,0 | 17,0 | 17,0 | 17,0 | 17,0 |
| Port | Point | 81,6 | 81,6 | | 453,8 | -64,2 | 1,0 | -24,0 | -1,9 | 0,0 | -7,5 | -7,5 | -7,5 | -7,5 |
| Port | Point | 81,6 | 81,6 | | 447,4 | -64,0 | 0,7 | -23,3 | -1,9 | 1,9 | -5,0 | -5,0 | -5,0 | -5,0 |
| Port | Point | 81,6 | 81,6 | | 434,7 | -63,8 | 0,4 | -20,1 | -2,3 | 0,0 | -1,2 | -1,2 | -1,2 | -1,2 |
| Port | Point | 81,6 | 81,6 | | 457,4 | -64,2 | 0,8 | -24,2 | -2,1 | 3,1 | -2,0 | -2,0 | -2,0 | -2,0 |
| Port | Point | 81,6 | 81,6 | | 478,5 | -64,6 | 0,7 | -24,2 | -2,1 | 0,0 | -5,6 | -5,6 | -5,6 | -5,6 |
| Port | Point | 81,6 | 81,6 | | 480,1 | -64,2 | 0,9 | -24,5 | -2,1 | 0,0 | -5,3 | -5,3 | -5,3 | -5,3 |

| Kilde | Kildetype | Lw dB(A) | Lw pr. m,m ² dB(A) | Kilde str. m,m ² | Afstand til modtager m | Afstandslørr. dB | Terrænloerr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | L _{Aeq, 8h} dB(A) | L _{Aeq, 1h} dB(A) | L _{Aeq, 0,5f} dB(A) |
|---|-----------|-------------|----------------------------------|--------------------------------|---------------------------|---------------------|--------------------|---------------------|-------------------|-------------------------|--------------------------|-------------------------------|-------------------------------|---------------------------------|
| Ventilationsflast | Point | 90,0 | 90,0 | | 521,2 | -65,3 | -0,2 | 0,0 | -5,7 | 0,0 | 18,3 | 18,8 | 18,8 | 18,8 |
| Ventilator for kedelskorsten | Point | 83,1 | 83,1 | | 508,4 | -65,1 | 1,4 | -24,9 | -4,7 | 2,2 | -8,1 | -8,1 | -8,1 | -8,1 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 516,2 | -65,2 | 1,0 | -20,0 | -3,5 | 0,0 | -7,1 | -7,1 | -7,1 | -7,1 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 517,3 | -65,3 | 1,0 | -19,9 | -3,4 | 1,9 | -5,0 | -5,0 | -5,0 | -5,0 |
| Receiver BP05 - Avntoftevej 3 L _{Aeq, 8h} 35,2 dB(A) L _{Aeq, 1h} 33,8 dB(A) L _{Aeq, 0,5h} 31,0 dB(A) L _{max} 40,1 dB(A) | | | | | | | | | | | | | | |
| Afhentning af gyle fra Sikrupresse | Line | 100,7 | 67,2 | 2195,5 | 511,6 | -65,2 | -0,8 | -1,2 | -2,5 | 0,6 | 31,7 | 14,7 | | |
| Brødvægt | Point | 90,8 | 90,8 | | 434,5 | -63,8 | -1,2 | 0,0 | -2,1 | 2,3 | 26,1 | 21,7 | 20,4 | 14,5 |
| Gasblæser | Point | 80,9 | 80,9 | | 498,7 | -64,9 | 1,5 | -24,9 | -2,0 | 6,1 | -0,4 | -0,4 | -0,4 | -0,4 |
| Gasopgradering | Point | 78,2 | 78,2 | | 536,7 | -65,6 | 1,3 | -19,0 | -1,6 | 0,0 | -3,8 | -3,8 | -3,8 | -3,8 |
| Gasopgradering | Point | 78,2 | 78,2 | | 511,3 | -65,2 | 1,1 | -19,3 | -1,8 | 0,0 | -4,0 | -4,0 | -4,0 | -4,0 |
| Gasopgradering - Åben port | Point | 85,7 | 85,7 | | 530,2 | -65,5 | 1,6 | -24,9 | -2,8 | 0,0 | -3,0 | -3,0 | -3,0 | -3,0 |
| Gasrenser - Afkast | Point | 80,0 | 80,0 | | 493,6 | -64,9 | -0,3 | -3,5 | -3,9 | 0,0 | 2,4 | 2,4 | 2,4 | 2,4 |
| Indpumpning | Point | 95,8 | 95,8 | | 449,5 | -64,0 | -1,1 | 0,0 | -2,2 | 0,0 | 28,6 | 25,6 | | |
| Kedelskorsten | Point | 90,0 | 90,0 | | 502,4 | -65,0 | -0,1 | -11,6 | -2,8 | 0,0 | 10,6 | 10,6 | 10,6 | 10,6 |
| Køleanlæg | Area | 97,0 | 83,3 | 23,3 | 522,8 | -65,4 | 1,2 | -16,3 | -1,7 | 1,1 | 16,0 | 16,0 | 16,0 | 16,0 |
| Køleanlæg | Area | 97,0 | 83,3 | 23,6 | 517,0 | -65,3 | 1,2 | -15,5 | -1,6 | 1,1 | 16,9 | 16,9 | 16,9 | 16,9 |
| levering af gyle - ind | Line | 100,7 | 70,1 | 1126,0 | 521,0 | -65,3 | -0,8 | -2,1 | -2,6 | 0,5 | 30,6 | 28,3 | 28,5 | 22,6 |
| levering af gyle - ud | Line | 100,7 | 70,8 | 959,6 | 500,0 | -65,0 | -1,4 | -0,1 | -2,5 | 1,1 | 32,8 | 29,8 | 30,0 | 27,1 |
| Levering af ikke-pumpbart uendørs | Line | 100,7 | 68,3 | 1740,2 | 520,7 | -65,3 | -1,2 | -0,6 | -2,6 | 0,3 | 31,3 | 28,1 | | |
| Levering af pumpbart - uendørs | Line | 100,7 | 68,2 | 1744,0 | 519,6 | -65,3 | -1,2 | -0,6 | -2,6 | 0,4 | 31,4 | 28,2 | | |
| Områder | Point | 83,7 | 83,7 | | 416,7 | -63,4 | -0,2 | 0,0 | -4,0 | 0,0 | 16,1 | 16,1 | 16,1 | 16,1 |
| Områder | Point | 83,7 | 83,7 | | 417,6 | -63,4 | -0,2 | 0,0 | -4,0 | 0,0 | 16,1 | 16,1 | 16,1 | 16,1 |
| Områder | Point | 83,7 | 83,7 | | 420,1 | -63,5 | -0,2 | 0,0 | -4,1 | 0,0 | 16,0 | 16,0 | 16,0 | 16,0 |
| Områder | Point | 83,7 | 83,7 | | 422,6 | -63,5 | -0,2 | 0,0 | -4,1 | 0,0 | 16,0 | 16,0 | 16,0 | 16,0 |
| Områder | Point | 83,7 | 83,7 | | 435,4 | -63,8 | -0,2 | 0,0 | -4,2 | 0,0 | 15,6 | 15,6 | 15,6 | 15,6 |
| Områder | Point | 83,7 | 83,7 | | 428,2 | -63,6 | -0,2 | 0,0 | -4,1 | 0,0 | 15,8 | 15,8 | 15,8 | 15,8 |
| Områder | Point | 83,7 | 83,7 | | 418,9 | -63,4 | -0,2 | 0,0 | -4,0 | 0,0 | 16,0 | 16,0 | 16,0 | 16,0 |
| Port | Point | 81,6 | 81,6 | | 460,6 | -64,3 | 0,0 | -21,9 | -2,4 | 0,0 | -3,9 | -3,9 | -3,9 | -3,9 |
| Port | Point | 81,6 | 81,6 | | 446,4 | -64,0 | -0,9 | 0,0 | -3,0 | 0,0 | 16,7 | 16,7 | 16,7 | 16,7 |
| Port | Point | 81,6 | 81,6 | | 479,9 | -64,6 | 1,1 | -20,0 | -2,4 | 0,0 | -4,3 | -4,3 | -4,3 | -4,3 |
| Port | Point | 81,6 | 81,6 | | 467,9 | -64,4 | 0,0 | -20,1 | -2,4 | 4,2 | -1,1 | -1,1 | -1,1 | -1,1 |
| Port | Point | 81,6 | 81,6 | | 446,0 | -64,0 | -0,9 | 0,0 | -3,0 | 0,0 | 16,7 | 16,7 | 16,7 | 16,7 |
| Port | Point | 81,6 | 81,6 | | 470,1 | -64,4 | -0,5 | -19,6 | -2,8 | 0,0 | -2,7 | -2,7 | -2,7 | -2,7 |
| Port | Point | 81,6 | 81,6 | | 466,4 | -64,4 | 0,2 | -22,4 | -2,3 | 0,0 | -4,3 | -4,3 | -4,3 | -4,3 |

| Kilde | Kildetype | Lw dB(A) | Lw pr. m,m ² dB(A) | Kilde str. m,m ² | Afstand til modtager m | Afstandslørr. dB | Terrænloerr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | L _{Aeq, 8h} dB(A) | L _{Aeq, 1h} dB(A) | L _{Aeq, 0,5f} dB(A) |
|---|-----------|-------------|----------------------------------|--------------------------------|---------------------------|---------------------|--------------------|---------------------|-------------------|-------------------------|--------------------------|-------------------------------|-------------------------------|---------------------------------|
| Port | Point | 81,6 | 81,6 | | 470,5 | -64,4 | -0,5 | -19,6 | -2,8 | 1,0 | -1,7 | -1,7 | -1,7 | -1,7 |
| Ventilationsflast | Point | 90,0 | 90,0 | | 526,6 | -65,4 | -0,2 | 0,0 | -5,7 | 0,0 | 18,7 | 18,7 | 18,7 | 18,7 |
| Ventilator for kedelskorsten | Point | 83,1 | 83,1 | | 503,2 | -65,0 | 1,3 | -24,9 | -4,6 | 0,0 | -10,0 | -10,0 | -10,0 | -10,0 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 522,2 | -65,3 | 1,8 | -25,0 | -3,0 | 0,9 | -10,0 | -10,0 | -10,0 | -10,0 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 522,4 | -65,4 | 1,5 | -20,0 | -3,0 | 0,9 | -5,4 | -5,4 | -5,4 | -5,4 |
| Receiver BP06 - Avntoftevej 1 L _{Aeq, 8h} 33,9 dB(A) L _{Aeq, 1h} 32,9 dB(A) L _{Aeq, 0,5h} 29,8 dB(A) L _{max} 36,4 dB(A) | | | | | | | | | | | | | | |
| Afhentning af gyle fra Sikrupresse | Line | 100,7 | 67,2 | 2195,5 | 543,6 | -65,7 | -1,0 | -0,6 | -2,6 | 0,5 | 31,2 | 14,2 | | |
| Brødvægt | Point | 90,8 | 90,8 | | 527,2 | -65,4 | -1,3 | 0,0 | -2,5 | 2,0 | 23,7 | 19,3 | 18,0 | 12,1 |
| Gasblæser | Point | 80,9 | 80,9 | | 641,0 | -67,1 | 0,4 | -13,3 | -2,1 | 0,1 | 1,8 | 1,8 | 1,8 | 1,8 |
| Gasopgradering | Point | 78,2 | 78,2 | | 651,4 | -67,3 | 1,2 | -8,9 | -1,6 | 0,0 | 4,5 | 4,5 | 4,5 | 4,5 |
| Gasopgradering | Point | 78,2 | 78,2 | | 625,3 | -66,9 | 0,0 | -10,4 | -1,5 | 0,0 | 2,4 | 2,4 | 2,4 | 2,4 |
| Gasopgradering - Åben port | Point | 85,7 | 85,7 | | 644,0 | -67,2 | 1,5 | -22,6 | -2,1 | 0,0 | -1,7 | -1,7 | -1,7 | -1,7 |
| Gasrenser - Afkast | Point | 80,0 | 80,0 | | 607,6 | -66,7 | -0,4 | -0,1 | -6,6 | 0,0 | 6,3 | 6,3 | 6,3 | 6,3 |
| Indpumpning | Point | 95,8 | 95,8 | | 562,3 | -66,0 | -0,4 | -10,3 | -1,7 | 0,0 | 17,4 | 14,4 | | |
| Kedelskorsten | Point | 90,0 | 90,0 | | 621,5 | -66,9 | -0,2 | -14,5 | -3,0 | 2,0 | 7,4 | 7,4 | 7,4 | 7,4 |
| Køleanlæg | Area | 97,0 | 83,3 | 23,3 | 641,2 | -67,1 | 1,3 | -13,3 | -1,5 | 0,6 | 17,0 | 17,0 | 17,0 | 17,0 |
| Køleanlæg | Area | 97,0 | 83,3 | 23,6 | 635,4 | -67,1 | 1,3 | -13,5 | -1,5 | 2,7 | 19,0 | 19,0 | 19,0 | 19,0 |
| levering af gyle - ind | Line | 100,7 | 70,1 | 1126,0 | 549,6 | -65,8 | -0,7 | -1,1 | -2,6 | 0,2 | 30,7 | 28,4 | 28,6 | 22,7 |
| levering af gyle - ud | Line | 100,7 | 70,8 | 959,6 | 526,5 | -65,4 | -1,4 | 0,0 | -2,6 | 0,7 | 31,8 | 28,8 | 29,1 | 26,1 |
| Levering af ikke-pumpbart uendørs | Line | 100,7 | 68,3 | 1740,2 | 528,9 | -65,5 | -1,3 | -0,4 | -2,6 | 0,2 | 31,2 | 25,9 | | |
| Levering af pumpbart - uendørs | Line | 100,7 | 68,2 | 1744,0 | 528,5 | -65,5 | -1,3 | -0,3 | -2,6 | 0,2 | 31,3 | 22,1 | | |
| Områder | Point | 83,7 | 83,7 | | 555,1 | -65,9 | -0,3 | 0,0 | -5,0 | 0,0 | 12,6 | 12,6 | 12,6 | 12,6 |
| Områder | Point | 83,7 | 83,7 | | 561,0 | -66,0 | -0,3 | 0,0 | -5,0 | 0,0 | 12,5 | 12,5 | 12,5 | 12,5 |
| Områder | Point | 83,7 | 83,7 | | 568,2 | -66,1 | -0,3 | 0,0 | -5,1 | 0,0 | 12,3 | 12,3 | 12,3 | 12,3 |
| Områder | Point | 83,7 | 83,7 | | 545,7 | -65,7 | -0,2 | 0,0 | -4,9 | 0,0 | 12,8 | 12,8 | 12,8 | 12,8 |
| Områder | Point | 83,7 | 83,7 | | 544,8 | -65,7 | -0,2 | 0,0 | -4,9 | 0,0 | 12,9 | 12,9 | 12,9 | 12,9 |
| Områder | Point | 83,7 | 83,7 | | 544,5 | -65,7 | -0,2 | 0,0 | -4,9 | 0,0 | 12,9 | 12,9 | 12,9 | 12,9 |
| Områder | Point | 83,7 | 83,7 | | 548,3 | -65,8 | -0,2 | 0,0 | -5,0 | 0,0 | 12,8 | 12,8 | 12,8 | 12,8 |
| Port | Point | 81,6 | 81,6 | | 576,4 | -66,2 | -0,6 | -14,0 | -1,5 | 0,0 | 2,2 | 2,2 | 2,2 | 2,2 |
| Port | Point | 81,6 | 81,6 | | 576,8 | -66,2 | -0,7 | -11,1 | -1,7 | 0,0 | 4,9 | 4,9 | 4,9 | 4,9 |
| Port | Point | 81,6 | 81,6 | | 618,3 | -66,8 | 0,9 | -12,9 | -1,6 | 0,7 | 2,0 | 2,0 | 2,0 | 2,0 |
| Port | Point | 81,6 | 81,6 | | 606,5 | -66,6 | -0,4 | -15,1 | -1,5 | 1,0 | -1,1 | -1,1 | -1,1 | -1,1 |
| Port | Point | 81,6 | 81,6 | | 579,9 | -66,3 | -1,6 | 0,0 | -3,7 | 0,0 | 13,1 | 13,1 | 13,1 | 13,1 |
| Port | Point | 81,6 | 81,6 | | 603,7 | -66,6 | -1,6 | -19,2 | -3,0 | 0,0 | -5,8 | -5,8 | -5,8 | -5,8 |

| Kilde | Kildetype | Lw dB(A) | Lw pr. m.m. dB(A) | Kilde str. m.m. ² | Afstand til modtager m | Afstandslørr. dB | Terrænkorr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | L _{Aeq} , 8h dB(A) | L _{Aeq} , 1h dB(A) | L _{Aeq} , 0,5h dB(A) |
|---|-----------|-------------|----------------------|---------------------------------|---------------------------|---------------------|-------------------|---------------------|-------------------|-------------------------|--------------------------|--------------------------------|--------------------------------|----------------------------------|
| Port | Point | 81,6 | 81,6 | | 582,2 | -68,3 | -0,8 | -13,4 | -1,5 | 0,0 | 2,9 | 2,9 | 2,9 | 2,9 |
| Port | Point | 81,6 | 81,6 | | 602,7 | -68,6 | -0,4 | -22,4 | -2,1 | 2,0 | -4,9 | -4,9 | -4,9 | -4,9 |
| Ventilationsafkast | Point | 90,0 | 90,0 | | 651,9 | -67,3 | -0,3 | 0,0 | -8,7 | 0,0 | 15,7 | 15,7 | 15,7 | 15,7 |
| Ventilator for kedelskorsten | Point | 83,1 | 83,1 | | 622,4 | -68,9 | 1,3 | -24,1 | -4,5 | 0,0 | -11,0 | -11,0 | -11,0 | -11,0 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 648,9 | -67,2 | 1,8 | -23,8 | -2,6 | 2,5 | -9,0 | -9,0 | -9,0 | -9,0 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 648,4 | -67,2 | 1,8 | -24,5 | -3,1 | 0,0 | -12,4 | -12,4 | -12,4 | -12,4 |
| Receiver BP07 - Fælledvej 35 L _{Aeq} , 8h 41,4 dB(A) L _{Aeq} , 1h 40,0 dB(A) L _{Aeq} , 0,5h 36,2 dB(A) L _{max} 50,0 dB(A) | | | | | | | | | | | | | | |
| Afhentning af gyle fra Skruvpressen | Line | 100,7 | 67,2 | 2195,5 | 214,5 | -57,6 | -1,5 | -1,9 | -0,8 | 0,0 | 38,9 | 21,9 | | |
| Brovægt | Point | 90,8 | 90,8 | | 659,1 | -67,4 | -1,4 | 0,0 | -3,2 | 0,0 | 16,9 | 14,8 | 13,2 | 7,4 |
| Gasblæser | Point | 80,9 | 80,9 | | 879,8 | -69,9 | 1,5 | -24,7 | -3,2 | 0,0 | -12,4 | -12,4 | -12,4 | -12,4 |
| Gasopgradering | Point | 78,2 | 78,2 | | 801,1 | -69,1 | 0,5 | -13,9 | -1,7 | 0,0 | -2,9 | -2,9 | -2,9 | -2,9 |
| Gasopgradering | Point | 78,2 | 78,2 | | 779,9 | -68,8 | 0,4 | 0,0 | -3,6 | 0,4 | 9,6 | 9,6 | 9,6 | 9,6 |
| Gasopgradering - Åben port | Point | 85,7 | 85,7 | | 792,9 | -69,0 | 0,8 | -14,1 | -3,1 | 0,0 | 3,3 | 3,3 | 3,3 | 3,3 |
| Gasrenser - Afkast | Point | 80,0 | 80,0 | | 754,1 | -68,5 | 0,8 | 0,0 | -7,5 | 0,0 | 4,7 | 4,7 | 4,7 | 4,7 |
| Indpumpning | Point | 95,8 | 95,8 | | 733,4 | -68,3 | 0,7 | -20,0 | -3,1 | 0,0 | 5,1 | 2,1 | | |
| Kedelskorsten | Point | 90,0 | 90,0 | | 792,6 | -69,0 | 1,3 | 0,0 | -7,7 | 0,0 | 14,8 | 14,8 | 14,8 | 14,8 |
| Køleanlæg | Area | 97,0 | 83,3 | 23,3 | 804,9 | -69,1 | 0,6 | -4,6 | -3,2 | 1,9 | 22,6 | 22,6 | 22,6 | 22,6 |
| Køleanlæg | Area | 97,0 | 83,3 | 23,3 | 800,4 | -69,1 | 0,6 | -1,1 | -3,3 | 0,0 | 24,0 | 24,0 | 24,0 | 24,0 |
| Levering af gyle - ind | Line | 100,7 | 70,1 | 1126,0 | 216,7 | -57,7 | -1,5 | -1,9 | -0,8 | 0,0 | 38,8 | 36,5 | 36,7 | 30,8 |
| Levering af gyle - ud | Line | 100,7 | 70,8 | 959,6 | 200,9 | -57,1 | -1,5 | -1,8 | -0,8 | 0,0 | 39,5 | 36,5 | 36,8 | 33,8 |
| Levering af ikke-pumpbart udendørs | Line | 100,7 | 68,3 | 1740,2 | 191,7 | -56,6 | -1,5 | -1,8 | -0,8 | 0,0 | 39,9 | 34,6 | | |
| Levering af pumpbart - udendørs | Line | 100,7 | 68,2 | 1744,0 | 192,5 | -56,7 | -1,5 | -1,8 | -0,8 | 0,0 | 39,9 | 30,7 | | |
| Områder | Point | 83,7 | 83,7 | | 802,0 | -69,1 | -0,2 | 0,0 | -6,6 | 0,0 | 7,9 | 7,9 | 7,9 | 7,9 |
| Områder | Point | 83,7 | 83,7 | | 822,1 | -69,3 | -0,2 | 0,0 | -6,7 | 0,0 | 7,5 | 7,5 | 7,5 | 7,5 |
| Områder | Point | 83,7 | 83,7 | | 843,3 | -69,5 | -0,2 | 0,0 | -6,8 | 0,0 | 7,2 | 7,2 | 7,2 | 7,2 |
| Områder | Point | 83,7 | 83,7 | | 750,8 | -68,5 | -0,2 | 0,0 | -6,3 | 0,0 | 8,7 | 8,7 | 8,7 | 8,7 |
| Områder | Point | 83,7 | 83,7 | | 713,5 | -68,1 | -0,2 | 0,0 | -6,0 | 0,0 | 9,4 | 9,4 | 9,4 | 9,4 |
| Områder | Point | 83,7 | 83,7 | | 731,9 | -68,3 | -0,2 | 0,0 | -6,1 | 0,0 | 9,1 | 9,1 | 9,1 | 9,1 |
| Områder | Point | 83,7 | 83,7 | | 770,5 | -68,7 | -0,2 | 0,0 | -6,4 | 0,0 | 8,4 | 8,4 | 8,4 | 8,4 |
| Port | Point | 81,6 | 81,6 | | 750,6 | -68,5 | 0,5 | -20,0 | -3,7 | 0,0 | -7,1 | -7,1 | -7,1 | -7,1 |
| Port | Point | 81,6 | 81,6 | | 800,4 | -69,1 | 0,3 | -20,0 | -3,9 | 0,0 | -8,0 | -8,0 | -8,0 | -8,0 |
| Port | Point | 81,6 | 81,6 | | 849,0 | -69,6 | 0,9 | -19,5 | -3,4 | 2,5 | -7,5 | -7,5 | -7,5 | -7,5 |
| Port | Point | 81,6 | 81,6 | | 840,5 | -69,5 | 0,8 | -19,7 | -3,6 | 2,5 | -7,8 | -7,8 | -7,8 | -7,8 |
| Port | Point | 81,6 | 81,6 | | 805,8 | -69,1 | 0,4 | -20,0 | -3,9 | 0,0 | -8,0 | -8,0 | -8,0 | -8,0 |

| Kilde | Kildetype | Lw dB(A) | Lw pr. m.m. dB(A) | Kilde str. m.m. ² | Afstand til modtager m | Afstandslørr. dB | Terrænkorr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | L _{Aeq} , 8h dB(A) | L _{Aeq} , 1h dB(A) | L _{Aeq} , 0,5h dB(A) |
|--|-----------|-------------|----------------------|---------------------------------|---------------------------|---------------------|-------------------|---------------------|-------------------|-------------------------|--------------------------|--------------------------------|--------------------------------|----------------------------------|
| Port | Point | 81,6 | 81,6 | | 822,6 | -69,3 | 0,9 | -23,8 | -2,9 | 2,3 | -8,2 | -8,2 | -8,2 | -8,2 |
| Port | Point | 81,6 | 81,6 | | 755,0 | -68,6 | 0,6 | -20,0 | -3,7 | 0,0 | -6,9 | -6,9 | -6,9 | -6,9 |
| Port | Point | 81,6 | 81,6 | | 817,3 | -69,2 | 0,7 | -22,9 | -3,1 | 0,0 | -9,9 | -9,9 | -9,9 | -9,9 |
| Ventilationsafkast | Point | 90,0 | 90,0 | | 836,7 | -69,4 | -0,3 | 0,0 | -8,0 | 0,0 | 12,2 | 12,2 | 12,2 | 12,2 |
| Ventilator for kedelskorsten | Point | 83,1 | 83,1 | | 793,3 | -69,0 | 1,2 | -16,9 | -3,8 | 0,0 | -5,3 | -5,3 | -5,3 | -5,3 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 835,2 | -69,4 | 1,0 | -19,9 | -5,1 | 0,0 | -12,8 | -12,8 | -12,8 | -12,8 |
| Ventilator for biofilter | Point | 80,6 | 80,6 | | 832,9 | -69,4 | 0,8 | -20,0 | -5,2 | 18,6 | 5,4 | 5,4 | 5,4 | 5,4 |
| Receiver BP08 - Snurum 26 L _{Aeq} , 8h 40,0 dB(A) L _{Aeq} , 1h 38,6 dB(A) L _{Aeq} , 0,5h 34,8 dB(A) L _{max} 49,9 dB(A) | | | | | | | | | | | | | | |
| Afhentning af gyle fra Skruvpressen | Line | 100,7 | 67,2 | 2195,5 | 288,5 | -60,2 | -1,3 | -0,6 | -1,0 | 0,0 | 37,5 | 20,5 | | |
| Brovægt | Point | 90,8 | 90,8 | | 738,6 | -68,3 | -1,4 | 0,0 | -3,5 | 0,0 | 17,7 | 13,2 | 12,8 | 6,1 |
| Gasblæser | Point | 80,9 | 80,9 | | 957,8 | -70,6 | 1,5 | -24,5 | -3,4 | 0,0 | -13,2 | -13,2 | -13,2 | -13,2 |
| Gasopgradering | Point | 78,2 | 78,2 | | 870,4 | -69,9 | 0,5 | -13,9 | -1,8 | 0,0 | -3,9 | -3,9 | -3,9 | -3,9 |
| Gasopgradering | Point | 78,2 | 78,2 | | 857,4 | -69,7 | 0,4 | 0,0 | -3,9 | 0,0 | 8,0 | 8,0 | 8,0 | 8,0 |
| Gasopgradering - Åben port | Point | 85,7 | 85,7 | | 870,2 | -69,8 | 0,8 | -14,0 | -3,4 | 0,0 | 2,3 | 2,3 | 2,3 | 2,3 |
| Gasrenser - Afkast | Point | 80,0 | 80,0 | | 831,5 | -69,4 | -0,3 | 0,0 | -8,0 | 0,0 | 2,3 | 2,3 | 2,3 | 2,3 |
| Indpumpning | Point | 95,8 | 95,8 | | 811,2 | -69,2 | 0,7 | -20,0 | -3,4 | 0,0 | 3,9 | 0,9 | | |
| Kedelskorsten | Point | 90,0 | 90,0 | | 870,3 | -69,6 | -0,2 | 0,0 | -8,2 | 0,0 | 11,8 | 11,8 | 11,8 | 11,8 |
| Køleanlæg | Area | 97,0 | 83,3 | 23,3 | 882,4 | -69,9 | 0,5 | -4,8 | -3,4 | 2,2 | 21,6 | 21,6 | 21,6 | 21,6 |
| Køleanlæg | Area | 97,0 | 83,3 | 23,3 | 878,0 | -69,9 | 0,5 | -1,2 | -3,6 | 0,0 | 22,9 | 22,9 | 22,9 | 22,9 |
| Levering af gyle - ind | Line | 100,7 | 70,1 | 1126,0 | 291,6 | -60,3 | -1,3 | -0,7 | -1,0 | 0,0 | 37,4 | 35,1 | 35,3 | 29,4 |
| Levering af gyle - ud | Line | 100,7 | 70,8 | 959,6 | 270,8 | -59,6 | -1,4 | -0,6 | -1,0 | 0,0 | 38,1 | 35,1 | 35,3 | 32,4 |
| Levering af ikke-pumpbart udendørs | Line | 100,7 | 68,3 | 1740,2 | 259,1 | -59,3 | -1,4 | -0,6 | -1,0 | 0,0 | 38,5 | 33,2 | | |
| Levering af pumpbart - udendørs | Line | 100,7 | 68,2 | 1744,0 | 280,2 | -59,3 | -1,4 | -0,5 | -1,0 | 0,0 | 38,5 | 29,3 | | |
| Områder | Point | 83,7 | 83,7 | | 879,8 | -69,9 | -0,3 | 0,0 | -7,1 | 0,0 | 6,5 | 6,5 | 6,5 | 6,5 |
| Områder | Point | 83,7 | 83,7 | | 899,7 | -70,1 | -0,3 | 0,0 | -7,3 | 0,0 | 6,1 | 6,1 | 6,1 | 6,1 |
| Områder | Point | 83,7 | 83,7 | | 920,9 | -70,3 | -0,3 | 0,0 | -7,4 | 0,0 | 5,8 | 5,8 | 5,8 | 5,8 |
| Områder | Point | 83,7 | 83,7 | | 828,0 | -69,4 | -0,3 | 0,0 | -6,7 | 0,0 | 7,4 | 7,4 | 7,4 | 7,4 |
| Områder | Point | 83,7 | 83,7 | | 791,4 | -69,0 | -0,2 | 0,0 | -6,5 | 0,0 | 8,0 | 8,0 | 8,0 | 8,0 |
| Områder | Point | 83,7 | 83,7 | | 889,8 | -69,2 | -0,2 | 0,0 | -6,6 | 0,0 | 7,7 | 7,7 | 7,7 | 7,7 |
| Områder | Point | 83,7 | 83,7 | | 848,4 | -69,6 | -0,2 | 0,0 | -6,8 | 0,0 | 7,1 | 7,1 | 7,1 | 7,1 |
| Port | Point | 81,6 | 81,6 | | 829,4 | -69,4 | 0,4 | -20,0 | -4,0 | 0,0 | -8,3 | -8,3 | -8,3 | -8,3 |
| Port | Point | 81,6 | 81,6 | | 878,4 | -69,9 | -0,1 | -20,0 | -4,2 | 0,0 | -9,6 | -9,6 | -9,6 | -9,6 |
| Port | Point | 81,6 | 81,6 | | 927,1 | -70,3 | 0,8 | -19,5 | -3,6 | 2,5 | -8,5 | -8,5 | -8,5 | -8,5 |
| Port | Point | 81,6 | 81,6 | | 918,5 | -70,3 | 0,8 | -19,7 | -3,8 | 2,5 | -8,8 | -8,8 | -8,8 | -8,8 |

| Kilde | Kildetype | Lw dB(A) | Lw pr. m.m ² dB(A) | Kilde str. m.m ² | Afstand til modtager m | Afstandslørr. dB | Terrenkkorr. dB | Skærmvirkning dB | Luftabsorp. dB | Refleksionsbidrag dB | Støjbidrag (Ls) dB(A) | LAeq, 8h dB(A) | LAeq, 1h dB(A) | LAeq, 0.5h dB(A) |
|--------------------------------|-----------|-------------|----------------------------------|--------------------------------|---------------------------|---------------------|--------------------|---------------------|-------------------|-------------------------|--------------------------|-------------------|-------------------|---------------------|
| Port | Point | 81,6 | 81,6 | | 883,6 | -69,9 | 0,4 | -20,0 | -4,2 | 0,0 | -9,1 | -9,1 | -9,1 | -9,1 |
| Port | Point | 81,6 | 81,6 | | 900,6 | -70,1 | 0,6 | -23,5 | -3,1 | 0,6 | -10,7 | -10,7 | -10,7 | -10,7 |
| Port | Point | 81,6 | 81,6 | | 832,3 | -69,4 | 0,6 | -19,9 | -4,0 | 0,0 | -8,1 | -8,1 | -8,1 | -8,1 |
| Port | Point | 81,6 | 81,6 | | 895,3 | -70,0 | 0,7 | -22,6 | -3,4 | 0,0 | -10,7 | -10,7 | -10,7 | -10,7 |
| Ventilationsafkast | Point | 90,0 | 90,0 | | 914,2 | -70,2 | -0,3 | 0,0 | -5,5 | 0,0 | 11,0 | 11,0 | 11,0 | 11,0 |
| Ventilatorer for kedelskorsten | Point | 83,1 | 83,1 | | 871,0 | -69,6 | 1,2 | -16,6 | -4,1 | 0,0 | -6,3 | -6,3 | -6,3 | -6,3 |
| Ventilatorer for biofilter | Point | 80,6 | 80,6 | | 913,1 | -70,2 | 0,6 | -19,9 | -5,5 | 0,3 | -13,8 | -13,8 | -13,8 | -13,8 |
| Ventilatorer for biofilter | Point | 80,6 | 80,6 | | 910,7 | -70,2 | 0,6 | -20,0 | -5,6 | 18,5 | 4,2 | 4,2 | 4,2 | 4,2 |

Arcadis U.S., Inc.
123 North Third Street, Suite 705
Minneapolis
Minnesota 55401
Phone: 612 339 9434
Fax: 612 336 4538
www.arcadis.com

Proposed Roberts Digester Project

Tim Stieber, St. Croix County Resource Management Administrator

The County is neither for or against the Roberts Digester proposal. No application has been reviewed or position developed. However, the large amount of nitrogen and phosphorus drawn together from a multi-county area is a concern because nitrogen and phosphorus are the #1 groundwater and the #1 surface water pollutants in WI and in SCC.

The digester will rely heavily on animal manures for methane generation and therefore the digestors would be classified as an animal waste storage facility by WI DNR and require a County Land Use Permit as outlined in Chapter 11 of SCC Land Use Ordinance.

Chapter 11, the Animal Waste and Storage Facility Ordinance requires evidence of compliance with state statutes ATCP 51, NR 151, and USDA Practice Standards 590, 313, and others.

I do not expect anyone here to know much about these listed standards so I will summarize:

- 1) Nutrients staying in SCC would be required to be applied under a Nutrient Management Plan for each farm utilizing digester by-products:
 - a. Each Farm NMP's are renewed annually each spring and the plans involve all the acres involved in the farm in question. Each plan is updated with actual nutrient applications made from all sources from previous year records.
 - b. Each Farm NMP must submit a Checklist signed off by a Certified Crop Advisor and the landowner verifying compliance with NR151 and USDA NRCS 590 standards.
 - c. Each Farm NMP would designate byproduct storage areas in the plan to allow evaluation of these areas for meeting appropriate standards.
 - d. Each Farm NMP would require field soil sampling on a 5 acre grid every 4 years

There are ways to avoid these Nutrient Management Plan requirements. This would need to be demonstrated at the time of Animal Waste and Storage Facility permit application:

- a. Export all by-products from the County.
- b. Obtain a DNR WPDES permit for all by-products (5 year NMP required)
- c. Process all by-products further to create DATCP licensed fertilizer which is then shipped and marketed.

Proposed Bio-digester For Roberts WI

A bio-digester is being proposed for the Village of Roberts. Digestors have long been proposed as a means of dealing with animal and food waste. They are not competitive for energy generation without green credits and tax breaks which are now in place. The facilities also require solid maintenance and monitoring to stay functional as many of the on-farm designs have failed over the years. The Roberts facility would use an established company to manage the facility and rely on carbon credits from California dairy producers to help offset costs.

Exact size of the facility has not been made available but based on materials submitted to WI-DNR the facility will bring in 610,000 tons of organic material to the digester plant to be used to generate natural gas which will then be put into the pipeline located in Roberts. The breakdown of organic material is proposed to be as follows:

100,000 tons of turkey litter

450,000 tons of dairy manure

30,000 tons food industry by-products

30,000 tons floatation solids from Jennie O slaughter facility

610,000 tons total

The total tonnage can be used to estimate the nutrient content of the by-products that will be produced using calculations that were made when a 183,000 ton facility was proposed for the nearby town of Pleasant Valley. The Roberts facility will be 3.3 times larger. A conservative 3X more nutrients was used to estimate the pounds nutrients that will be generated in the by products.

| | Annual Tonnage Delivered To Plant | Composition | Source | Available N in By- Products lbs/year | Available P in By- Products lbs / year |
|--|--|-------------------------------|--|---|---|
| Pleasant Valley Proposal | 183,000 tons | Turkey and Dairy Manure | 71% out of County 29% within County | 5,994,800 lbs N/year | 4,190,600 lbs P/year |
| Roberts Location Proposal | 610,000 tons 3.3X more delivered | Listed above | Not known but likely greater out of county contribution | 17,984,000 lbs N/year | 12,588,000 lbs P/year |

Digestors "cook down" organic materials into plant available nitrogen and phosphorous and also kill almost all harmful bacteria during the process. Nutrients that come into the facility are concentrated in by products which then are generally land applied for fertilizer onto cropland. By-products have significant nutrient content, but are still bulkier, and more intensive to land apply than fertilizer. Generally by-products are land applied within 25 to 30 miles of the plant due to costs of shipping.

The need for 17.9 million pounds of available N and 12.6 million pounds of P becomes paramount in determining feasibility of the proposed project location.

Proposed Bio-Digester Project in Roberts Wisconsin

The project will bring in 610,000 tons of organic material in the Village of Roberts annually. This amount of organic material is equivalent in nutrients to a 46,000 Animal Unit Confined Animal Feeding Operation.

The biodigestors are often sold as green technology but it is unknown if truck traffic is considered? Truck traffic based on a 36 ton load would be 16,944 semi trucks averaging 6 miles per gallon fuel rating to haul organic material to the plant to produce natural gas that costs more to produce than natural gas currently available. Carbon credits from California will be used to offset the high cost of production.

By-products are estimated to contain 17.9 million pounds of available nitrogen and 12.6 million pounds of available phosphorous. These amounts are a concern because nitrogen and phosphorus are our most common pollutants we are working on in WI and SCC.

About 10% of private domestic wells in WI exceed the 10 ppm nitrate-N standard. In St Croix County 12% of the 16,000 domestic wells exceed 10 ppm for nitrate-N (1,920 domestic wells). Replacing these wells would cost residents \$16 million. St Croix County research indicates groundwater nitrate levels are still increasing in some areas of the county. The 17 million pounds of nitrogen – if evenly applied to every corn grain and silage field in the County would meet the entire nitrogen need. There is real potential for an additional 17 million pounds of N contained in the by-products to impact groundwater as these materials would be distributed and applied by the same agricultural system that caused the existing nitrate problems.

Wisconsin is rich in surface water resources. Elevated phosphorous (P) levels in surface water is the most widespread threat to Wisconsin and St. Croix County's surface water resources. Forty-nine percent of the surface water impairments are attributed to phosphorous. In St Croix County, 82% of the County is covered by a Total Maximum Daily Load (TMDL) which mandates that P losses to surface water be reduced. Annual reductions from city wastewater plants, County conservation efforts, etc. are tracked to show reductions.

The by-products will contain 12 million pounds of P which is adequate to meet the entire P need for corn grain and silage for all St Croix County acres leaving 4.8 million pounds left over.

Soils from St Croix County were submitted to DATCP from 1995 – 2014 (69,126 samples). This provides a definitive data base to analyze the need for P in County soils. Based on the data between 25 to 50% of soils in St. Croix County will have no response to P fertilizer application. A soil test over 30 ppm P for corn grain or 35 ppm P for corn silage is considered an excessive level of P. The county average P in the DATCP data base is 41.6 ppm. As soil P levels rise runoff from those fields will carry increasing levels of dissolved phosphorous off the fields and into our surface waters.

One option for the digester operation is to extract the N and P from the by-products and create fertilizer products that are sold in the conventional manner. This also reduces volume so these materials can be shipped to areas of greater nutrient need. This option is being tested at the Brown County digester facility where water is being cleaned to allow direct discharge back into surface water. This level of nutrient extraction would make the proposed digester acceptable.

| Sensitive Areas | | | | | | | | | | | | |
|-----------------|------------------------------|------|-----|------|--------------|-----------------|----------------------|------------------|----------------------|-----------------------|-------------------|----------------|
| ID | Township | CGMP | TNC | UWSP | Num. Samples | Average Nitrate | Total Wells Per Grid | Nitrate < 1 mg/L | Nitrate 1.1 - 5 mg/L | Nitrate 5.1 - 10 mg/L | Nitrate > 10 mg/L | Tier Type |
| 2815 | Cady | 8 | 5 | 40 | 53 | 3.9 | 207 | 17.0% | 62.3% | 17.0% | 3.8% | Below Standard |
| 2818 | Kinnikinic | 6 | 0 | 164 | 170 | 3.9 | 496 | 14.7% | 55.3% | 27.6% | 2.4% | Below Standard |
| 2819 | Troy | 16 | 19 | 372 | 407 | 5.4 | 1526 | 11.94% | 41.39% | 35.28% | 11.39% | Tier 1 Town |
| 2917 | Hammond | 5 | 7 | 116 | 128 | 8.9 | 728 | 0% | 25% | 39.8% | 35.2% | Tier 1 Town |
| 2918 | Warren | 8 | 7 | 266 | 281 | 7.3 | 386 | 9.6% | 27.8% | 38.4% | 24.2% | Tier 1 Town |
| 3017 | Erin Prairie | 12 | 2 | 69 | 83 | 7.3 | 156 | 3.6% | 28.9% | 44.6% | 22.9% | Tier 1 Town |
| 3018 | Richmond | 10 | 5 | 209 | 224 | 6.3 | 1152 | 12.1% | 27.4% | 43.5% | 17.0% | Tier 1 Town |
| 3117 | Stanton | 12 | 3 | 88 | 103 | 6.1 | 203 | 8.8% | 44.1% | 33.3% | 13.7% | Tier 1 Town |
| 2817 | Rush River & Pleasant Valley | 8 | 1 | 118 | 127 | 4.6 | 253 | 15.7% | 49.6% | 27.6% | 7.1% | Tier 2 Town |
| 2915 | Springfield | 8 | 7 | 37 | 52 | 3.9 | 260 | 32.7% | 38.5% | 15.4% | 13.5% | Tier 2 Town |
| 3015 | Glenwood | 7 | 3 | 24 | 34 | 4.3 | 188 | 23.5% | 50.0% | 14.7% | 11.8% | Tier 2 Town |