AGENDA
CHARTER TOWNSHIP OF MERIDIAN
MERIDIAN TRANSPORTATION COMMISSION
May 20, 2021 7:00 p.m.

1. CALL MEETING TO ORDER

2. APPROVAL OF AGENDA

3. APPROVAL OF MINUTES
   A. March 18, 2021

4. COMMUNICATIONS

5. PUBLIC REMARKS

6. COMMISSION DISCUSSION
   A. Railroad Quiet Zones-Update
   B. Mt. Hope Road-Traffic Safety
   C. Shaw Street Pathway

7. REPORTS / ANNOUNCEMENTS
   A. Township Board
   B. Planning Commission
   C. Chair
   D. Staff

8. NEXT MEETING DATES
   A. Township Board Meeting June 1, 2021
   B. Transportation Commission Meeting August 19, 2021.

9. ADJOURNMENT

Zoom Meeting

ID: 880 2838 5000

Password: 5000

Individuals with disabilities requiring auxiliary aids or services should contact Director of Community Planning and Development Mark Kieselbach, 5151 Marsh Road, Okemos, MI 48864 or 517.853.4506 - Ten Day Notice is Required.
Meeting Location: 5000 Okemos Road, Okemos, MI 48864 Central Fire St.

Charter Township of Meridian
Meridian Transportation Commission
5151 Marsh Road, Okemos, MI 48864
Thursday, March 18, 2021– Minutes –DRAFT
Meeting held virtually using the Zoom web conferencing application

Members Present: Vice-Chair Lovell, Commissioners Potter, Opsommer and Robertson

Members Absent: Chair Vagnozzi and Commissioner Hudson

Others Present: Deputy Manager Derek Perry, Police Chief Ken Plaga, Community Planning & Development Director Mark Kieselbach and Planning Commission Liaison Christina Snyder

1. CALL MEETING TO ORDER

Vice-Chair Lovell called the meeting to order at 7:00pm

2. APPROVAL OF THE AGENDA

MOTION BY COMMISSIONER OPSOMMER TO APPROVE THE AGENDA. SUPPORTED BY COMMISSIONER POTTER. MOTION PASSES 4-0.

3. APPROVAL OF THE MINUTES-JANUARY 21, 2021

MOTION BY COMMISSIONER OPSOMMER TO APPROVE THE MINUTES. SUPPORTED BY COMMISSIONER ROBERTSON, MOTION PASSES 6-0.

4. COMMUNICATIONS

Vice-Chair Lovell mentioned receiving the Dangerous By Design 2021 report (copy on file)

5. PUBLIC REMARKS

Bill McConnell, 4376 Manitou Drive, stated he was glad the MSU to Lake Lansing pathway project is moving forward. He thought a pedestrian signal for the pathway should be installed near the Hagadorn Road and Shaw Lane intersection.

Lindsey LaForte, 4577 Van Atta Road, stated it was difficult to cross Grand River Avenue at Cornell Road and the need for a pedestrian signal at the intersection

6. PUBLIC HEARING

A. MSU to Lake Lansing Pathway Phase III

Deputy Manager Perry outlined the project. He stated Phase I and Phase II will start construction in 2021 and be completed in 2022. The estimated cost for Phase III was $2.6 million. Funding was being sought from Ingham County Park and Trail millage $1.95 million, Meridian Pathway millage $350,000 and the Michigan Natural Resource Trust Fund (MNRTF) grant program $300,000. (Material on file)

Vice-Chair Lovell opened the public hearing at 7:12 p.m. and asked if anyone from the public would like to speak.

Bill McConnell, 4376 Manitou Drive, stated he supported the Township's effort to seek the funding.

Vice-Chair Lovell closed the public hearing at 7:14 p.m.

7. COMMISSION ACTION

A. MSU to Lake Lansing Pathway Phase III

MOTION BY COMMISSIONER OPSOMMER TO APPROVE THE RESOLUTION OF SUPPORT FOR THE MSU TO LAKE LANSING PATHWAY PHASE III. SUPPORTED BY COMMISSIONER POTTER. MOTION PASSES 4-0. (A copy of the resolution is on file)

Vice-Chair Lovell stated he had drafted some additional wording in support of the pathway.

MOTION BY COMMISSIONER POTTER THE TRANSPORTATION COMMISSION SEND A LETTER OF SUPPORT TO THE TOWNSHIP BOARD USING VICE-CHAIR LOVELL'S WORDING. SUPPORTED BY COMMISSIONER OPSOMMER. MOTION PASSES 4-0.

8. COMMISSION DISCUSSION

A. Pathway Master Plan (material on file)

- The Pathway Master Plan was last updated in 2016.
- Deputy Manager Perry will be seeking input from other Boards and Commissions on the update.
- Tentatively a public hearing on the updated plan would be held by the Transportation Commission at its May meeting with a recommendation to the Township Board.
- Staff recommended pathway updates shown in yellow on the map.
  1. Green Road connector
  2. Carlton Road connector
  3. Towner Road connector
  4. Hillbrook Park connector

5. Consumers Energy-Haslett to Grand River connector
6. Consumers Energy-Grand River to Legg Park connector
7. Sturk Land Preserve connector

- Complete the gap on the south side of Lake Lansing Road in front of Donley School. East Lansing Schools is planning on completing the gap.
- The traffic island in the intersection of Lake Lansing Road, Towar Avenue and Birch Row Drive is planned to be removed.
- The north end of the Towar pathway will connect to the East Lansing trail system.
- Pathway millage funding can be used to sign and mark bike lanes.
- Staff is working with Ingham County Road Department (ICRD) on the cost.
- The bike lane was eliminated on Hulett Road when the left turn lane was installed at the intersection of Jolly Road and Hulett Road.
- Consumers Energy right-of-ways used for cross country (off road) pathways.
- Possible mowed off road pathway to the east of the Ingham County care facility on Dobie Road and along the north side of the Hiawatha subdivision.
- Priority in 2024 and 2025 is to complete existing gaps in the pathway system.
- Possible addition to the plan:
    - a pathway south of Haslett Village Square in the vacated right-of-way of Raby Road
    - a looped pathway paved or natural starting and stopping from Hannah Boulevard going east towards Indian Lakes Estates.
- City of East Lansing planning on completing the gap on Saginaw in front of Costco.
- Possible off road pathway, east of Okemos to Dobie Road. Will need to work with Delta Dental to cross their property.
- Signage on the pathways is needed.
- Little data on crime or vandalism related to the pathway system.
- Concern with the speed of cyclists riding on the pathway.

9. REPORTS/ANNOUNCEMENTS

A. Township Board

Trustee Opsommer mentioned Supervisor Styka was working on filling the vacant position on the Transportation Commission. The Township Board will be reviewing the Jolly Road rezoning once the Planning Commission has made a recommendation. A possible senior housing project on the former LaFontaine site on Grand River Avenue. The Township Board is considering adding additional Redi-Ride service destinations including Autism Centers of Michigan, Lansing Urgent Care Haslett, Gilden Woods Early Care and Preschool, Monticello's Market, Hope Network Neuro Rehabilitation, Burcham Hills and Pleasantries East Lansing on Merritt Road.

B. Planning Commissioner

Commissioner Christina Snyder reported the Commission would be making a recommendation on the Jolly Road rezoning at its meeting on March 22, 2021. At that meeting the Commission will also vote on a special use permit for work in the floodplain at 2020 Grand River Avenue and hopefully complete its review of the updates to the Mixed Use Planned Unit Development ordinance. The Planning Commission had also recommended approval of an amendment to the Zoning Ordinance for automobile dealerships.

C. Chair

Vice-Chair Lovell congratulated Deputy Manager Perry on being awarded the Top Assistant Manager in Michigan by the Michigan Municipal Executives.

D. Staff

Deputy Manager Perry stated he would contact Ingham County Road Department regarding the pedestrian signal on Cornell Road.

Director Kieselbach mentioned his retirement from the Township at the end of May.

Other comments:

Commissioner Potter requested the Transportation Commission schedule a joint meeting with the East Lansing Transportation Commission.

Commissioner Potter stated the need for a traffic signal at the intersection of Grand River Avenue and Van Atta Road or the intersection of Grand River Avenue and Meridian Road.

Vice-Chair Lovell mentioned the non-motorized crossing at Newton Road and Saginaw may need to be lighted in the future.

10. NEXT MEETING DATES

A. Township Board Meeting April 13, 2021
B. Transportation Commission Meeting May 20, 2021

11. ADJOURNMENT

VICE-CHAIR LOVELL ASKED FOR A MOTION TO ADJOURN THE MEETING, MOTION BY COMMISSIONER POTTER TO ADJOURN THE MEETING, SUPPORTED BY COMMISSIONER OPSOMMER, MOTION PASSES 4-0.

Meeting adjourned at 8:23 p.m.

A. Railroad Quiet Zones-Update

MERIDIAN TOWNSHIP

REVIEW OF PRELIMINARY STUDY: RAILROAD QUIET ZONES

JANUARY 2019

OHM
Advancing Communities

The purpose of OHM Advisor's (OHM) review of the **Preliminary Study: Railroad Quiet Zones**, prepared by Abonmarche for Meridian Township, is to confirm the findings and recommendations contained therein, provide input on anticipated safety measures and associated installation costs, and to assist in determining the next steps for implementation of the two potential quiet zones. OHM was recommended to Meridian Township by the City of Battle Creek based on our work on their quiet zone project that was implemented in 2017. OHM's report offers comments, corrections, and supplemental information to the Preliminary Study. The objective is to provide an understanding of quiet zones and what is required for their implementation, approval, and continued acceptance. It is our intention that both technical and non-technical persons will benefit from the information presented in this report.

Summary of Findings and Recommendations

The main factor in determining the feasibility of implementing a quiet zone is the reduction of risk within the limits of the quiet zone. It is OHM's recommendation that the Quiet Zone Risk Index (QZRI) be reduced, by the installation of supplemental safety measures (SSMs), to below the Risk Index with Horns (RIWH). While it is permissible and will allow the implementation of a quiet zone to have the QZRI be below the Nationwide Significant Risk Threshold (NSRT), as presented in the Preliminary Study for CSX RR, OHM recommends sufficient safety measures be installed to reduce the Quiet Zone Risk Index to below the Risk Index with Horns. Doing this eliminates the need for an annual FRA review of the quiet zone and increases the likelihood of continued acceptance of the quiet zone.

In addition to our recommendation of lowering the QZRI to below the RIWH, our review of the Preliminary Study found that the calculated Risk Index with Horns (RIWH) for the **CSX Railroad** is lower than what is presented in the Preliminary Study (6,845.28 current vs. 10,949.98 study). This lower RIWH value ultimately results in our recommendation to install additional safety measures beyond what is recommended in the Preliminary Study.

While reviewing the Preliminary Study and preparing information for this report, OHM has discovered that positive train control and associated constant warning time circuitry are not planned for the CSX RR crossings, therefore to implement a quiet zone along the CSX RR the circuitry would need to be installed at the cost of the Township. Given the number of trains per day, the associated costs of installing the circuitry, and the necessity of installing gates at two crossings, it would be in the Township's and resident's best interest to evaluate the cost-benefit of a CSX RR quiet zone. The estimated cost to implement a quiet zone on the CSX RR from Mt Hope Road to Meridian Road ranges from approximately $2.05 million to $2.25 million, depending on options for the Ingham County Department of Roads to consider.

Regarding the CN RR, two quiet zone options were considered in the Preliminary Study, with one involving crossings within the campus of Michigan State University (at Bogue Street and Hagadorn Road). It is critical that early contact and communication begin with MSU to gauge their interest in the pursuit of a quiet zone involving these two crossings. Following the initial discussion(s) with MSU a request should be submitted by the Township to the Michigan Department of Transportation for a Diagnostic Study Team Review (DSTR) meeting of the CN RR crossings. Early communication in the process gives the opportunity to discuss the project with the stakeholders and incorporate request, comments, and/or suggestions before design plan production begins.

The estimated cost to implement a quiet zone on the CN RR varies greatly depending on the results of communication with MSU and the Ingham County Department of Roads. Should MSU and Ingham County

Department of Roads be in agreement with the pursuit of a quiet zone and concur that minimal work needs to be done to implement a quiet zone, the estimated cost is approximately $20,000. This option considers a quiet zone from Bogue Street to Green Road. If the Hagadorn and Boque crossings are not included a shorter quiet zone from Okemos Road to Green Road would need to be considered, at an estimated cost of $150,000 to $200,000. The variable estimate accounts for options for the Ingham County Department of Roads to consider. OHM has discovered that positive train control and associated constant warning time circuitry are planned to be installed for the CN RR crossings by 2021, The pursuit of a quiet zone along the CN RR seems reasonable given the relatively low potential costs and likelihood of an improved quality of life for those that live near or within the influence of the train horns.

Preliminary Study Review – Results and Discussion Details

The specific areas shown with bold headers throughout this document identify particular items reviewed along with supplemental information for each item. Boxed paragraphs throughout this document highlight discrepancies between our review and the Preliminary Study and provide supplemental information to the Preliminary Study.

Review of crossing inventories, assumptions, and evaluation of each railroad's potential quiet zone (including calculation of risk numbers)

The creation of a quiet zone is based upon the ability to reduce risk to the motoring public at public highway-rail grade crossings. The Federal Rule *49 CFR Parts 222 and 229 Use of Locomotive Horns at Highway-Rail Grade Crossings* is included as a separate appendix to this report. In general, there are three risk indices that are generated and compared.

One of the risk indexes is the **Nationwide Significant Risk Threshold (NSRT)**. This is a number reflecting a measure of risk, calculated on a nationwide basis, which reflects the average level of risk to the motoring public at public highway-rail grade crossings equipped with flashing lights and gates and at which locomotive horns are sounded. For purposes of the federal rule, a risk level above the Nationwide Significant Risk Threshold represents a significant risk with respect to loss of life or serious personal injury. *The NSRT value of 14,723.00 as shown in the **Preliminary Study** is consistent with the current value at the time of this review.*

Another risk index is the **Risk Index With Horns (RIWH)** which is a measure of risk to the motoring public when locomotive horns are routinely sounded at every public highway-rail grade crossing within a quiet zone. The third risk index is the **Quiet Zone Risk Index (QZRI)** which is a measure of risk to the motoring public which reflects the crossing corridor risk index for a quiet zone, after adjustment to account for increased risk due to lack of locomotive horn use at the crossings within the quiet zone (if horns are presently sounded at the crossings) and reduced risk due to implementation, if any, of **Supplemental Safety Measures (SSMs)** and **Alternative Safety Measures (ASMs)** within the quiet zone.

There are two categories of safety measures that can be installed; supplemental safety measures (SSMs) and alternative safety measures (ASMs). Supplemental safety measures consist of installation of a four-quadrant gate system, gates with medians or channelizing devices for a specific distance from the gate arm, or permanent closure of the roadway. Wayside horns may be included as part of a quiet zone; however, they cannot be used to calculate risk reduction. ASMs are safety measures that are similar to SSMs with the exception that there are circumstances with prevent them from being fully compliant with all of the requirements of SSMs (i.e.: length of median or channelizing devices).

OHM utilized the FRA's online quiet zone calculator to verify the risk indices presented in the Preliminary Study for each railroad; CSX and CN. The calculated Risk Index with Horn (RIWH) for the **CSX Railroad** is lower than what is presented in the Preliminary Study (6,845.28 current vs. 10,949.98 study). A number of factors (bulleted below) are considered in the calculation of the RIWH. A majority if not all of these factors have not changed since the report. Additionally, the calculated Quiet Zone Risk Index (QZRI) is lower than what is presented in the Preliminary Study (11,417.93 current vs. 18,864.56 study).

- AADT
- the trains per day
- the number of day through trains
- the total switching trains per day
- the number of main tracks
- the number of other tracks
- if the crossing is in an urban or rural location
- if the roadway is paved or not
- the maximum train speed
- the number of roadway lanes
- the number of years of crash data
- the number of crashes in crash data years

OHM presented these discrepancies to the FRA in an effort to identify the reasoning for the differences. FRA utilized an independent calculation and verified the results of the online quiet zone calculator. The current calculated values (not those presented in the preliminary report) are used for comparison in this evaluation.

The Preliminary Study RIWH and QZRI values for the **CN Railroad** were verified using the online quiet zone calculator. The values listed in the Preliminary Study are consistent with what is currently calculated.

Field Review

OHM conducted a field review of several of the crossings along each railroad to determine the feasibility of proposed improvements. Site conditions, including lane and shoulder widths, along with driveway locations and their proximity to the gate arm or railroad tracks were observed and taken into account when evaluating proposed supplemental safety measures (SSMs) or alternative safety measures (ASMs).

Review of preliminary report proposed SSM's for feasibility with field conditions and costs.

The **Quiet Zone Risk Index (QZRI)** is the average of the risk indexes of all the public crossings in a quiet zone. It takes into consideration the absence of the horn sound and any safety measures that may have been installed.

As part of the establishment and implementation of a quiet zone, certain requirements are necessary to be reported to the Federal Railroad Administration. The frequency of these reports varies depending on the scenario in which the quiet zone was established.

If a quiet zone is qualified based on reference to the Nationwide Significant Risk Threshold then an **annual review** will be done by FRA to determine if the Quiet Zone Risk Index remains equal to, or less than, the Nationwide Significant Risk Threshold. Since the Nationwide Significant Risk Threshold and the Quiet Zone Risk Index may change from year to year, there is no guarantee that the quiet zone will remain qualified. The circumstances that cause the disqualification may not be subject to the control of the public authority. If the quiet zone is no longer qualified, then the public authority will have to take additional measures, and may incur additional costs that might not have been budgeted, to once again lower the Quiet Zone Risk Index to at least the Nationwide Significant Risk Threshold in order to retain the quiet zone. Therefore, while the initial cost to implement a quiet zone by reducing the QZRI below the NSRT may be the lowest cost option, this scenario also carries a degree of uncertainty about the quiet zone's continued existence.

Where supplemental safety measures (SSMs) are not installed at every crossing within the proposed quiet zone and the QZRI is below the RIWH, **periodic updates**, including updated inventory forms, must be submitted every **2.5-3 years** after the date of the quiet zone establishment, and between 2.5-3 years after the last affirmation. For the periodic updates the public authority must:

1) Affirm in writing to the FRA that all SSMs and ASMs implemented within the quiet zone continue to conform to the requirements of Appendices A (Approved Supplementary Safety Measures) and B (Alternative Safety Measures) of the federal regulation or the terms of the quiet zone approval. Copies of such notification must be provided to all railroads operating over the public highway-rail grade crossings within the quiet zone; the highway or traffic control or law enforcement authority having jurisdiction over vehicular traffic at grade crossings within the quiet zone; the landowner having control over any private highway-rail grade crossings within the quiet zone; the State agency responsible for highway and road safety; the State agency responsible for grade crossing safety; and the FRA Associate Administrator by certified mail, return receipt requested; and
2) Provide to the FRA Associate Administrator an up-to-date, accurate, and complete Grade Crossing Inventory Form for each public highway-rail grade crossing, private highway-rail grade crossing, and pedestrian grade crossing within the quiet zone.

Federal mandate requires the implementation of positive train control (PTC) on rail lines that carry intercity or commuter rail transportation, transport toxic or hazardous materials, or as prescribed by regulation or order. PTC is a system designed to prevent train-to-train collisions, derailments caused by excessive speeds, unauthorized train movements in work zones, and the movement of trains through switches left in the wrong position. PTC networks enable real-time information sharing between trains, rail wayside devices, and "back office" applications, regarding train movement, speed restrictions, train position and speed, and the state of signal and switch devices.

To implement PTC there must be constant warning time circuitry in place. Since constant warning time circuitry is also required for establishment of a quiet zone it is critical to the cost of implementation if the railroad is already obligated and scheduled to install the PTC.

CSX RR is not required to install PTC on this section of their rail, likely due to the volume of trains per day and cargo transported. CN RR is required to install PTC on their section of rail and will have their line equipped by 2021.

A **Diagnostic Study Team Review (DSTR)** meeting is required for any road projects that take place within 250 feet of a public at-grade railroad crossing. The DSTR consists of representatives from the Michigan Department of Transportation, the road authority (Ingham County Department of Roads), and the railroad. As part of the review meeting the DSTR reviews the railroad crossing configuration at each crossing location, including the surrounding roadway, and the road project specifics to determine if safety enhancements are warranted.

CSX RR

The Preliminary Study presented implementing a quiet zone by reducing the QZRI below the NSRT. The Preliminary Study included scenarios in which SSMs would be installed at strategic crossings to lower the QZRI.

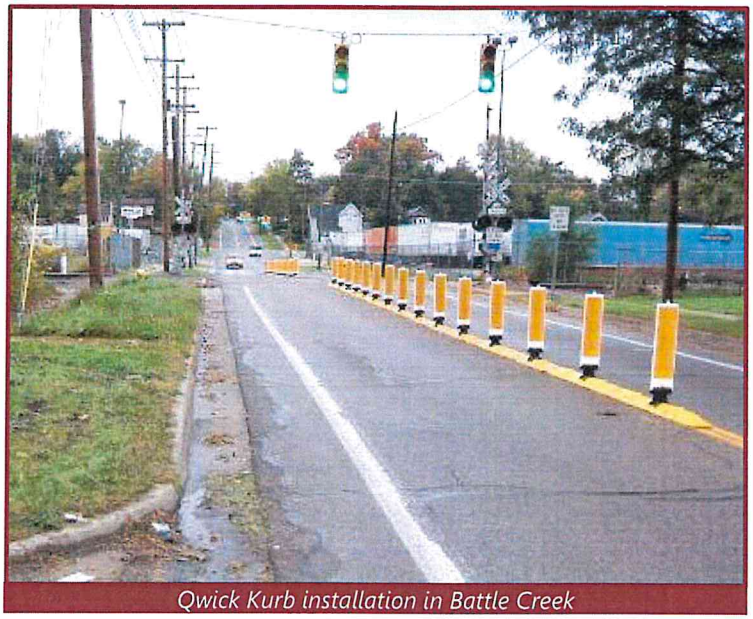
> While this is feasible, OHM strongly recommends establishing the quiet zone by implementing SSM's to reduce the QZRI **below** the RIWH and **avoid an annual review**.

Implementation of the scenarios as listed in the Preliminary Study will result in a QZRI less than the nationwide threshold but not below the RIWH. OHM created a separate scenario which reduces the QZRI below the RIWH. This proposed quiet zone scenario includes all of the crossings within the Township; from Mt Hope Road to Meridian Road. The work required to implement this scenario involves installation of the following SSMs at the highest risk crossings where feasible and results in a QZRI of 6616.03 versus a RIWH of 6845.28. The chosen crossings allow for the installation of SSMs. The crossings where SSMs are not included in this scenario have driveways or intersecting roadways in close proximity and do not allow for installation of SSMs without significant roadwork or reconfiguration.

Mt Hope Rd	SSM Code 12 (Mountable medians with reflective traffic channelization devices)*
Hulett Rd	SSM Code 12 (Mountable medians with reflective traffic channelization devices)*
Okemos Rd	SSM Code 13 (Non-Traversable curb medians with or without channelizing devices)
Vanatta Rd	SSM Code 12 (Mountable medians with reflective traffic channelization devices)*

* SSM Code 13 (Non-Traversable curb medians with or without channelizing devices) are feasible at these locations should a more permanent median be desired.

Proposed SSMs Coded 12 are anticipated to be Lane Separator Systems (Qwick Kurb) with installations of 100 foot lengths on each approach starting from the railroad gate arm. This type of installation does not require any road work and can be done in a short amount of time, typically one day per approach. Traffic would be affected during the installation but can be maintained by use of flagging or posted detour, if preferred and feasible. An example of this product installed in Battle Creek is shown here.



Qwick Kurb installation in Battle Creek

To implement a Quiet Zone, gates would need to be installed at Hulett Road and Meridian Road. Additionally, constant warning time circuitry needs to be installed at Hagadorn Road, Hulett Road, Dobie Road, and Vanatta Road. CSX RR is not required to install PTC and therefore the cost to install the circuitry at these crossings would need to be paid by the Township.

Curbed median installation in Battle Creek

The estimated cost of constructing these SSMs including the cost of gates and constant warning time circuitry is approximately $2,050,000. The estimated cost of constructing non-traversable curbed medians (SSM Code 13) at all of these locations is approximately $2,250,000. These costs include an estimated inflation rate of 3% until construction in 2022 (3 years), design fees, and construction engineering.

As mentioned in the Preliminary Study, the private crossing at Sylvan Glen Road would require additional signage at a minimum. The DSTR meeting would provide any additional direction needed for safety improvements at this crossing.

CN RR

The proposed option presented in the Preliminary Study for implementing a quiet zone along the CNRR from Bogue Street to Green Street is rather simple. The existing safety measure, consisting of a non-traversable curbed median at Hagadorn Road, is enough risk reduction to allow for implementation of a quiet zone along this railroad. However, several of the crossings need installation of constant warning time circuitry to satisfy FRA requirements for quiet zone installation. The QZRI is below the RIWH; therefore, the Township will only be required to provide periodic updates to FRA every 2.5-3 years (not annually).

As discussed in the Preliminary Study, the crossing at Bogue Street is located within the City of East Lansing and on Michigan State University's campus. Additionally, there is a pedestrian only crossing at MSU parking Lot 92, just west of Hagadorn Road. **The City and University will need to be engaged early in the process and involved in the diagnostic study team review meeting.** If Hagadorn Road is included in the quiet zone, Bogue Street must also be included due to it being less than 0.5 miles from Hagadorn Road. This is considered Option #1. If Hagadorn Road and Boque Street are not included, then the quiet zone would extend from Okemos Road to Green Street and is labeled Option #2. In this option, the installation of a SSM at Okemos Road would be needed to provide enough risk reduction to put the QZRI below the RIWH. SSM Code 12 (Mountable medians with reflective traffic channelizing devices) (Quick Kurb) on each approach is recommended for this location. However, SSM Code 13 (Non-Traversable curb medians with or without channelizing devices) are feasible at this location should a more permanent median be desired.

OHM communication with CNRR has revealed that the railroad will implement positive train control at their crossings within the Township by 2021. As part of the positive train control installation, the required constant warning time circuitry will be installed as well. If the Township can wait until the railroad installs the positive train control, the cost of these items will not be at the expense of the Township.

Assuming the Township can wait until PTC is installed on the railroad, the estimated cost for implementing Option #1 is estimated to be $20,000 for coordination and administrative costs, as well as sign installation. If the City of East Lansing and MSU and/or the diagnostic study team review meeting are not in support of including Bogue Street in the quiet zone, Option #2 could be implemented. The estimated cost for this implementation is approximately $150,000 for lane separator system and approximately $200,000 for installation of non-traversable curbed medians at Okemos Road. These costs include an estimated inflation rate of 3% until construction in 2022 (3 years), design fees, and construction engineering.

Review costs of railroad provided items (gates, flagging and inspection, constant warning time circuitry).

OHM has cost estimate information for railroad signal and gate arm installation that was done on the recent quiet zone project in Battle Creek. CN RR, which runs through Battle Creek, provided preliminary cost estimates to the City in advance of their project so the City could budget accordingly as the signal and gate arm work was at the City's expense. OHM was unable to obtain signal installation cost information from CSX RR but expect the signal install costs would be similar between CN RR and CSX RR. We feel that a conservative amount for signal work at the required crossing is expected to be approximately $300,000 per crossing (two lane road, two signals). This cost is included in the CSX RR estimate at the crossings which require gate arms and signals. The Preliminary Study used a cost of $400,000 per crossing.

Railroad flagging and inspection will be required when work is performed within close proximity to the tracks, typically within 25 feet. Of the latest information we were able to locate the daily costs charged by each railroad is $1,500 per day (CSX RR) and $1,300 per 10 hours (CN RR). Other costs include Right of Entry permit and Cable Locate fees.

The Preliminary Study estimated a cost for installation of constant warning time systems to be between $20,000-$150,000. Through consultation with a designer of railroad signal systems who has a vast amount of knowledge and experience, we feel a more appropriate cost for installation of a constant warning time system is better estimated at $175,000 (per crossing) as a conservative amount. This cost can vary depending on the crossing and is dependent on the number of tracks, crossing geometry, type of operations, train speed, existing signal circuitry, etc. and can be adjusted by the operating railroad with **more information gathered from the diagnostics review process**. This unit cost is included in the CSX RR estimate at the crossings which do not yet have the constant warning time circuitry.

Although there is no initial cost to request a DSTR meeting, CSX RR requires an agreement and a fee of $5,500 prior to discussing the project. This fee is included in the estimate.

Alternate Options (ASMs, wayside horn)

The scenarios as presented in the **Preliminary Study** are certainly viable. However, we feel the best approach to implement a quiet zone is by installing the most appropriate and effective supplemental safety measures (SSM's) at the best crossing locations to reduce the risk below the risk index with horns (RIWH).

As mentioned previously, ASMs can be installed at appropriate crossings to further reduce the risk within the limits of the quiet zone should additional risk reduction be needed in the future. Many of the crossing locations that cannot accommodate SSMs will accommodate ASMs due to the close proximity of driveways and/or intersecting roads. Median SSMs must extend at least 100 feet from the gate arm, or if there is an intersection within 100 feet of the gate, the median must extend at least 60 feet from the gate arm. Shorter length medians are allowed but are considered ASMs.

In the future, if additional risk reduction is necessary along the CSX RR to keep the quiet zone due to a decrease in the RIWH or NSRT, ASM's could be installed at the south approach at Hagadorn Road, the south approach at Dobie Road, and the south approach at Meridian Road. Due to the geometry of the roadways and proximity of driveways or intersecting side streets, OHM recommends the installation of mountable medians with reflective channelizing devices (Quick Kurb). The installation of the ASM's at these locations is estimated to be $140,000. Furthermore, it may not be necessary to install ASM's at all of these locations, depending on how much additional risk reduction is needed.

In the future, if additional risk reduction is necessary along the CN RR to keep the Option #1 quiet zone, SSM's could be installed at Okemos Road and consist of mountable medians with reflective channelizing devices (Quick Kurb). Additional risk reduction for either scenario could be achieved with the installation of ASM's consisting of mountable medians with reflective channelizing devices (Quick Kurb) on the west approach at Haslett Road, both approaches at Carlton Street, and both approaches at Green Road. Installations at these crossings are considered ASM's because the length of medians that can be installed due to driveway or intersecting street locations being less than those needed for SSM's.

Wayside horns as mentioned in the Preliminary Study provide another option to silence train horns. A wayside horn is a stationary horn located at a highway rail grade crossing, designed to provide, upon the approach of a locomotive or train, audible warning to oncoming motorists of the approach of a train. While the installation of these devices allows for the trains to silence their horns the wayside horns still emit a noise that is similar in decibel level to a train horn only it is directionally focused along the approaching roadway. Moreover, the installation of a wayside horn at a crossing is not included in calculating the quiet zone risk reduction. A rough estimate of cost for the materials and installation of a wayside horn is

approximately $80,000 per crossing. Maintenance costs for these installations are also significant. It has been reported that many municipalities have tried these horns and ended up removing them due to the maintenance and continued/redistributed noise concerns.

Other Considerations

OHM fully concurs with the Preliminary Study's recommendation to consider the impact of the quiet zone(s) on pedestrians. We strongly agree with the Preliminary Study recommendation of installing Z-gates at Haslett Road (CN RR) due to the proximity of schools.

We also recommend additional signage along the sidewalk pedestrian crossings on each approach for the CSX RR at Hagadorn Road (east side of road), Okemos Road (both sides of road) and Dobie Road (west side of road), and at the following CN RR crossings, Bogue Street (east side of road), Hagadorn Road (east side of road), Okemos Road (east side of road), and Haslett Road (both sides of road).

The Haslett Road crossing (CN RR) has a unique and difficult configuration due to the skew of the tracks relative to the roadway and the proximity and geometry of an intersecting street and driveways, particularly in the northwest quadrant. Safety measures are not required at this crossing; however, the DSTR meeting would allow for the opportunity to discuss this specific crossing and any potential safety improvements that could be implemented.

Haslett Road (CN RR)
Driveway in NW Quad inside of gate arm

In regard to the potential quiet zone on the CSX RR there are several things to consider. The cost to implement the quiet zone on this track is significant relative to the volume of train traffic. The cost to install signals, install constant warning time devices at several crossings, and the initial cost to discuss the project with CSX RR all need to be covered by the Township and are rather considerable. Perhaps it would serve the community best by holding on the pursuit of a quiet zone along the CSX RR and concentrate the effort to implementing a quiet zone on the CN RR.

Suggested Next Steps

The Preliminary Study provides a good outline for next steps; however, as one of the first steps we recommend discussions with MSU to gauge their interest pursuing a quiet zone which includes Hagadorn Road and Bogue Street. Following the discussion(s) with MSU the Ingham County Department of Roads needs to be contacted to gauge their interests and concerns. Once these discussion have taken place a DSTR meeting request should be submitted to MDOT. Requesting the DSTR meeting early in the process gives the opportunity to discuss the project with the stakeholders and incorporate request, comments, and/or suggestions before design plan production begins.

Following the DSTR meeting and taking into account the discussions from the meeting, a better evaluation of the interests, limits and costs of establishment of quiet zone can be determined.

Attachments

- Cost Estimates
- DSTR request form

Separate file

- FRA Final Rule
  (49 CFR Parts 222 and 229 Use of Locomotive Horns at Highway- Rail Grade Crossings)

Engineer's Estimate of Cost

January 2019

CSX Railroad - Installation of:

SSM 12 at Mt Hope Road
SSM 12 at Hulett Road
SSM 13 at Okemos Road
SSM 12 at Vanatta Road

CSX RAILROAD

	Meridian Township Quiet Zones Cost Summaries			SSM	12		12	13		12	
ITEM CODES	DESCRIPTION	UNIT	UNIT PRICES	QTY	MT HOPE RD	HAGADORN RD	HULETT RD	OKEMOS RD	DOBIE RD	VANATTA RD	MERIDIAN RD
1500001	Mobilization, Max. ____	LS	$10,000.00	4	1		1	1		1	
2040050	Pavt, Rem	Syd	$25.00	287				287			
3020001	Aggregate Base	Ton	$35.00	180				180			
6020050	Conc Pavt, Misc, Nonreinf, 6 inch	Syd	$40.00	191				191			
8027001	_Curb and Gutter, Conc, Det F4, Modified	Ft	$50.00	478				478			
8100340	Post Hole Through Conc for Steel Post	Ea	$60.00	2				2			
8100371	Post, Steel, 3 lb	Ft	$8.00	30				30			
8100405	Sign, Type IIIB	Sft	$20.00	76	10	10	10	16	10	10	10
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	Ft	$15.00	120			48	48		24	
8110069	Pavt Mrkg, Ovly Cold Plastic, Railroad Sym	Ea	$340.00	2			2				
8110343	Rem Spec Mrkg	Sft	$2.50	24			24				
8120211	Pavt Mrkg, Longit, Greater than 6 inch Width, Rem	Ft	$1.25	48			48				
8120250	Plastic Drum, High Intensity, Furn	Ea	$20.00	102				102			
8120251	Plastic Drum, High Intensity, Oper	Ea	$0.50	102				102			
8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	$4.50	168				168			
8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	$0.25	168				168			
8127001	_Lane Separator System	Ft	$150.00	600	200		200			200	
8127051	_Maintenance of Traffic	LS	$10,000.00	3	1		1			1	
8507060	_Cable Locate Fee	Dlr	$1.00	1000	250		250	250		250	
8507060	_Railroad Inspection and Flagging	Dlr	$1.00	24000	3000		3000	15000		3000	
8507060	_Right of Entry License	Dlr	$1.00	3000	750		750	750		750	

Subtotal:		$54,200.00	$200.00	$55,720.00	$75,327.38	$200.00	$54,560.00	$200.00	
Contingency (%):	10	$5,500.00	$100.00	$5,600.00	$7,600.00	$100.00	$5,500.00	$100.00	
SSM Install Cost:		$59,700.00	$300.00	$61,320.00	$82,927.38	$300.00	$60,060.00	$300.00	$264,907

Railroad Associated Items/Costs

Installation of Gates	Ea	$300,000.00	2			1				1	
Installation of Constant Warning Time Circuitry	Ea	$175,000.00	4		1	1		1	1		
				$0.00	$175,000.00	$475,000.00	$0.00	$175,000.00	$175,000.00	$300,000.00	$1,300,000
				$59,700.00	$175,300.00	$536,320.00	$82,927.38	$175,300.00	$235,060.00	$300,300.00	$1,564,907
Yrs until Construction:	3										
Inflation (%):	3			$5,400.00	$15,800.00	$48,300.00	$7,500.00	$15,800.00	$21,200.00	$27,100.00	$141,100

CSX Agreement Fee	Ea	$5,500.00	1	
Update USDOT Inventory Forms	Ea	$1,000.00	7	
			$12,500.00	

Design (10% of SSM installation cost + inflation):	$29,000
Construction Engineering (15% of SSM installation cost + inflation + RR Associated Items):	$256,000
Grand Total:	**$2,050,000**

Engineer's Estimate of Cost

January 2019

CSX Railroad - Installation of:

SSM 13 at Mt Hope Road
SSM 13 at Hulett Road
SSM 13 at Okemos Road
SSM 13 at Vanatta Road

CSX RAILROAD

	Meridian Township Quiet Zones Cost Summaries			SSM	13		13	13		13	
ITEM CODES	DESCRIPTION	UNIT	UNIT PRICES	QTY	MT HOPE RD	HAGADORN RD	HULETT RD	OKEMOS RD	DOBIE RD	VANATTA RD	MERIDIAN RD
1500001	Mobilization, Max. ____	LS	$15,000.00	4	1		1	1		1	
2040050	Pavt, Rem	Syd	$25.00	547	100		75	287		85	
3020001	Aggregate Base	Ton	$35.00	267	33		24	180		29	
5010002	Cold Milling HMA Surface	Syd	$5.00	3320	2000		684			636	
5010034	HMA, 36A	Ton	$100.00	298	179		61			57	
6020050	Conc Pavt, Misc, Nonreinf, 6 inch	Syd	$40.00	382	73		54	191		64	
8027001	_Curb and Gutter, Conc, Det F4, Modified	Ft	$50.00	478				478			
8027001	_Curb, Conc, Det E4, Modified	Ft	$40.00	780	300		220			260	
8100340	Post Hole Through Conc for Steel Post	Ea	$60.00	16	4		4	4		4	
8100371	Post, Steel, 3 lb	Ft	$8.00	240	60		60	60		60	
8100405	Sign, Type IIIB	Sft	$20.00	194	41	10	41	41	10	41	10
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	Ft	$15.00	192	48		72	48		24	
8110069	Pavt Mrkg, Ovly Cold Plastic, Railroad Sym	Ea	$340.00	2			2				
8110231	Pavt Mrkg, Waterborne, 4 inch, White	Ft	$0.50	1560	600		440			520	
8110232	Pavt Mrkg, Waterborne, 4 inch, Yellow	Ft	$0.50	150	150						
8110343	Rem Spec Mrkg	Sft	$2.50	24			24				
8120211	Pavt Mrkg, Longit, Greater than 6 inch Width, Rem	Ft	$1.25	48			48				
8120250	Plastic Drum, High Intensity, Furn	Ea	$20.00	205	102			102			
8120251	Plastic Drum, High Intensity, Oper	Ea	$0.50	205	102			102			
8120350	Sign, Type B, Temp, Prismatic, Furn	Sft	$4.50	336	168			168			
8120351	Sign, Type B, Temp, Prismatic, Oper	Sft	$0.25	336	168			168			
8127051	_Maintenance of Traffic (Minor Traff Devices, Staging or Detour)	LS	$25,000.00	4	1		1	1		1	
8507060	_Cable Locate Fee	Dlr	$1.00	1000	250		250	250		250	
8507060	_Railroad Inspection and Flagging	Dlr	$1.00	60000	15000		15000	15000		15000	
8507060	_Right of Entry License	Dlr	$1.00	3000	750		750	750		750	

Subtotal:		$108,077.59	$200.00	$82,884.64	$106,187.38	$200.00	$83,118.24	$200.00	
Contingency (%):	10	$10,900.00	$100.00	$8,300.00	$10,700.00	$100.00	$8,400.00	$100.00	
SSM Install Cost:		$118,977.59	$300.00	$91,184.64	$116,887.38	$300.00	$91,518.24	$300.00	$419,468

Railroad Associated Items/Costs

Installation of Gates	Ea	$300,000.00	2			1				1	
Installation of Constant Warning Time Circuitry	Ea	$175,000.00	4		1	1		1	1		
				$0.00	$175,000.00	$475,000.00	$0.00	$175,000.00	$175,000.00	$300,000.00	$1,300,000
				$118,977.59	$175,300.00	$566,184.64	$116,887.38	$175,300.00	$266,518.24	$300,300.00	$1,719,468
Yrs until Construction:	3										
Inflation (%):	3			$10,800.00	$15,800.00	$51,000.00	$10,600.00	$15,800.00	$24,000.00	$27,100.00	$155,100

CSX Agreement Fee	Ea	$5,500.00	1	
Update USDOT Inventory Forms	Ea	$1,000.00	7	
			$12,500.00	

Design (10% of SSM installation cost + inflation):	$46,000
Construction Engineering (15% of SSM installation cost + inflation + RR Associated Items):	$282,000
Grand Total:	**$2,250,000**

Engineer's Estimate of Cost

January 2019

CN Railroad - Option #1 -

Quiet Zone from Bogue St to Green Rd

Signal installation and constant warning time systems installed by railroad at their expense (by 2021)

CN RAILROAD

	Meridian Township Quiet Zones Cost Summaries			SSM						
ITEM CODES	DESCRIPTION	UNIT	UNIT PRICES	QTY	BOGUE ST	HAGADORN RD	OKEMOS RD	HASLETT RD	CARLTON RD	GREEN RD
8100405	Sign, Type IIIB	Sft	$20.00	60	10	10	10	10	10	10

Subtotal:	$200.00	$200.00	$200.00	$200.00	$200.00	$200.00	
Contingency (%): 10	$100.00	$100.00	$100.00	$100.00	$100.00	$100.00	
*SSM Install Cost:	$300.00	$300.00	$300.00	$300.00	$300.00	$300.00	$1,800

Railroad Associated Items/Costs

	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0
* Only signage need be installed, no SSMs or ASMS	$300.00	$300.00	$300.00	$300.00	$300.00	$300.00	$1,800
Yrs until Construction: 3							
Inflation (%): 3	$100.00	$100.00	$100.00	$100.00	$100.00	$100.00	$600

Update USDOT Inventory Forms	Ea	$1,000.00	6	
			$6,000.00	

Administrative Costs (MSU/Ingham Co/DSTR meetings & coordination): $7,000

Grand Total: $20,000

Engineer's Estimate of Cost

January 2019

CN Railroad - Option #2 - Installation of:
SSM 12 at Okemos Road
Quiet Zone from Okemos Rd to Green Rd

CN RAILROAD

	Meridian Township Quiet Zones Cost Summaries			SSM			12				
ITEM CODES	DESCRIPTION	UNIT	UNIT PRICES	QTY	BOGUE ST	HAGADORN RD	OKEMOS RD	HASLETT RD	CARLTON RD	GREEN RD	
1500001	Mobilization, Max. ____	LS	$10,000.00	4			1	1	1	1	
8100405	Sign, Type IIIB	Sft	$20.00	40			10	10	10	10	
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	Ft	$15.00	24			24				
8127001	_Lane Separator System	Ft	$150.00	200			200				
8127051	_Maintenance of Traffic	LS	$10,000.00	1			1				
8507060	_Cable Locate Fee	Dlr	$1.00	250			250				
8507060	_Railroad Inspection and Flagging	Dlr	$1.00	2600			2600				
8507060	_Right of Entry License	Dlr	$1.00	750			750				

Subtotal:			$54,160.00	$10,200.00	$10,200.00	$10,200.00	
Contingency (%):	10		$5,500.00	$1,100.00	$1,100.00	$1,100.00	
SSM Install Cost:			$59,660.00	$11,300.00	$11,300.00	$11,300.00	$93,560
Railroad Associated Items/Costs							
			$0.00	$0.00	$0.00	$0.00	$0
			$59,660.00	$11,300.00	$11,300.00	$11,300.00	$93,560
Yrs until Construction:	3						
Inflation (%):	3		$5,400.00	$1,100.00	$1,100.00	$1,100.00	$8,700

Update USDOT Inventory Forms	Ea	$1,000.00	4	
			$4,000.00	

Design (10% of SSM installation cost + inflation):	$11,000
Construction Engineering (15% of SSM installation cost + inflation + RR Associated Items):	$16,000
Grand Total:	**$150,000**

Engineer's Estimate of Cost
January 2019

CN Railroad - Option #2 - Installation of:
SSM 13 at Okemos Road
Quiet Zone from Okemos Rd to Green Rd

CN RAILROAD

	Meridian Township Quiet Zones Cost Summaries			SSM			13			
ITEM CODES	DESCRIPTION	UNIT	UNIT PRICES	QTY	BOGUE ST	HAGADORN RD	OKEMOS RD	HASLETT RD	CARLTON RD	GREEN RD
1500001	Mobilization, Max. ____	LS	$15,000.00	4			1	1	1	1
2040050	Pavt, Rem	Syd	$25.00	80			80			
3020001	Aggregate Base	Ton	$35.00	27			27			
5010002	Cold Milling HMA Surface	Syd	$5.00	853			853			
5010034	HMA, 36A	Ton	$100.00	77			77			
6020050	Conc Pavt, Misc, Nonreinf, 6 inch	Syd	$40.00	59			59			
8027001	_Curb, Conc, Det E4, Modified	Ft	$40.00	240			240			
8100340	Post Hole Through Conc for Steel Post	Ea	$60.00	4			4			
8100371	Post, Steel, 3 lb	Ft	$8.00	60			60			
8100405	Sign, Type IIIB	Sft	$20.00	71			41	10	10	10
8110045	Pavt Mrkg, Ovly Cold Plastic, 24 inch, Stop Bar	Ft	$15.00	24			24			
8110231	Pavt Mrkg, Waterborne, 4 inch, White	Ft	$0.50	600			600			
8127051	_Maintenance of Traffic (Minor Traff Devices or Detour)	LS	$25,000.00	1			1			
8507060	_Cable Locate Fee	Dlr	$1.00	250			250			
8507060	_Railroad Inspection and Flagging	Dlr	$1.00	13000			13000			
8507060	_Right of Entry License	Dlr	$1.00	750			750			

Subtotal:			$83,002.67	$15,200.00	$15,200.00	$15,200.00	
Contingency (%):	10		$8,400.00	$1,600.00	$1,600.00	$1,600.00	
SSM Install Cost:			$91,402.67	$16,800.00	$16,800.00	$16,800.00	$141,803
Railroad Associated Items/Costs							
			$0.00	$0.00	$0.00	$0.00	$0
			$91,402.67	$16,800.00	$16,800.00	$16,800.00	$141,803
Yrs until Construction:	3						
Inflation (%):	3		$8,300.00	$1,600.00	$1,600.00	$1,600.00	$13,100

Update USDOT Inventory Forms	Ea	$1,000.00	4	
			$4,000.00	

Design (10% of SSM installation cost + inflation):	$16,000
Construction Engineering (15% of SSM installation cost + inflation + RR Associated Items):	$24,000
Grand Total:	**$200,000**

B. Mt. Hope Road-Traffic Safety

MERIDIAN TOWNSHIP POLICE DEPARTMENT
MEMORANDUM

TO: **Chief Ken Plaga**

FROM: Sgt. Andrew McCready
Meridian Township Police, Patrol Division

DATE: May 12, 2021

RE: **Mt. Hope Road Traffic surveys**

Chief Plaga:

As directed, I've summarized our traffic surveys that were conducted on Mt. Hope Road, both in the 45 mph zone and the 35 mph zone.

The survey in the 45 mph zone (signs were located near Fairlane):

Total Days of Data: 7 Speed Limit: 45 Average Speed: 40.7 50th Percentile Speed: 41.71 85th Percentile Speed: 46.42 Average Volume per Day: 2950.3 Total Volume: 20652	Total Days of Data: 7 Speed Limit: 45 Average Speed: 44.62 50th Percentile Speed: 44.91 85th Percentile Speed: 49.82 Average Volume per Day: 4923.1 Total Volume: 34462

Eastbound traffic information:	Westbound traffic information:
Total Days of Data: 8 Speed Limit: 35 Average Speed: 34.95 50th Percentile Speed: 34.97 85th Percentile Speed: 40.46 Average Volume per Day: 4677.6 Total Volume: 37421	Total Days of Data: 7 Speed Limit: 35 Average Speed: 39.54 50th Percentile Speed: 40.36 85th Percentile Speed: 44.72 Average Volume per Day: 7025.7 Total Volume: 49180

We also completed a survey in the 35 mph zone

In between the time the surveys were completed we spent a little over a month with a directed patrol in place for our officers to spend time focusing only on traffic enforcement. Unfortunately, during the times our officers were there, no violations were observed.

We have also worked cooperatively with Mr. Conklin at the Ingham County Roads Department to evaluate signage on Mt. Hope previously as well as the Montessori School to get vegetation cut back to improve sight distances.

There have been two fatal crashes on Mt. Hope since the beginning of 2020 that I have information on. The first occurred at Mt. Hope and Commanche. This crash was not the result of speeding or an issue with sight distance. The second occurred at Mt. Hope and Maumee. This crash investigation is still open and a determination of the causation should not be made at this time.

From:	Lou Porter
To:	Board
Subject:	Speed limit on Mt Hope Between Hagadorn and Chippewa and Okemos Road and Chippewa
Date:	Thursday, April 22, 2021 3:50:59 PM

Members of the Board:

There have been several serious accidents on Mt. Hope between Hagadorn and Okemos Road with the most recent on Saturday April 17th resulting in a fatality. There are at least two places on Mt Hope where the line of sight is significantly limited. In the accident last Saturday the driver was exiting Glendale Cemetery and was hit by a car proceeding westward on Mt. Hope. The line of sight there is very restricted The other restricted line of sight is just west of Comanche. Both making a right turn traveling east onto Mt. Hope from a red light, and turning left onto Comanche when traveling west, present risks of collision due to the restricted line of sight there.

There are several different approaches that could be taken to lessen that risk, from increased enforcement of the speed limit, to an additional speed limit sign further up Mt Hope from Okemos Road, to lowering the speed limit to 35 mph consistently from Okemos Rd to Hagadorn.

I'm aware that the township board may petition the county road commission or the department of state police for a proposed change in the speed limit on a street. I request that the board undertake steps to have a new traffic and engineering study conducted regarding the speed limit on Mt Hope between Hagadorn and Chippewa (where the speed limit currently changes from 45 mph 35 mph) to determine whether a reduction to a consistent 35 mph is warranted or whether additional signage or approaches should be considered to reduce the number of accidents.

Respectfully submitted,

Louis Porter
2587 Woodhill Dr.
Okemos

From: Okelly, Barbara Ann
To: Board
Subject: Fw: Speed and accidents on Mt. Hope Road
Date: Friday, April 23, 2021 9:58:40 AM

Greetings. The issues below may be of interest to the Board.

Thank you for your service,

Barbara O'Kelly (she/her)
2576 Woodhill Dr.
Okemos, MI 48864
517-333-8940

From: Okelly, Barbara Ann
Sent: Wednesday, April 21, 2021 8:55 PM
To: WConklin@ingham.org <WConklin@ingham.org>
Cc: Mark Polsdofer <MPolsdofer@ingham.org>; danielopsommer@gmail.com <danielopsommer@gmail.com>; Jennifer Banks <jeniferbanks25@gmail.com>; Mary ann And John Larzalere <malarz@aol.com>; Jean Tsao <jeanitsao@gmail.com>; Briggs, Betty <briggsb@msu.edu>; Rivera, Diana <dianar@msu.edu>; Elaine Cal... <ecal123.ec@gmail.com>; Calantone, Roger <rogercal@broad.msu.edu>; Carol Levin <levinc@gmail.com>; Lou Porter <ljporter2@comcast.net>; slfeldman@comcast.net <slfeldman@comcast.net>; Peggy Malovrh <margaret.malovrh@gmail.com>; Mary Anne Adams <MarybelleMI@aol.com>; Anne Hansen <invested5@aol.com>; Rich Spreng <richspreng@gmail.com>; Thadd Gormas <thaddgormas@gmail.com>; Michelle Gormas <michellegormas@gmail.com>; Joan King <kingjoan8363@gmail.com>; Amy Payne <amypayne68@gmail.com>; John Gustafson <jgustafson@hotmail.com>; Etta Abrahams <etta1225@gmail.com>; dan.shimkos@sbcglobal.net <dan.shimkos@sbcglobal.net>; Maggie <mshimkos@sbcglobal.net>
Subject: Speed and accidents on Mt. Hope Road

Dear Mr. Conklin:

As you probably know, there was a serious auto accident Saturday at the intersection of Mt. Hope and Maumee. A few weeks ago there was one at our corner, Mt. Hope and Comanche. Assuming that the
radar speed detection signs occasionally posted on Mt. Hope record the speeds detected, I suspect that they have shown consistent excess speeds in both the zones from Okemos Road to Chippewa and Chippewa to Hagadorn.

I've taken an informal survey of residents of Woodhill Drive regarding traffic on Mt. Hope, and we have a number of recommendations that we hope the Road Department will act on. Your feedback on these would be greatly appreciated.

1) Please **post a radar speed detector more frequently** on west-bound Mt. Hope. Please also **put of a sign with the posted speed limit above the detector**, because...

2) I believe that the current single sign informing drivers of the 35 mph limit on west-bound Mt. Hope is located too close to Okemos Road. It's my observation that that speed limit is seldom honored, and I believe part of the problem is that drivers entering Mt. Hope are still fully occupied with checking lane markers, rear traffic, etc. to notice it--so the first speed limit sign routine drivers of the route see is the 45 mph sign after Chippewa. I recommend **moving the single sign further west on Mt. Hope and/or installing a second sign** at the intersection with Nakoma Drive.

3) We request **additional enforcement of the existing speed limits.** I am forwarding this recommendation to Meridian Township, since I believe they are responsible for this.

4) We request an engineering study of the current speed limit from Chippewa to Hagadorn Roads. In view of the limited sight distances due to hills on the Chippewa-Comanche stretch and the presence of the Montessori School west of Comanche, a speed limit of 35 mph may be justified for the entire stretch of Okemos to Hagadorn Roads. We also request that the study include **evaluating the lighting at night at the intersections on the route, especially at Comanche and Mt. Hope**.

Thank you for your consideration,

Barbara O'Kelly (she/her)
2576 Woodhill Dr.
Okemos, MI 48864
517-333-8940

From: Okelly, Barbara Ann
To: WConklin@ingham.org
Cc: Mark Polsdofer; Board; board@ingham.org
Subject: Mt. Hope traffic
Date: Saturday, April 24, 2021 12:00:30 PM

Dear Mr. Conklin:

Thank you for your response to my recent email. For some reason, it didn't get to me directly, but Commissioner Polsdofer was kind enough to forward it to me.

According to Michigan law (Section 257.628--thanks, Lou Porter), the speed limit is set according to a **combination** of an engineering/safety study and the 85th percentile speed. The final speed limit must be at or above the 50th percentile speed but may be lower than the 85th. Presumably the safety study takes into account factors such as hidden intersections and limited sight distances.

Could you please tell us the date of the most recent engineering/safety study of Mt. Hope Road and how to get a copy of the results and conclusions?

Thank you,

Barbara O'Kelly (she/her)
2576 Woodhill Dr.
Okemos, MI 48864
517-333-8940

From: Mark Polsdofer <MPolsdofer@ingham.org>
Sent: Friday, April 23, 2021 1:09 PM
To: Okelly, Barbara Ann <okelly@msu.edu>
Subject: Copy and Paste

Greetings All,

Ingham County Road Department (ICRD) will review the placement of speed limit signs on Mt Hope Road and adjust locations or add any signs found necessary.

Mt Hope Road's speed limit is 45 mph between Chippewa and Hagadorn (and further west), and 35 mph between Chippewa and Okemos Road.

Under Michigan law—Motor Vehicle Code (MVC), speed limits typically are/have been set by speed studies typically based on the speed a super-majority, 85%, of drivers are measured to be travelling at or below. This enables enforcement to focus on the fastest 15% of drivers and promotes more uniformity in vehicle travel speeds consistent with that most drivers feel is reasonable—known as platooning, which is found to be the safest way to set speed limits.

To keep speed limits consistent for given conditions and compliant with MVC around the state, MVC also requires the Michigan State Police (MSP) to agree with any proposed change in speed limits on county roads. As the existing speed limits are already set this way, MSP rarely agrees to any change, unless there has been some obvious and significant change in traffic patterns or development along the road, which there has not been on the subject portion of Mt Hope Road.

The other items requested below, including public lighting, radar speed signs and enforcement, fall under Meridian Township's responsibility. Thus, I have added Meridian Police Chief Ken Plaga, Township Manager Frank Walsh, and Assistant Township Manager Derrick Perry to this response for them to address those requests.

Feel free to let me know if there are any further questions for ICRD.

Bill Conklin, Managing Director,
Ingham County Road Department (ICRD)
Office: 517-676-9722

C. Shaw Street Pathway

Mark Kieselbach

From: Mark Kieselbach
Sent: Thursday, May 13, 2021 11:03 AM
To: Mark Kieselbach
Subject: FW: Local Roads Maintenance Program Continues, Meridian Talks Development & More!
Attachments: Screenshot_2021-05-11 G Engineering Public Works Pathways Sidewalks Projects MSU to Lake Lansing, Phase III Connector - Sha[...](1).png; Screenshot_2021-05-11 G Engineering Public Works Pathways Sidewalks Projects MSU to Lake Lansing, Phase III Connector - Sha[...].png

Mark Kieselbach
Community Planning & Development Director
kieselbach@meridian.mi.us
W 517.853.4506
5151 Marsh Road | Okemos, MI 48864
meridian.mi.us

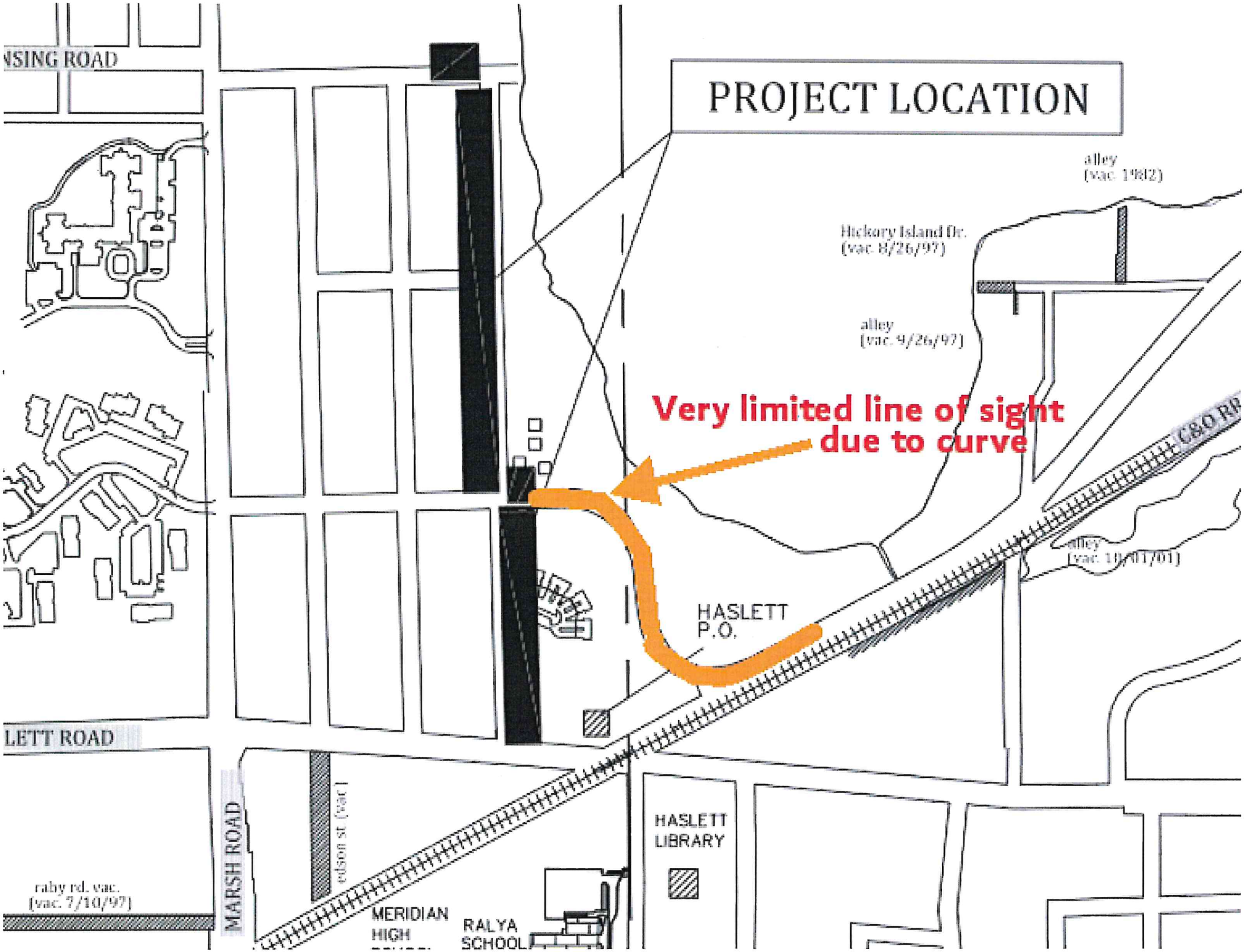
From: Tim Potter [mailto:tim.potter@rideofsilence.org]
Sent: Tuesday, May 11, 2021 9:04 PM
To: Mark Kieselbach <Kieselbach@meridian.mi.us>; Steven Vagnozzi <svagnozzi@comcast.net>
Subject: Fwd: Local Roads Maintenance Program Continues, Meridian Talks Development & More!

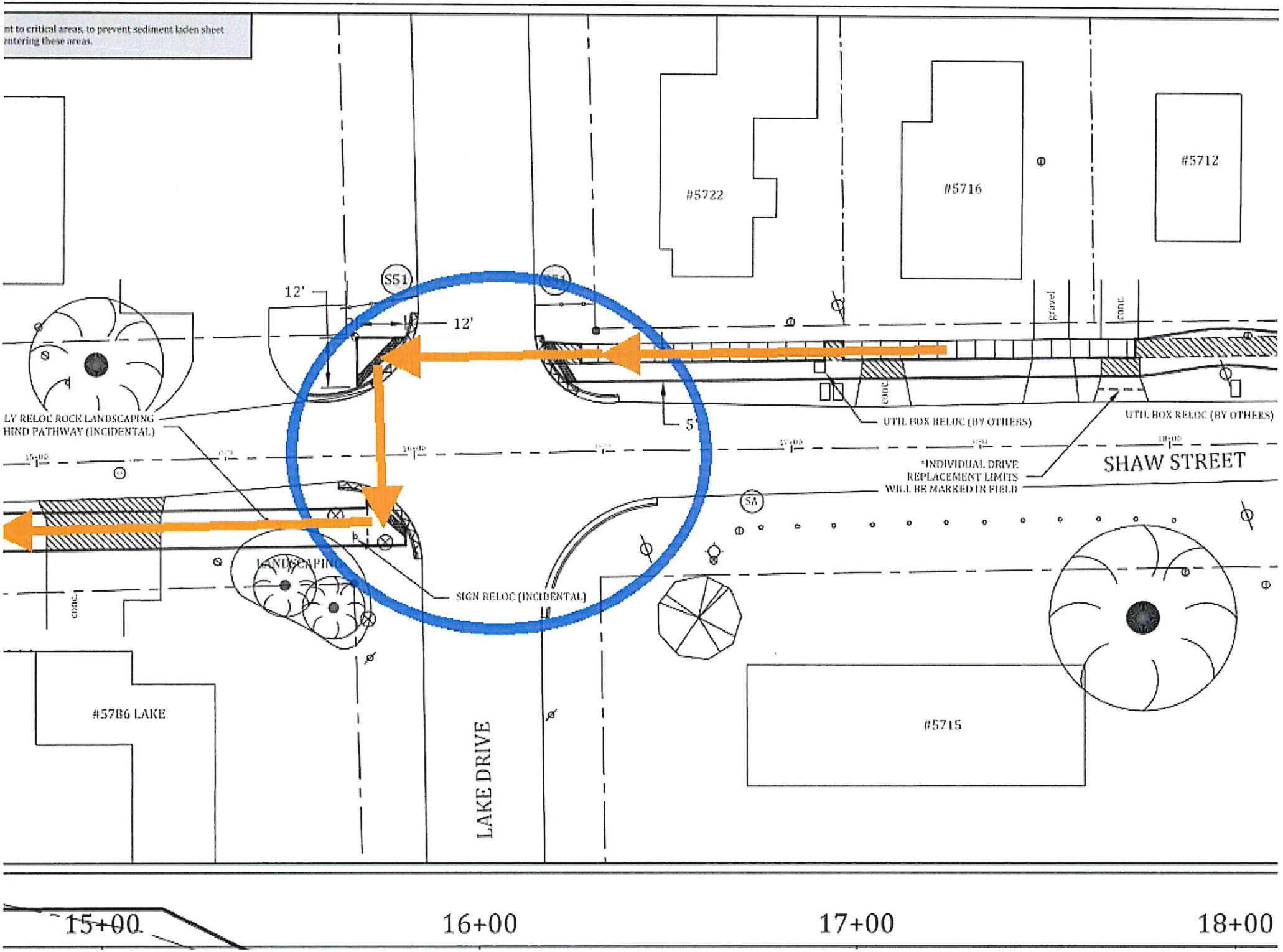
I have some concerns re: the Shaw Ln. pathway project that is detailed in this May 6th document that I found via this newsletter:
https://www.meridian.mi.us/home/showpublisheddocument/23171/637560025415670000

I'd like to add this concern to our agenda for the next Transportation Commission meeting on the 20th.

I'm attaching some marked up screenshots that show my concerns. The pathway starts out on the east side of Shaw Ln. from Haslett Rd. and then switches over to the west side from Lake Dr.
I'm concerned about pedestrians being forced to cross roads 2x here where sight lines are very limited especially from the east as there's a sharp curve in Lake Dr. I believe it would be safer for pedestrians if the pathway stayed on the same side of Shaw Ln. for the whole distance and not switch sides. I believe the crossing at Lake Dr. should have a pedestrian RRFB signal that flashes when a pedestrian is crossing to alert approaching drivers.

Thanks for the consideration.
Tim


PROJECT LOCATION
NSING ROAD
alley
(vac. 1982)
Hickory Island Dr.
(vac. 8/26/97)
alley
(vac. 9/26/97)
Very limited line of sight
due to curve
HASLETT
P.O.
LETT ROAD
MARSH ROAD
edson st (vac.)
raby rd. vac.
(vac. 7/10/97)
MERIDIAN
HIGH
RALYA
SCHOOL
HASLETT
LIBRARY


nt to critical areas, to prevent sediment laden sheet
ntering these areas.
#5722
#5716
#5712
S51
12'
12'
5'
gravel
conc.
conc.
UTIL BOX RELOC (BY OTHERS)
UTIL BOX RELOC (BY OTHERS)
LY RELOC ROCK LANDSCAPING
HIND PATHWAY (INCIDENTAL)
*INDIVIDUAL DRIVE
REPLACEMENT LIMITS
WILL BE MARKED IN FIELD
SHAW STREET
SA
LANDSCAPING
SIGN RELOC (INCIDENTAL)
conc.
#5786 LAKE
LAKE DRIVE
#5715
15+00
16+00
17+00
18+00

MSU TO LAKE LANSING CONNECTOR TRAIL, PHASE III - SHAW STREET
CONSTRUCTION PLANS
for
MERIDIAN TOWNSHIP
INGHAM COUNTY, MICHIGAN

Call 811 before you dig.

N

PUBLIC UTILITIES

AT&T 337 N. ABBOTT, RM. 201 EAST LANSING, MI 48823 517.337.3660	TELEPHONE
CONSUMERS ENERGY 530 W. WILLOW ST. P.O. BOX 30162 LANSING, MI 48909 517.373.6100	GAS ELECTRIC
COMCAST 1070 TROWBRIDGE ROAD EAST LANSING, MI 48823 517.332.1012	CABLE TV
MERIDIAN TOWNSHIP 5151 MARSH RD. OKEMOS, MI 48864 517.853.4440	WATER MAINS SANITARY SEWER PATHWAYS
WOLVERINE PIPE LINE 8105 VALLEYWOOD LANE PORTAGE, MI 49024-5251 231.323.2491	PETROLEUM PIPELINE
INGHAM COUNTY DRAIN COMMISIONER 707 BUHL ST. MASON, MI 48854 517.676.8395	DRAINS STORM SEWER
INGHAM COUNTY ROAD DEPT 301 BUSH ST. MASON, MI 48854 517.676.9722	PUBLIC ROADS AND RIGHTS OF WAY

SOIL EROSION & SEDIMENTATION CONTROL NOTES

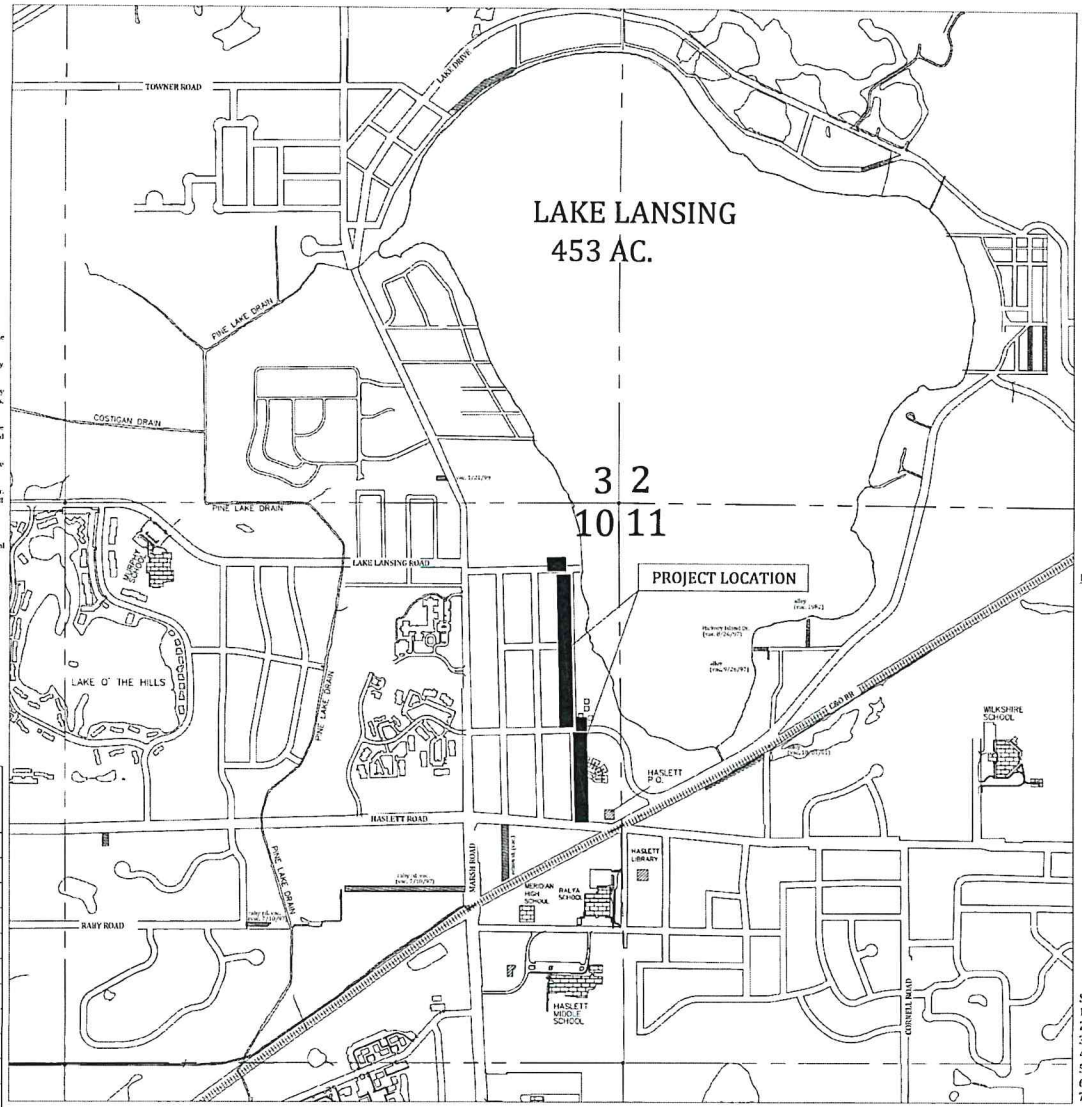
1. All soil erosion and sediment control (SESC) work shall conform to the standards and specifications of the Ingham County Drain Commissioner's Office and Meridian Township.
2. Daily inspections shall be made by the contractor for effectiveness of SESC measures. Any necessary repairs shall be performed without delay.
3. Erosion of any sediment from work on the site shall be contained on-site and not allowed to redirect on any offsite areas or in waterways. Waterways include both natural and man-made open ditches, streams, storm drains, lakes, ponds, and wetlands.
4. The Contractor shall apply temporary SESC measures when required and as directed on these plans. The Contractor shall remove temporary measures as soon as permanent stabilization of slopes, ditches, and other changes have been established.
5. Staging the work shall be done by the Contractor as directed in these plans and as required to ensure progressive stabilization of disturbed earth.
6. Soil erosion control practice shall be established in the early stages of construction by the Contractor. Sedimentation control practices shall be applied as a perimeter defense against any transporting of soil off the site.
7. The Contractor shall preserve natural vegetation as much as possible.
8. Vegetative stabilization of all disturbed areas shall be established within 15 days of completion of the final grading.

SOILS:

HnB - HOUGHTON MUCK
UeB - URBAN LAND - BOYER - SPINKS COMPLEX (0 - 10% SLOPES)
UpA - URBAN LAND - CAPAC - COLWOOD COMPLEX (0 - 4% SLOPES)
UhB - URBAN LAND - MARLETTE COMPLEX (2 - 12% SLOPES)

RECOMMENDED CONSTRUCTION SCHEDULING & SEQUENCING

	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
TREE & STUMP REMOVAL												
INSTALL SESC MEASURES												
WIDEN EX. SIDEWALK 16+50 - 25+00												
ROUGH RESTORATION 16+50 - 25+00												
GRADE & PREP PATHWAY 0+00 - 16+50												
INSTALL PATHWAY 0+00 - 16+50												
FINAL RESTORATION												
REMOVE SESC MEASURES												



STANDARD CONSTRUCTION NOTES

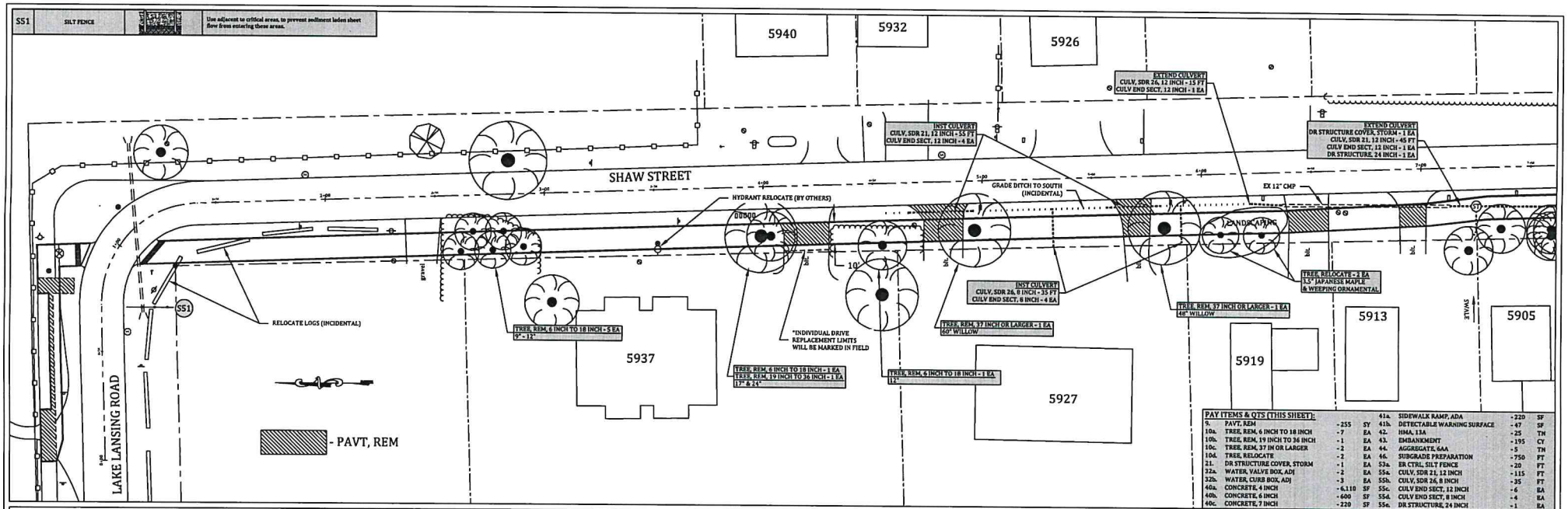
1. The Contractor shall notify the Charter Township of Meridian, Department of Public Works, Office of Engineering 517-853-4440 a minimum of 72 hours prior to the start of construction of public utilities or of construction within the public right-of-way.
2. All construction shall conform to the current standards and specifications of the Charter Township of Meridian which are included as part of these plans in effect at the time of construction.
3. After the completion of construction of public utilities or construction within public right-of-way, the contractor must request a final inspection. Any punchlist items resulting from the final inspection must be resolved prior to final release and acceptance.
4. The existing utilities indicated on the plans are in accordance with available information. It shall be the contractor's obligation to verify the exact location of all existing utilities, which might affect this job.
5. The contractor shall notify "MISS DIG" 1-800-482-7171 at least 72 hours prior to the start of construction.
6. The contractor shall at all times be aware of inconvenience caused to the abutting property owners and the general public. Where the contractor does not remedy undue inconveniences, the Charter Township of Meridian, upon four hours notice, reserves the right to perform the work and deduct the cost therefore from the money due the contractor.
7. A Registered Land Surveyor provided by the contractor at the contractor's expense shall replace all property irons and monuments disturbed or destroyed by the contractor's operations.
8. Contractor shall provide Owner and Township Engineer a copy of written permission to use private property for storage of equipment and materials or for his construction operations.
9. Trench backfill under existing or proposed roadways, driveways, and parking areas, shall be sand or gravel, placed in 12" layers (maximum) and consolidated to 95% of maximum density as measured by modified proctor unless otherwise noted.
10. Trees and shrubs are to be protected during construction and bored where necessary.
11. Existing fences shall be removed and restored to their original condition or better where in conflict with construction.
12. Driveways, culverts, ditches, drain tile, tile fields, drainage structures, etc. that are disturbed by the contractor's operations shall be immediately restored.
13. All established lawn areas disturbed by the contractor's operations shall be resodded with matching sod. All other areas shall be seeded and mulched. Seeding and mulching shall be done in accordance with the General Specifications.
14. All ditch slopes shall have established vegetation and be protected from erosion.
15. All utility poles in close proximity to construction shall be supported in a manner satisfactory to the utility owner.
16. Onsite parking and sanitary facilities shall be provided for construction workers. The facilities shall be constructed and operated (with minimal impact to the surrounding area) to the satisfaction of the Township.

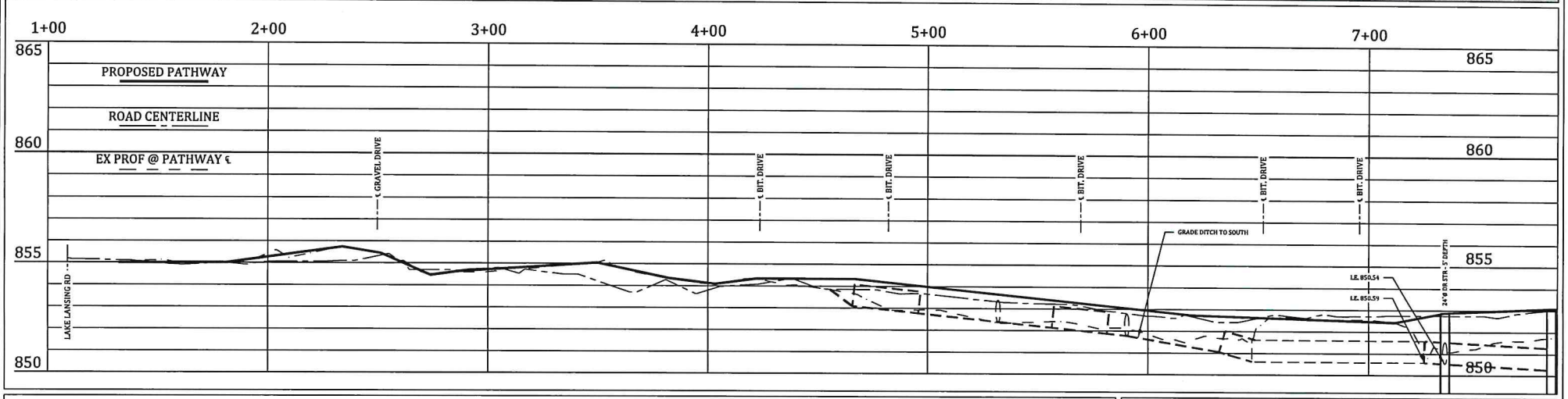
PATHWAY NOTES

1. Pathways and sidewalks shall be four (4) inch thick concrete except at driveways where they shall be six (6) inch (residential) or seven (7) inch (commercial) thick concrete.
2. Three (3) inches of compacted sand base shall be placed under all pathways and sidewalks.
3. All bituminous aprons shall be two and one-half ($2\frac{1}{2}$) inches thick, unless otherwise noted.
4. Property irons shall be maintained by the Contractor.
5. All existing concrete and bituminous to be removed shall be sawcut. All bituminous removal shall be considered incidental to construction.
6. All aggregate base material shall be four (4) inches of 22A.
7. All tree (less than 6") and shrub removal shall be considered part of subgrade preparation.
8. Location of new plant material shall be as directed by the Engineer, and shall be installed in accordance with guidelines established by the A.N.L.A.
9. All plant material not marked for removal shall be protected.
10. Bituminous drives shall be sawcut 18" on either side of proposed pathway.
11. The maximum longitudinal slope is 5% (up to an absolute maximum of 8$\frac{1}{3}$% at the direction of the Engineer) and the maximum cross slope is 2%.
13. Expansion joints shall be placed at approximately 100' intervals and shall be $\frac{1}{2}$" thick. Contraction joints shall be sawcut to a depth of $\frac{1}{4}$ of the depth of the concrete.
14. All lumber to be pressure treated (Osmose 33 or equal) to 0.4 retention.
15. All items not covered under a specific pay item shall be considered incidental.

SHEET INDEX

MSU TO LAKE LANSING CONNECTOR TRAIL,
PHASE III - SHAW STREET





PINE
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ROW (ICRD, MDOT)
EXISTING 5' / 7" SIDEWALK / PATHWAY
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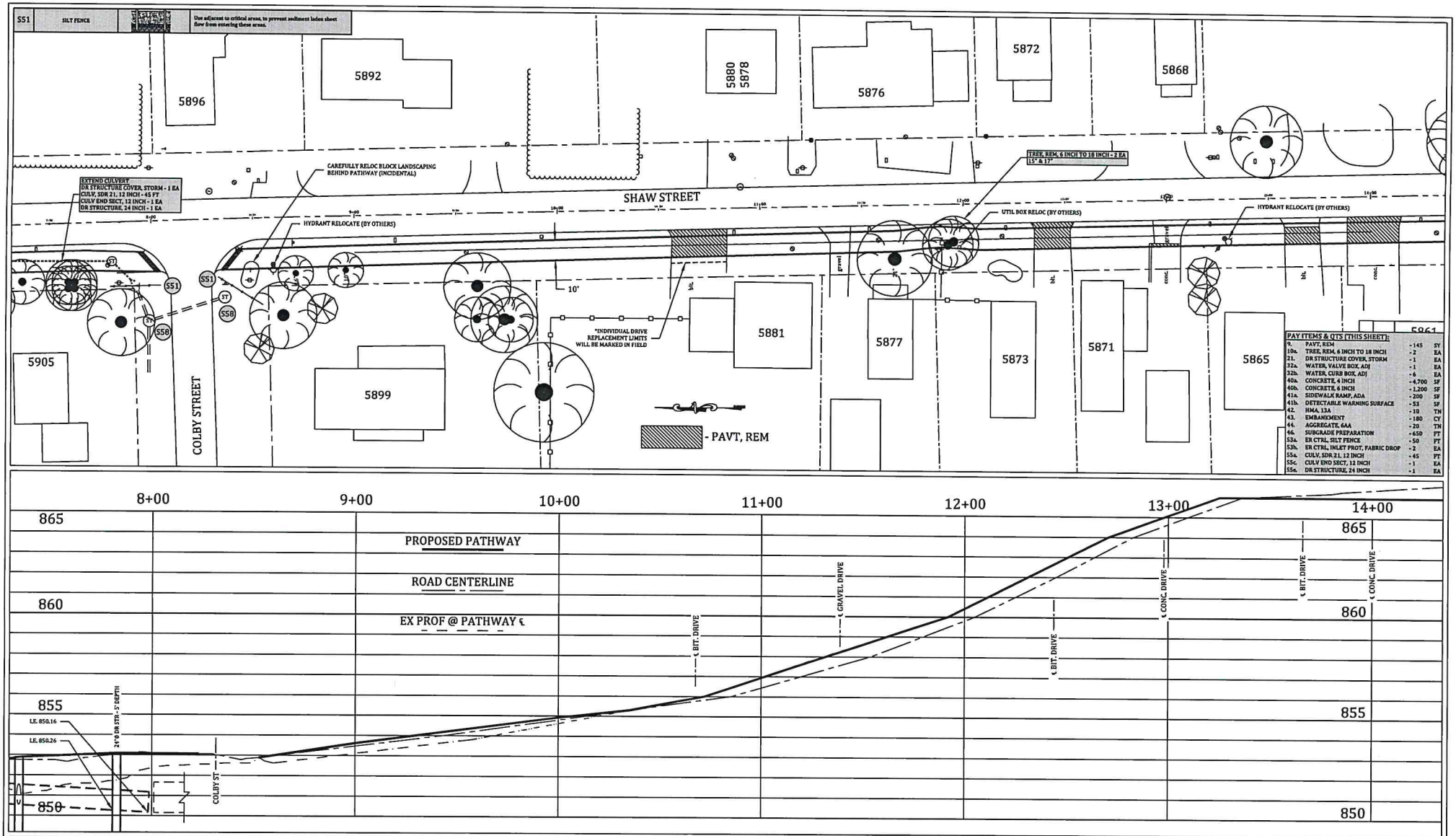
EX STM (ICDC) - LESS BOLD
EX WTR MAIN - LESS BOLD
PROPOSED SAN - BOLD
PROPOSED STM - BOLD
PROPOSED WTR - BOLD
PROPOSED 5' / 7" SIDEWALK / PATHWAY
0' 20' 40' 80'
Call 811 before you dig.
WOLVERINE PIPE LINE COMPANY 219-844-9510

Meridian Charter Township
Ingham County, Michigan
Pathway/Trail System
MSU - LL CONNECTOR, PH III
SHAW STREET
LAKE LANSING ROAD TO COLBY STREET
DRAWN BY: NN 04/01/21
CHECKED BY: YI 04/16/21

REVISIONS:		
DATE:	BY:	COMMENTS:
04/29/21	NN	Contract Plans

SCALE: 1" = 20' HOR, 1" = 2' VERT
PAGE: 2 OF 7
FILE:



Meridian Charter Township
Ingham County, Michigan
Pathway/Trail System

MSU - LL CONNECTOR, PH III
SHAW STREET
COLBY STREET TO LAKE DRIVE

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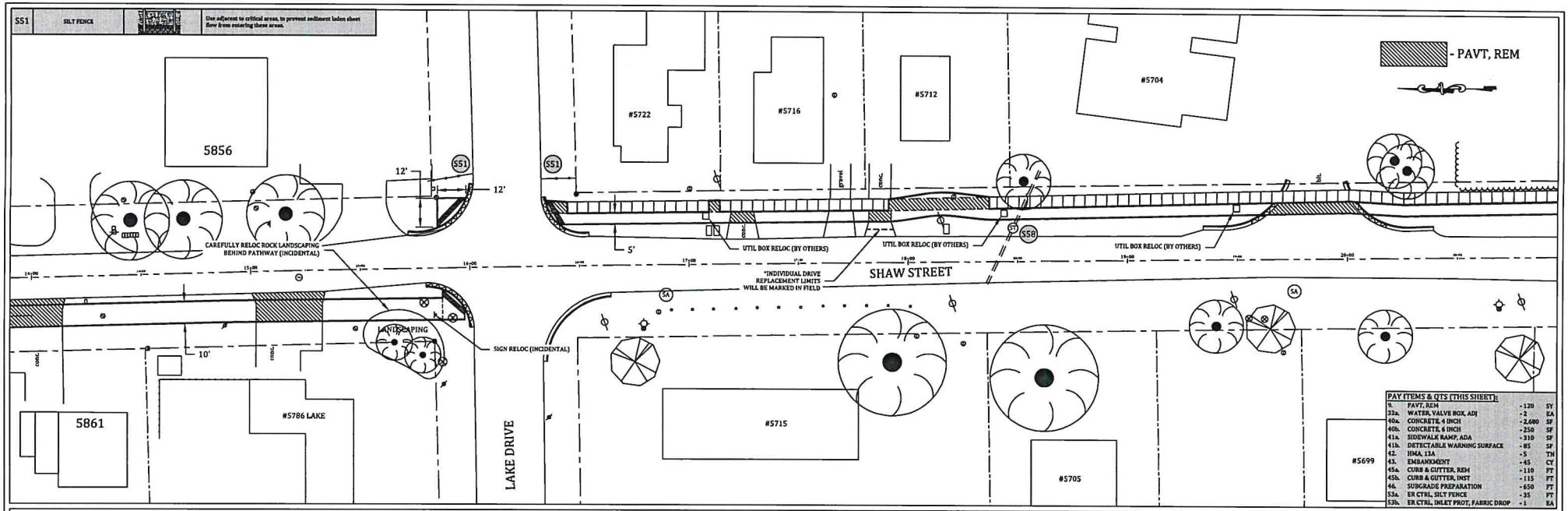

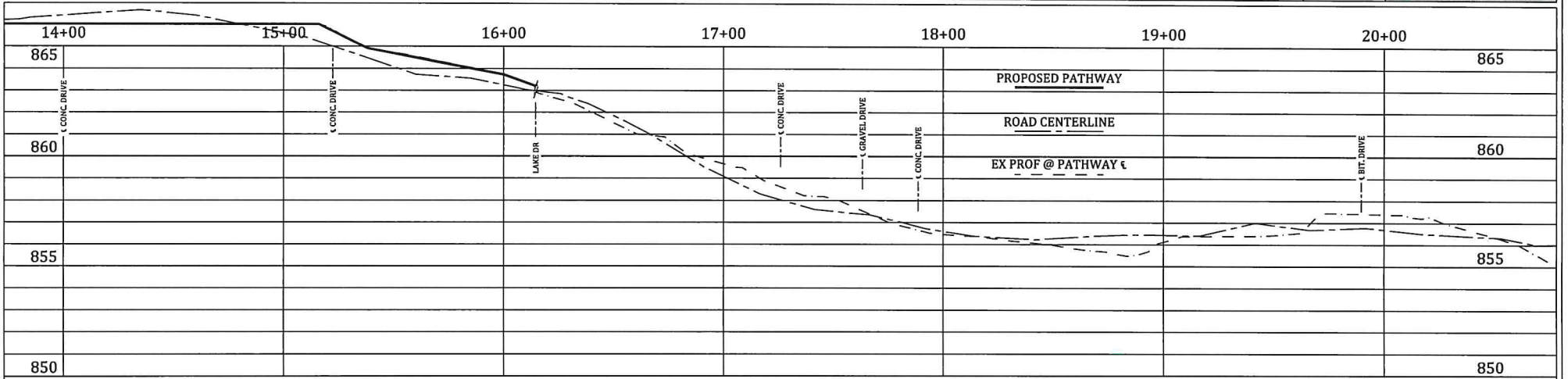

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WOLVERINE PIPE LINE COMPANY 219-844-9510

Meridian Charter Township
Ingham County, Michigan
Pathway/Trail System

MSU - LL CONNECTOR, PH III
SHAW STREET
LAKE DRIVE TO SHAW CONDOS

DRAWN BY: NN 04/01/21 | CHECKED BY: YI 04/16/21

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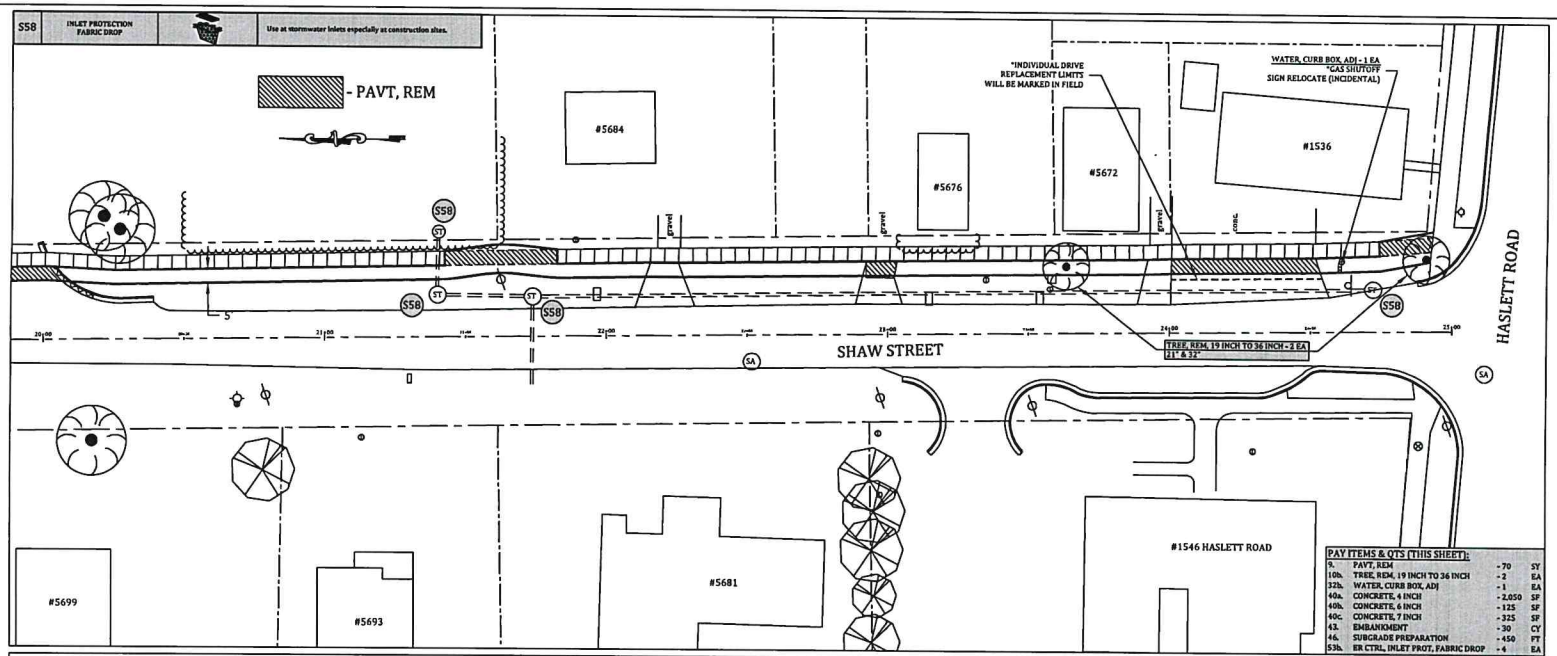

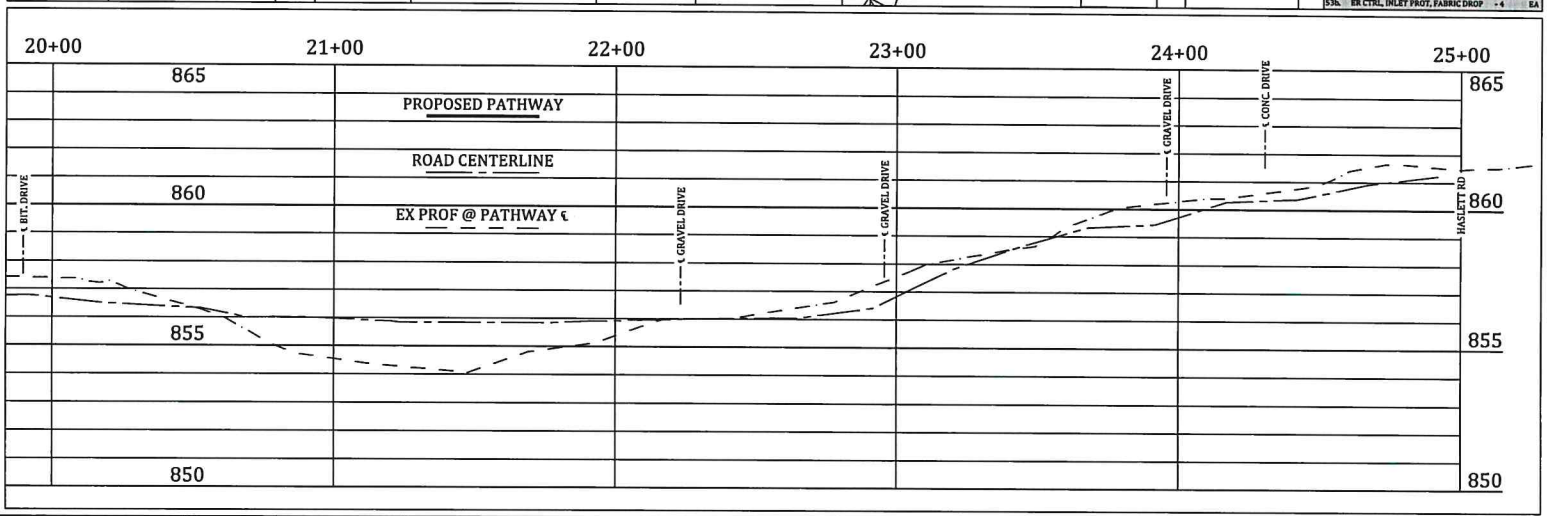

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Meridian Charter Township
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SHAW STREET
SHAW CONDOS TO HASLETT ROAD

DRAWN BY: NN 04/01/21 CHECKED BY: YI 04/16/21

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PAGE: 5 OF 7
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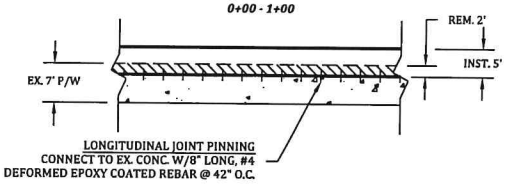
TYPICAL SIDEWALK WIDENING DETAIL
0+00 - 1+00 ; 16+50 - 25+00

TYPICAL WIDENING DETAIL
0+00 - 1+00 ; 16+50 - 25+00

NTS

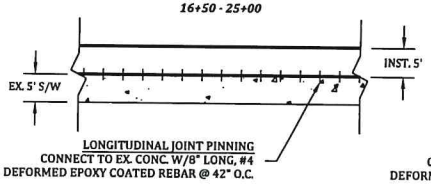
7' WIDE CONCRETE PATHWAY WIDENING DETAIL

0+00 - 1+00



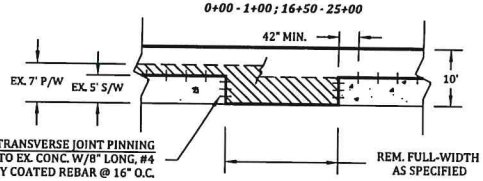
5' WIDE CONCRETE SIDEWALK WIDENING DETAIL

16+50 - 25+00



CONCRETE SIDEWALK / PATHWAY REPLACEMENT DETAIL

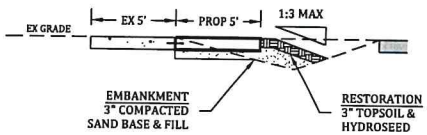
0+00 - 1+00 ; 16+50 - 25+00



TYPICAL CROSS-SECTION
0+00 - 1+00 ; 16+00 - 25+00

NTS

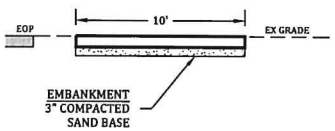
WIDEN EX. SIDEWALK



TYPICAL NEW PATHWAY CROSS-SECTION
1+00 - 16+50

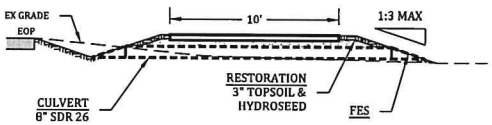
TYPICAL CROSS-SECTION
1+00 - 4+50 ; 6+50 - 7+00 ; 11+00 - 16+50

CONSTRUCT AT GRADE



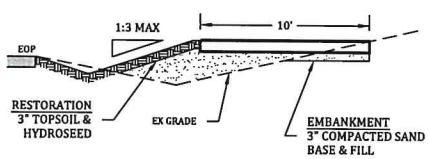
TYPICAL CROSS-SECTION
4+50 - 6+00

CREATE DITCH



TYPICAL CROSS-SECTION
6+00 - 6+50

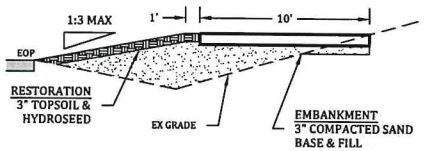
SHIFT DITCH



TYPICAL CROSS-SECTION
8+00 - 11+00

NTS

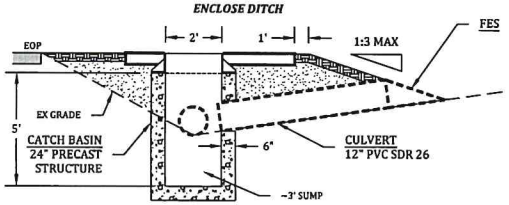
ELEVATE ABOVE DITCH



TYPICAL CROSS-SECTION
7+00 - 8+00

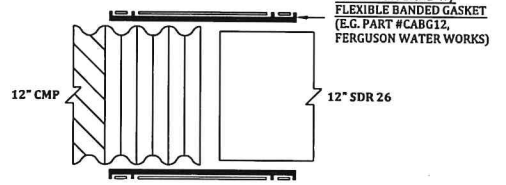
NTS

ENCLOSE DITCH



CMP CONNECTION DETAIL
7+00

NTS



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SHAW STREET
TYPICAL CROSS-SECTIONS

DRAWN BY: NN 04/01/21 | CHECKED BY: YI 04/16/21

REVISIONS: DATE:	BY:	COMMENTS:
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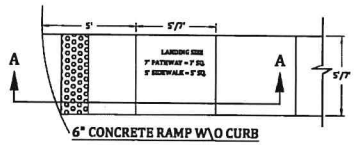
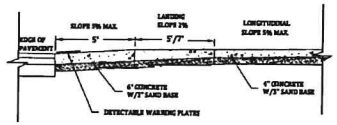
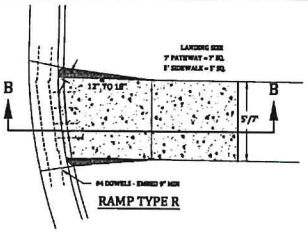
SCALE: NTS | PAGE: 6 OF 7 | FILE:



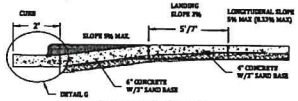
6" CONCRETE RAMP W\O CURB



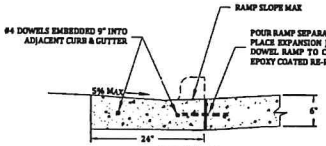
CROSS SECTION A-A



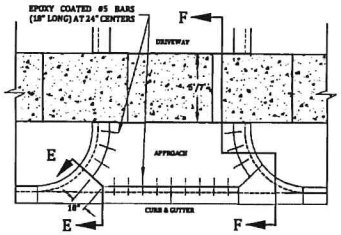
RAMP TYPE R



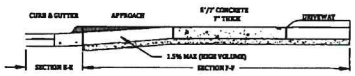
CROSS SECTION B-B



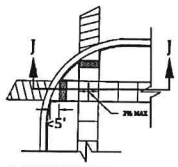
DETAIL G



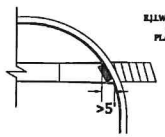
TYP. COMMERCIAL DRIVEWAY PLAN



CROSS SECTIONS E-E; F-F



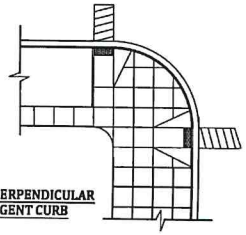
RAMPS LOCATED IN RADIUS



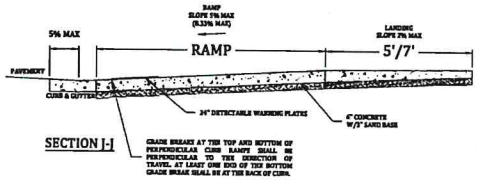
RAMP LOCATED IN RADIUS

DETECTABLE WARNING DETAILS

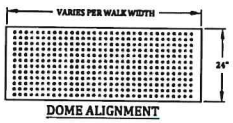
EJ1W, 7005 DETECTABLE WARNING PLATE
SIZES AVAILABLE 12", 18" & 24"
PLATES MUST BE ASPHALTIC COATED



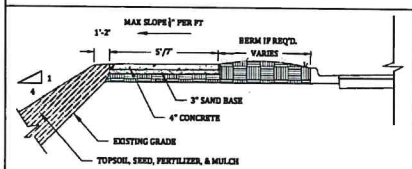
RAMP PERPENDICULAR TO TANGENT CURB



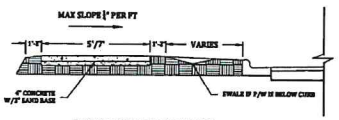
SECTION J-J



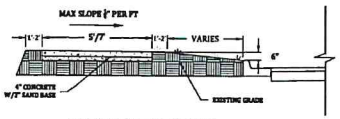
DOME ALIGNMENT



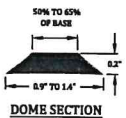
EMBANKMENT & BERM CROSS SECTION



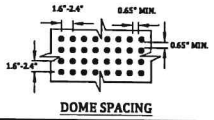
SWALE CROSS SECTION



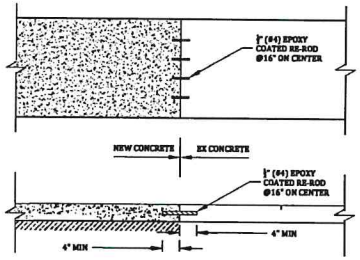
TYPICAL CROSS SECTION



DOME SECTION

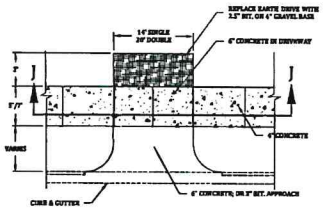


DOME SPACING



CONCRETE PINNING DETAIL

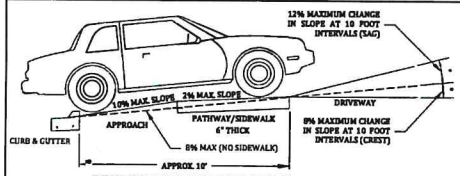
CROSS SECTION- (NO SCALE)



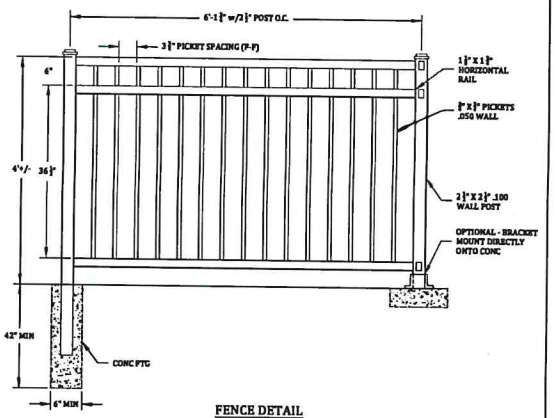
TYP. RESIDENTIAL DRIVEWAY PLAN

CROSS SECTIONS J-J

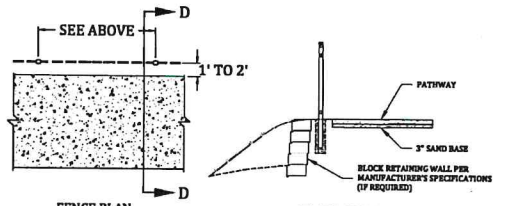
GENERAL NOTES
1. SIDEWALKS/PATHWAYS SHALL BE 4" THICK CONCRETE EXCEPT AT DRIVEWAYS.
2. SIDEWALKS/PATHWAYS THRU DRIVES SHALL BE: 6" (RESIDENTIAL); 7" (MULTI-RESIDENTIAL & COMMERCIAL)
3. 3" OF COMPACTED SAND BASE SHALL BE PLACED UNDER ALL SIDEWALKS/PATHWAYS.
4. ALL BITUMINOUS APRONS SHALL BE 2 1/2" THICK, UNLESS NOTED OTHERWISE
5. PROPERTY IRONS SHALL BE MAINTAINED BY THE CONTRACTOR.
6. ALL EXISTING CONCRETE AND BITUMINOUS TO BE REMOVED SHALL BE SAWCUT.ALL CONCRETE AND BITUMINOUS REMOVAL SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION.
7. ALL AGGREGATE BASE SHALL BE 22A, 4" THICK.
8. ALL TREE AND BUSH REMOVAL SHALL BE CONSIDERED PART OF SUB-GRADE PREPARATION.
9. LOCATION OF NEW PLANT MATERIAL SHALL BE AS DIRECTED BY THE ENGINEER, AND SHALL BE INSTALLED IN ACCORDANCE WITH GUIDELINES ESTABLISHED BY THE A.A.G.N.
10. ALL PLANT MATERIAL NOT MARKED FOR REMOVAL SHALL BE PROTECTED.
11. BITUMINOUS DRIVES SHALL BE SAWCUT 18" ON EITHER SIDE OF PROPOSED PATHWAY.



RESIDENTIAL DRIVEWAY SLOPES



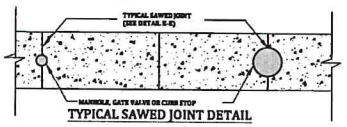
FENCE DETAIL



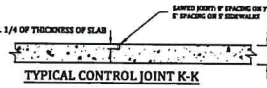
FENCE PLAN

FENCE CROSS SECTION D-D

NOTE: FENCE POSTS CAN BE ANCHORED TO THE PATHWAY, THEN PATHWAY MUST BE WIDENED TO EIGHT FEET

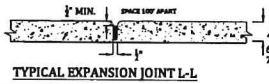


TYPICAL SAWED JOINT DETAIL



TYPICAL CONTROL JOINT K-K

4" MIN. TYPICAL EXCEPT
6" MIN. @ RESIDENTIAL DRIVE APPROACHES
7" MIN. @ COMMERCIAL APPROACHES



TYPICAL EXPANSION JOINT L-L

4" MIN. TYPICAL EXCEPT
6" MIN. @ RESIDENTIAL DRIVE APPROACHES
7" MIN. @ COMMERCIAL APPROACHES

Meridian Charter Township
Ingham County, Michigan
ENGINEERING

5' SIDEWALK & 7' PATHWAY DETAIL SHEET

DRAWN BY: JG 08/01/05 | CHECKED BY: YI 08/01/05

REVISIONS:		
DATE:	BY:	COMMENTS:
04/30/03	JG	ADD REBAR TO CURB & GUTTER
08/01/05	JG	CLARIFY RAMP DETAILS
12/20/06	JG	FENCE POST IN PVC PIPE W/SAND
12/29/08	JG	RAMPS W/ DETECTABLE WARNING PLATES
08/14/09	NN	LANDING CROSS SECTIONS
03/18/16	JG	DOWEL DETAIL FOR NEW/EX CONCRETE
01/22/18	NN	SPEC & DETAIL SHEET OVERHAUL
04/13/19	NN	FENCE & RET. WALL REVISION
12/03/20	NN	FENCE REVISION

SCALE:	PAGE:	PAGE:
NONE	7 OF 7	PATHWAY DETAIL SHEET 2018.DWG