

AGENDA
Cascade Charter Township Pathways Committee
Monday, December 12, 2022
10:00 am
5920 Tahoe Dr

- ARTICLE 1. Call the meeting to order**
Record the attendance
- ARTICLE 2. Approve the current Agenda**
- ARTICLE 3. Acknowledge visitors and those wishing to speak**
(Comments are limited to five minutes per speaker.)
- ARTICLE 4. 2023 Reconstruction Bids**
Review the bid documents for the 2023 Pathway Maintenance and Repair Project and make a recommendation to the Township Board
- ARTICLE 5. Acknowledge visitors and those wishing to speak**
(Comments are limited to five minutes per speaker.)
- ARTICLE 6. Any Other Business**
- ARTICLE 7. Adjournment**

Bid Total Summary

2023 Pathways Improvement Project

10:00 AM December 8, 2022

	Primary Bid	Alternate Bid
Completion Date:	June 30, 2023	October 27, 2023
Engineer's Estimate	\$ 1,852,523.25	
1 Brenner Excavating	\$ 1,399,076.26	\$ 1,399,076.26
2 Wyoming Excavators	\$ 1,871,653.00	\$ 1,837,895.00
3 Kamminga & Roodvoets	\$ 2,046,903.28	\$ 1,819,207.00
4 Montgomery Excavating	\$ 1,824,170.15	\$ 1,787,142.80
5 Ryerson Brothers	-	\$ 1,536,452.30

Primary Bid Tab (Project Completion by June 30, 2023)

No.	Pay Item	Unit	Quantity	Engineer's Estimate		Brenner Excavating		Wyoming Excavators		Kammings & Roadvoets		Montgomery Excavating		Ryerson Brothers	
				Unit Price	Subtotal	Unit Price	Subtotal	Unit Price	Subtotal	Unit Price	Subtotal	Unit Price	Subtotal	Unit Price	Subtotal
1	Cold Mill HMA Surface	Syd	13,158	1.75	23,027	1.52	20,000.16	1.50	19,737.00	8.91	117,237.78	6.00	78,948.00		
2	HMA Surface, Rem	Syd	18,493	1.75	32,363	1.90	35,136.70	2.50	46,232.50	10.00	184,930.00	6.15	113,731.95		
3	Sidewalk, Rem	Syd	49	3.00	147	30.00	1,470.00	25.00	1,225.00	15.00	735.00	5.00	245.00		
4	Curb and Gutter, Rem	Ft	31	12.00	372	15.00	465.00	25.00	775.00	19.00	589.00	10.00	310.00		
5	Conc, Rem	Syd	278	15.00	4,170	16.00	4,448.00	25.00	6,950.00	11.00	3,058.00	6.00	1,668.00		
6	Excavation, Earth	Cyd	3,406	10.00	34,060	16.00	54,496.00	23.00	78,388.00	21.00	71,526.00	18.35	62,500.10		
7	Curb Ramp, Conc, 6 inch	Sft	280	12.00	3,360	16.00	4,480.00	9.00	2,520.00	11.00	3,080.00	12.00	3,360.00		
8	Curb Ramp Opening, Conc	Ft	31	20.00	620	64.00	1,984.00	38.00	1,178.00	36.00	1,116.00	45.00	1,395.00		
9	Aggregate Base, 21AA, 6 inch	Syd	20,715	16.00	331,440	12.00	248,580.00	15.50	321,082.50	16.30	337,654.50	11.74	243,194.10		
10	_Pathway Grading	Ft	16,653	5.00	83,265	4.50	74,938.50	19.50	324,793.50	6.50	108,244.50	13.00	216,489.00		
11	HMA, 13A	Ton	7,333	150.00	1,099,950	93.50	685,635.50	93.50	685,635.50	102.50	751,632.50	113.00	828,629.00		
12	Hand Patching	Ton	25	250.00	6,250	200.00	5,000.00	160.00	4,000.00	160.00	4,000.00	300.00	7,500.00		
13	Detectable Warning Surface	Ft	20	50.00	1,000	122.12	2,442.40	100.00	2,000.00	55.00	1,100.00	60.00	1,200.00		
14	Detectable Warning Surface	Ft	20	50.00	1,000	1,000.00	10,000.00	594.00	5,940.00	700.00	7,000.00	500.00	5,000.00		
15	Existing Manhole, Adjust	Ea	10	750.00	7,500	100,000.00	100,000.00	99,784.00	99,784.00	55,000.00	55,000.00	130,000.00	130,000.00		
16	_Restoration	LS	1	100,000.00	100,000	75,000.00	75,000.00	201,648.00	201,648.00	310,000.00	310,000.00	90,000.00	90,000.00		
17	_Mobilization	LS	1	50,000.00	50,000	75,000.00	75,000.00	69,874.00	69,874.00	90,000.00	90,000.00	40,000.00	40,000.00		
18	_Temporary Traffic Control	LS	1	50,000.00	50,000	75,000.00	75,000.00	69,874.00	69,874.00	90,000.00	90,000.00	40,000.00	40,000.00		
Grand Total				\$	1,852,523.25	\$	1,399,076.26	\$	1,871,653.00	\$	2,046,903.28	\$	1,824,170.15		

DID NOT SUBMIT

Alternate Bid Tab (Project Completion by October 27, 2023)

No.	Pay Item	Unit	Quantity	Engineer's Estimate		Brenner Excavating		Wyoming Excavators		Kammings & Roadvoets		Montgomery Excavating		Ryerson Brothers	
				Unit Price	Subtotal	Unit Price	Subtotal	Unit Price	Subtotal	Unit Price	Subtotal	Unit Price	Subtotal	Unit Price	Subtotal
1	Cold Mill HMA Surface	Syd	13,158	1.75	23,027			1.50	19,737.00	7.25	95,395.50	6.00	78,948.00	4.50	59,211.00
2	HMA Surfaces, Rem	Syd	18,493	1.75	32,363			2.50	46,232.50	8.00	147,944.00	6.15	113,731.95	5.00	92,465.00
3	Sidewalk, Rem	Syd	49	3.00	147			25.00	1,225.00	14.00	686.00	5.00	245.00	15.00	735.00
4	Curb and Gutter, Rem	Ft	31	12.00	372			25.00	775.00	18.00	558.00	10.00	310.00	7.00	217.00
5	Conc, Rem	Syd	278	15.00	4,170			25.00	6,950.00	10.00	2,780.00	6.00	1,668.00	5.00	1,390.00
6	Excavation, Earth	Cyd	3,406	10.00	34,060			23.00	78,388.00	20.00	68,120.00	15.00	51,090.00	15.00	51,090.00
7	Curb Ramp, Conc, 6 inch	Sft	280	12.00	3,360			9.00	2,520.00	10.00	2,800.00	12.00	3,360.00	8.70	2,436.00
8	Curb Ramp Opening, Conc	Ft	31	20.00	620			38.00	1,178.00	35.00	1,085.00	45.00	1,395.00	38.80	1,202.80
9	Aggregate Base, 21AA, 6 inch	Syd	20,715	16.00	331,440			15.00	310,725.00	15.30	316,939.50	11.79	244,229.85	11.00	227,865.00
10	_Pathway Grading	Ft	16,653	5.00	83,265			19.00	316,407.00	5.50	91,591.50	12.00	199,836.00	8.00	133,224.00
11	HMA, 13A	Ton	7,333	150.00	1,099,950			93.50	685,635.50	102.50	751,632.50	113.00	828,629.00	100.50	736,966.50
12	Hand Patching	Ton	25	250.00	6,250			160.00	4,000.00	160.00	4,000.00	300.00	7,500.00	250.00	6,250.00
13	Detectable Warning Surface	Ft	20	50.00	1,000			100.00	5,000.00	50.00	1,000.00	60.00	1,200.00	70.00	1,400.00
14	Detectable Warning Surface	Ft	20	50.00	1,000			594.00	5,940.00	650.00	6,500.00	500.00	5,000.00	200.00	2,000.00
15	Existing Manhole, Adjust	Ea	10	750.00	7,500			99,784.00	99,784.00	52,500.00	52,500.00	130,000.00	130,000.00	60,000.00	60,000.00
16	_Restoration	LS	1	100,000.00	100,000			186,574.00	186,574.00	195,675.00	195,675.00	80,000.00	80,000.00	130,000.00	130,000.00
17	_Mobilization	LS	1	50,000.00	50,000			69,874.00	69,874.00	80,000.00	80,000.00	40,000.00	40,000.00	30,000.00	30,000.00
18	_Temporary Traffic Control	LS	1	50,000.00	50,000			69,874.00	69,874.00	80,000.00	80,000.00	40,000.00	40,000.00	30,000.00	30,000.00
Grand Total				\$	1,852,523.25			\$	1,837,895.00	\$	1,819,207.00	\$	1,787,142.80	\$	1,536,452.30

SAME AS PRIMARY

List of Prime Contractor Bidders & Subcontractors

2023 Pathways Improvement Project

10:00 AM December 8, 2022

PRIME	Brenner Excavating	Kyle B. Brenner	kbrenner@brennerexcavating.com
<i>SUB</i>	Superior Asphalt	Asphalt	
<i>SUB</i>	M&H Construction	Concrete	
<i>SUB</i>	Give 'Em A Brake Safety	Traffic Control	
PRIME	Wyoming Excavators	Nathan R Post	npost@wyomingexcavators.com
<i>SUB</i>	Superior Asphalt	Asphalt	
<i>SUB</i>	M&H Construction	Concrete	
PRIME	Kamminga & Roodvoets	Karl Klynstra	klynstra@kandrinc.com
<i>SUB</i>	Superior Asphalt	Asphalt	
<i>SUB</i>	Natural Environmental Reclamation Concepts	Restoration	
PRIME	Montgomery Excavating	Connor Montgomery	connor@montgomeryexcavating.com
<i>SUB</i>	Rieth-Riley	Asphalt	
<i>SUB</i>	Duran	Concrete	
<i>SUB</i>	Give 'Em A Brake Safety	Traffic Control	
PRIME	Ryerson Brothers	Martin Ryerson	martin@ryersonbros.com
<i>SUB</i>	Bob's Asphalt Paving	Asphalt	
<i>SUB</i>	Bully's Concrete	Concrete	
<i>SUB</i>	Mattson Landscaping	Restoration	



CASCADE CHARTER TOWNSHIP

5920 Tahoe Drive SE Grand Rapids, Michigan 49546-7140

Date: November 15, 2022
To: Prospective Contractor
From: Aric Thorne, P.E.
Subject: Invitation to Bid: 2023 Pathways Improvement Project

Cascade Charter Township is soliciting bids for the construction project referenced above. Please use the attached Exhibit C to submit your bid. Both a primary bid and an alternate bid may be submitted for review. The only difference is in the substantial completion date. Bids must be mailed or hand delivered in a sealed envelope and endorsed on the outside of the envelope, "2023 Pathways Improvement Project," to the following address:

**Cascade Charter Township
Attn: Aric Thorne, P.E.
5920 Tahoe Drive SE
Grand Rapids, Michigan, 49546-7140**

Bids are due by **10:00 a.m. local time on Thursday, December 8, 2022**, at which time bids will be opened and read publicly. The Contractor will be responsible for verifying that their bid has been received.

The project generally consists of the following work on shared use pathways and immediately adjacent infrastructure: asphalt cold milling, removal, and paving, excavation, aggregate base construction, grading, ramp reconstruction, manhole adjustment, restoration, and traffic control.

Upon award by Cascade Charter Township Board of Trustees, staff will notify the selected Contractor of the bid award and request the required bonds and insurance documents, prepare the contract agreement, and schedule a preconstruction meeting to review the project. Upon receipt and approval of the bonds, insurance, and the executed contract agreement, the Contractor will be issued a "Notice to Proceed."

Contractors and subcontractors shall be prequalified with MDOT for the type of work being performed under this contract. Cascade Charter Township may perform reference checks on the Contractor to determine their ability to successfully perform the work. Results of the reference checks may be grounds for disqualification of a contractor bid.

Questions regarding the project shall be directed to Aric Thorne (preferably by email to athorne@cascadetwp.com). Questions will not be accepted on the day of or day prior to bid opening.

CONSTRUCTION AGREEMENT

THIS CONSTRUCTION AGREEMENT is dated as of TBD (the “Agreement”), by and between CASCADE CHARTER TOWNSHIP (the “Owner”) and TBD (the Contractor).

Owner and contractor, in consideration of the mutual covenants hereinafter set forth, agree as follows:

ARTICLE 1 – PROJECT

Contractor shall complete the project as specified and identified in the Letter dated November 15, 2022, Invitation to Bid: 2023 Pathways Improvement Project.

ARTICLE 2 – ENGINEER

The Township Engineer (the “Engineer”), an employee of the Owner and under the same protections and treatments provided to the Owner in this Contract, will act as Owner’s representative in connection with completion of the Project in accordance with the Contract Documents, as hereinafter identified.

ARTICLE 3 – CONTRACT TIME

Section 3.1. The Project will begin no earlier than April 10, 2023 and must be substantially complete by TBD (the “Contract Time”). Work in any one area shall be continuous once work has begun with the exception for delay due to unfavorable weather conditions.

Section 3.2. Owner and Contractor recognize that time is of the essence of this Agreement and that Owner will suffer financial loss if the work is not completed within the times specified in Section 3.1 above. They also recognize the delays, expense and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Owner \$1,000 for each day that expires after the time specified in Section 3.1 for substantial completion until the Project is substantially complete. After substantial completion if Contractor shall neglect, refuse or fail to finally complete the Project as specified in Section 3.1, Contractor shall pay Owner \$2,000 for each day that expires after the time specified in Section 3.1 for final completion.

Section 3.3. Contractor also agrees that in addition to the liquidated damages specified in Section 3.2, the Contractor shall pay all direct costs incurred by Owner for contract administration, engineering, inspection, or legal fees after the date of the final completion as specified in Section 3.1.

ARTICLE 4 – CONTRACT PRICE

Section 4.1 Owner shall pay Contractor for completion of the Project upon final completion of the Project in the amount of **TBD** (the “Contract Price”). Payment shall be made in one single payment upon final completion of Project and upon Contractor providing Engineer satisfactory documentation that all subcontractors or suppliers providing services or materials in connection with the Project have been paid, provided, however, the Contractor may be paid upon substantial completion of the Project if final completion will be delayed by weather or other conditions outside of its control, provided (a) Contractor provides satisfactory documentation that all subcontractors and suppliers have been paid and (b) an amount equal to the twice the amount sufficient to complete the Project as determined by the Engineer is withheld from payment until the Project is finally completed and the payment to subcontractors and suppliers have been satisfactorily documented.

ARTICLE 5 – CONTRACTOR’S REPRESENTATION

Section 5.1. In order to induce Owner to enter into this Agreement Contractor makes the following representations:

- A. Contractor has examined and carefully studied the Contract Documents.
- B. Contractor has visited the Project site and become familiar with and is satisfied as to the general, local and site conditions that may affect cost, progress and completion of the Project.
- C. Contractor is familiar with and is satisfied as to all federal, state and local laws and regulations that may affect cost, progress and completion of the Project.
- D. Contractor has carefully studied all reports, if any, of explorations and tests of subsurface conditions at or contiguous to the Project and all drawings of physical conditions in or relating to existing surface or subsurface structures at or contiguous to the Project. Contractor acknowledges and agrees that Owner and Engineer do not assume responsibility for the accuracy or completeness of information and data shown in such reports or drawings.
- E. Contractor has obtained and carefully studied (or assumes responsibility for having done so) all such additional or supplementary examinations, investigations, explorations, tests, studies and data concerning conditions at or contiguous to the Project site or otherwise which may affect costs, progress or completion of the Project or which relate to any aspect of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto. Contractor does not consider that any additional examinations, investigations, explorations, tests, studies or data are necessary for completion of the Project at the Contract Price,

within the Contract Time and in accordance with the other terms and conditions of the Contract Documents.

- F. Contractor has correlated the information known to Contractor, information and observations obtained from visits to the Project site, reports and drawings, if any, provided Contractor by Owner, and all additional examinations, investigations, explorations, tests, studies and data with the Contract Documents.
- G. Contractor has given Engineer written notice of all conflicts, errors, ambiguities or discrepancies that Contractor has discovered in the Contract Documents and the written resolution thereof by Engineer is acceptable to Contractor, and the Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for completion of the Project.

ARTICLE 6 – CONTRACT DOCUMENTS

Section 6.1. The Contract Documents which comprise the entire agreement between Owner and Contractor concerning the Project consist of the following:

- A. This Agreement
- B. Exhibit A – Project Specifications (Measurement and Payment)
- C. Exhibit B – Plan Sheets 1 through 20
- D. Exhibit C – Contractor’s Bid
- E. Exhibit D – Insurance Requirements
- F. Exhibit E – Conditions
- G. Any written amendments that are not attached to this Agreement amending, modifying or supplementing the Contractor Documents, provided such amendment(s) are signed by both Owner and Contractor.

ARTICLE 7 – MISCELLANEOUS

Section 7.1. No assignment by a party hereto of any rights under or interests in the Contract Documents will be binding on another party hereto without the written consent of the party sought to be bound; and specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

Section 7.2. Owner and Contractor each binds itself, its successors, assigns and legal representatives to the other party hereto, its successors, assigns and legal representatives in respect of all covenants, agreements and obligations contained in the Contract Documents.

Section 7.3. Any provision or part of the Contract Documents held to be void or unenforceable under any applicable law or regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement as of the date set forth in the first paragraph hereof.

“Contractor”

By: _____

Its: _____

_____, Michigan _____

CASCADE CHARTER TOWNSHIP

“Owner”

By: _____

Ben Swayze, Manager

5920 Tahoe Drive SE

Grand Rapids, Michigan 49546

(616) 949-1500

EXHIBIT A – PROJECT SPECIFICATIONS

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

- A. Plan sheets and general provisions of the Contract, including General Conditions apply to this Section.

1.2 SUMMARY

- A. This Section includes descriptions of the method of measurement, basis of payment, and Special Provisions for Unit Price Work under this Contract.

- B. Basis of Contract Payments:

1. Final Contract Price shall be determined by actual quantities installed at unit prices stated in Contractor's Bid.
2. Engineer shall determine actual as-built quantities.
3. All work identified on the Plan Sheets, but not included as a Bid Item shall be considered incidental to construction and not paid for directly, except Work that would be considered additional Work due to unforeseen conditions.
4. Unit Price payments for individual items shall include everything necessary for such item to function as intended in the system.
5. Owner reserves the right to increase, decrease or eliminate any quantities for items listed in Contractor's Bid or which become a part of the Contract Documents.

- C. Items included as incidental to Unit Prices for systems and appurtenances. Unless there is a specific pay item identified, the unit price payment shall include, but not be limited to:

1. Clear, excavate, trench, bedding, trench backfill, compaction, disposal of items for clearing and unsuitable or excess excavated materials.
2. Cleanup.

1.3 GENERAL CONDITIONS

- A. Mobilization and Temporary Traffic Control (Combined 20% Maximum of Total Bid):

1. Includes the following:
 - a. Preparatory work and expenses incurred prior to beginning work onsite.
 - b. Transport materials, personnel, and equipment to the job site.
 - c. Establish temporary onsite construction facilities.
 - d. Provide insurance, bonds, and other costs associated with the project in general and not included in other Pay Items.

- e. **Performance and Payment Bonds are required for any bid amount exceeding \$50,000.**
 - f. All required submittals.
 - g. Furnish, placement, and maintenance of temporary traffic control devices in accordance with Kent County Road Commission requirements.
 - h. Applying for permit from Kent County Road Commission and payment of permit fees if required.
 - i. Furnish, placement, and maintenance of soil erosion and sedimentation control devices, as well as obtaining permit. (Any permit fees to be paid by Owner).
2. Unit of Measure:
- a. Lump sum.
 - b. 50% payment will be made after 5% of the original contract amount is earned.
 - c. Final 50% payment will be made after 25% of the contract amount is earned.

1.4 DEMOLITION AND REMOVALS

A. HMA Surface, Rem:

- 1. Shall be completed as marked in the field by the Engineer and includes the following:
 - a. Saw cut, full depth removal, and disposal of existing bituminous material.
 - b. In transition areas where new pavement will match into existing pavement: double saw cut; **OR**
 - c. Saw cut at the beginning of the construction phase and again immediately prior to paving.
- 2. Unit of Measure: Square yard.

B. Sidewalk, Rem:

- 1. Shall be completed as marked in the field by the Engineer and includes the following:
 - a. Sawcut, removal, and disposal of existing Portland Cement Concrete.
- 2. Unit of Measure: Square yard.

C. Curb and Gutter, Rem:

- 1. Shall be completed as marked in the field by the Engineer and includes the following:
 - a. Saw cut, removal, and disposal of existing curb, integral curb and gutter, and gutter pan.
- 2. Unit of Measure: Linear foot.

D. Conc, Rem:

- 1. Shall be completed as marked in the field by the Engineer and includes the following:

- a. Saw cut, removal, and disposal of existing concrete
- 2. Unit of Measure: Square yard.

E. Excavation, Earth:

- 1. Includes the disturbance and removal of existing natural or underlying material as provided for in the plans or as directed by the Engineer within the construction limits.
 - a. Excavated material shall not be salvaged or reused on-site unless directed by the Engineer.
- 2. Unit of Measure: Cubic yard (bank measure).

1.5 SUBGRADE AND BASE PREPARATION

A. Aggregate Base, 21AA, 6 inch:

- 1. To be placed at minimum thickness of 6-inches over top compacted subgrade or as provided for in the plans.
- 2. Must be compacted to 98.0 minimum percent density per MDOT density requirements.
- 3. Unit of Measure: Square yard.

B. Pathway Grading:

- 1. Includes the below procedure following removal of existing impervious surface (if applicable):
 - a. Clear the site and dispose of unsuitable materials within grading limits, including the stripping of topsoil, not to be salvaged or reused on-site unless approved by the Engineer.
 - b. Remove visible and apparent tree roots and other organic material located in the subgrade and within or influencing the grading limits. All debris must be removed by the Contractor from the site.
 - c. Cut, fill, shape, grade or otherwise prepare finished subgrade for proposed aggregate base. The Contractor shall use MDOT Class II granular material for fill, where necessary, included as part of this Pay Item.
 - d. Proof roll and compact subgrade material to 95.0 minimum percent density.
 - e. Place aggregate base (see item 1.5.B) over top to a minimum thickness of 6-inches or as provided for in the plans. Shape, grade, and compact aggregate base layer to 98.0 minimum percent density. Values are based on MDOT density requirements and may be waived by the Engineer in few and extenuating circumstances.
 - f. Grade around edges of pathway to tie into existing surrounding topography. The Contractor shall achieve positive drainage away from the finished pathway to eliminate standing water on or adjacent to the pathway as best as reasonably possible.
- 2. Unit of Measure: Linear foot.

- C. Existing Manhole, Adjust:
 - 1. Applies only to utility structures and covers within the influence of the project that must be adjusted to accommodate proposed construction. Includes the following:
 - a. Adjust existing utility structure covers within the travel way to less than or equal to 1/8-inch below finish surface grade. Others to be adjusted as indicated in the plans or directed by the Engineer.
 - b. Must be performed to the standards prescribed by the utility owner.
 - c. The adjustment may be performed by the utility owner. The Contractor is responsible for notifying the utility owner and/or coordinating the adjustment. No additional time or cost to be provided by the Owner.
 - d. Adjustment must be performed prior to placing wearing course asphalt or Portland Cement Concrete.
 - e. The Contractor is responsible for all costs associated with accessing, adjusting, and restoring removals for utility structure covers failing compliance following placement of wearing course asphalt or Portland Cement Concrete.
 - 2. Temporary removal of the manhole cover and/or lowering of the manhole cover and structure during construction if necessary to be included as part of this pay item.
 - a. Contractor responsible to salvage and reuse manhole cover and structure unless otherwise directed by the Engineer. Owner to pay separately should the manhole cover or the structure or part thereof require replacement for other reason than damage due to contractor negligence.
 - 3. Unit of Measure: Each.

1.6 MILLING AND PAVING

- A. Cold Milling HMA Surface:
 - 1. Shall be completed as marked in the field by the Engineer and includes the following:
 - a. Removal of bituminous surface as directed by the Engineer (typically less than 3-inches).
 - b. Use of a skid- or track-steer mounted mini-mill or manual hand chipping to expose the bituminous surface the required depth at milling limits, curb, driveways, masonry walls, iron castings, and other sensitive, difficult to reach, and/or limited surface areas.
 - c. Hauling away of discarded bituminous material.
 - d. Sweeping and removal of excess debris from the project site immediately following the operation.
 - 2. Pavement surface milled outside the marked limits or outside the direction of the Engineer considered to be damages the Contractor is responsible to correct, including at a minimum, resurfacing, for no additional cost to the Owner.
 - 3. Unit of Measure: Square yard.

- B. Preparation of Milled Surface for Paving:
 - 1. Includes the following:
 - a. Exposing the entire bituminous width of the existing pathway (typically 10-foot) prior to paving by removing turf, weeds, and other organic material infringing from the edges or through the surface either before or following the milling operation.
 - c. Where organic material persists through the surface (e.g., in existing cracks), it shall be removed in its entirety, through its roots, prior to paving.
- C. HMA, 13A:
 - 1. The following applies to the handling and placing of leveling and wearing course pavements:
 - a. Bituminous Bond Coat shall be applied at a rate of 0.05 to 0.15 gallons per square yard where pavement is being placed over existing bituminous material.
 - b. Leveling and wearing pavement courses shall both yield 220 pounds per square yard.
 - c. Unless directed by the Engineer, the paving machine shall not pause or pick up its screed while placing wearing course once the paving operation has commenced. All adjacent paving (e.g., driveways, if applicable) must be completed at a separate time or with a separate paving machine.
 - d. All organic material must be swept, blown, or otherwise removed from the surface prior to paving.
 - e. In no instance is the tracking of tack and/or bituminous debris acceptable along haul routes. The contractor shall be responsible for immediately cleaning up any effected areas.
 - f. Material for both leveling and wearing courses must be compacted to 92.0 minimum percent density per MDOT density requirements.
 - g. Requirements specific to asphalt mix design are provided below in Special Provisions.
 - 2. Unit of Measure: Ton.
- D. Hand Patching:
 - 1. Shall be performed in areas with width less than 4-feet, as indicated in the plans, or as directed by the Engineer and includes the following:
 - a. Use mix with the same specifications as the leveling and wearing course unless an alternative mix is approved by the Engineer.
 - b. Compact material in lifts no greater than 2.5-inches with a machine vibrator or other method approved by the Engineer.
 - c. Compact to 92.0 minimum percent density per MDOT density requirements.
 - 2. Unit of Measure: Ton.

1.7 PORTLAND CEMENT CONCRETE

- A. Curb Ramp, Conc, 6 inch:
 - 1. Includes the following:
 - a. Excavate to minimum depth of 6-inches below the finished surface and minimum width to allow for forming.
 - b. Remove and dispose of unsuitable material in subgrade and replace with MDOT Class II granular material as necessary to achieve grade. Shape and compact subgrade.
 - c. Wet the subgrade prior to placing concrete; float the surface; round the edges and joints with a finishing tool; and texture the surface with a coarse broom transverse to the direction of travel.
 - d. Construct and align transverse joints with like joints in adjacent slabs, at right angles to the centerline of the sidewalk.
 - e. Place expansion joint filler the full depth of the interfaces at curb ramp opening and adjacent existing sidewalk. Recess the top of the joint filler 1/4- to 1/2-inch below the finished surface.
 - f. Apply curing compound and protect the concrete from vandalism until hardened. The Contractor is responsible to replace damaged or otherwise vandalized and unapproved work at their own cost.
 - 2. Must be built at a minimum to MDOT Standard Plan R-28 series specifications and meet Americans with Disabilities Act (ADA) requirements.
 - 3. Unit of Measure: Square foot.

- B. Curb Ramp Opening, Conc:
 - 1. Includes the following:
 - a. Excavate and shape subgrade to provide depth of concrete at a minimum matching existing adjacent curb and gutter.
 - b. Construct back of curb flush with curb ramp and front flush with the roadway pavement.
 - c. Place two epoxy coated steel reinforcement bars separated and in parallel within and through the entire length of the concrete.
 - c. Place expansion joint filler the full depth of the interfaces with adjacent curb and gutter and curb ramp.
 - d. Apply curing compound and protect the concrete from vandalism until hardened. The Contractor is responsible to replace damaged or otherwise vandalized and unapproved work at their own cost.
 - 2. Must be built at a minimum to MDOT Standard Plan R-28 series specifications and meet Americans with Disabilities Act (ADA) requirements.
 - 3. Unit of Measure: Lineal foot.

- C. Detectable Warning Surface:
 - 1. Shall meet the following requirements:
 - a. One of the following approved products: “NextStep” manufactured by Zumar Industries, Inc; **OR** “Armor Tile” manufactured by Engineered Plastics, Inc.;

OR “ATS-C” Advantage Tactile Systems; **OR** other if approved by the Engineer.

- b. Must be removable and “Colonial Red” in color.
- c. May not be adhesive attached.
- 2. Contractor must protect from damage from pedestrians, vehicles, and equipment during installation as recommended by the manufacturer.
- 3. Product must meet current Americans with Disabilities Act (ADA) requirements and be installed per manufacturer’s instructions and MDOT Standard Plan R-28 series specifications.

1.8 RESTORING THE SITE

A. Restoration:

- 1. In disturbed lawn areas within the construction limits as shown in the plans, or as directed by the Engineer, the following is required:
 - a. Excavate, remove, and grade to minimum 4-inches below finish grade.
 - b. Rake out, or by other means remove, subsoil, noxious weeds or other foreign matter (e.g., stones, roots, sticks, litter or other extraneous matter).
 - c. Place topsoil a minimum thickness of 4-inch (after light rolling and natural settlement) below and up to finish grade.
 - d. Once the seed bed is raked, harrowed, and tracked, evenly apply Class A fertilizer at a rate of 176 pounds per acre; **AND**
 - e. Select permanent seed varieties available on the MDOT Qualified Products List and spread at 220 pounds per acre; **OR**
 - f. Apply fertilizer and seed together by hydroseeding, constantly agitating the mixture and spending within 1 hour of mixing. All excess hydroseeding mixture must be removed from impervious surfaces and cannot be flushed with water within 15 feet of waters of the state or on frozen or saturated soil.
 - g. Must use mulch and mulch anchor with tracer, namely wood fiber mulch mixed with Conweb 2000 (excelsior/guar gum base adhesive mulch anchor), or an approved equal, mulch anchor and recycled newsprint as anchor; **OR**
 - h. Mulch blanket selected from the MDOT Qualified Product List to supplement and/or substitute the adhesive mulch anchor on slopes greater than 1 on 4.
- 3. Topsoil shall not be salvaged and reused from within the project limits unless it has been finely screened of all extraneous materials matter and approved by the Engineer.
- 4. Topsoil must be fertile, humus bearing, friable, representative of local productive soils, capable of sustaining vigorous plant growth, free of lumps, subsoil, noxious weeds or other foreign matter (e.g., stones, roots, sticks, litter or other extraneous matter), and not frozen or muddy.
- 5. The Contractor must take care not to damage existing lawns, irrigation systems, sidewalks, pavement, driveways, or curbs throughout the duration of the project.

Any damage and/or areas disturbed outside the scope of the project deemed by the Owner as the result of carelessness of the Contractor shall be the responsibility of the Contractor to repair to at a minimum, the prior condition.

6. Payment for this item shall be considered included in the Pay Item Restoration.

1.9 SPECIAL PROVISIONS

A. Pedestrian Pathway Closure and Safety:

1. The Contractor shall take necessary precautions to close the extent of pathway under active construction. This includes the placement and maintenance of barricades, signs, and other means to alert pedestrians approaching and within the vicinity of the closure.
2. If equipment or material is left unattended on the project site, the contractor shall be responsible for safely placing and securing it.
3. All control devices delineating the active construction site, equipment, or material shall be fitted with working orange construction lights set for steady burn if left in place during nighttime hours.
3. Payment for this item shall be considered included in Temporary Traffic Control.

B. Saw Cutting:

1. All existing bituminous and concrete surfaces shall be saw cut at the limits of construction or as directed by the Engineer.
 - a. If the edge is damaged prior to the placement of proposed surface, the edge shall be recut as directed by the Engineer at no additional cost to the owner.
2. Payment for this item shall be considered included in the removal Pay Items.

C. Approval of Bituminous Mix Design:

1. The Contractor must submit an MDOT approved mix design and JMF to the Engineer and receive receipt of the Engineer's approval prior to beginning production and placing the material on-site.
 - a. The Contractor shall exclusively use Marshall mix 13A with Performance Grade asphalt binder 58-28 and air voids reduced to 3.5-percent. The Contractor may propose alternative mixes for use on the Project in part or its entirety. Alternative mixes must receive approval from the Engineer prior to beginning production and placing the material on-site.
 - b. RAP content shall comply with the Tier 1 category of the according MDOT Special Provision listed below. Tier 2 and 3 RAP content shall not be permitted.

D. Protection of Utility Structures:

1. The Contractor is responsible for protecting utility structures and structure covers. These include, but are not limited to, water valve boxes; water shutoffs; storm or

sanitary sewer, telecom, or traffic signal structure covers; monument boxes; and handholes.

- a. Utility structures indicated in the plans are provided as known to the Owner and not guaranteed to be all-encompassing of or contiguous to the Site.
- b. Damaged utility structures or structure covers must be repaired or replaced prior to placing wearing course pavement or Portland Cement Concrete.
- c. The Contractor is responsible for all costs associated with accessing and removing, replacing, and/or repairing utility structures following placement of wearing course pavement or Portland Cement Concrete.

E. Protecting of Existing Retaining Walls:

1. The Contractor is responsible for damage to existing retaining walls within or adjacent to the grading limits.
 - a. Repair or replacement, in part or entirely, as necessary to return the retaining wall to, at a minimum, its prior condition, to be completed by the Contractor at no cost to the Owner.
 - b. If deemed unable to adequately perform the repair or replacement, the Engineer may require the Contractor to sublet the work to a qualified contractor.

F. Concrete Washout:

1. The Contractor is responsible for the cleanup of excess concrete and concrete residue for all trucks that deliver concrete to and wash out on the Project site.
 - a. Trucks should not wash out on grade. The Contractor is encouraged to create a designated washout area utilizing a prefabricated container specifically manufactured for the purpose of collecting concrete residue.
 - b. Any excess concrete and expelled waste on-site must be removed and properly disposed, not left or buried within or adjacent to project limits.

G. The following MDOT Special Provisions, in their entirety and as included part thereof in above provisions, shall apply:

- A. Recycled Hot Mix Asphalt Mixture on Local Agency Projects
- B. Controlling Uniformity in Hot Mix Asphalt Pavement During Paving Operations
- C. Sampling Asphalt Binder on Local Agency Projects
- D. Acceptance of Hot Mix Asphalt Mixture on Local Agency Projects

2023 PATHWAYS IMPROVEMENT PROJECT

SPAULDING-BURTON LOOP & BUTTRICK AVENUE SEGMENT

CASCADE CHARTER TOWNSHIP KENT COUNTY

SHEET NO.	PLAN INDEX
1	SPOULDING-BURTON LOOP PLAN SHEETS
2-3	TYPICAL SECTIONS
4-11	SPAULDING-BURTON LOOP PLAN SHEETS
12-20	BUTTRICK AVENUE SEGMENT PLAN SHEETS

**3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-462-7171**



BEFORE YOU DIG, CALL MISS DIG. THESE PLANS SHOW THE INFORMATION AVAILABLE. BUT THESE PLANS DO NOT GUARANTEE THE ACCURACY OF THE INFORMATION. OTHER UTILITIES MAY BE LOCATED AT ANY POINT ALONG THE PROJECT. CONTRACTORS SHALL VERIFY THE LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO COMMENCING WORK.

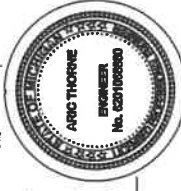


ROAD NAME	POB.	PUE.
SPAULDING AVE SE	125+46.0	125+46.0
CASCADE RD SE	203+25.0	203+40.0
CASCADE RD SE	279+00.0	284+00.0
BURTON ST SE	304+00.0	310+00.0
BUTTRICK AVE SE	4102+75.0	3750+00.0

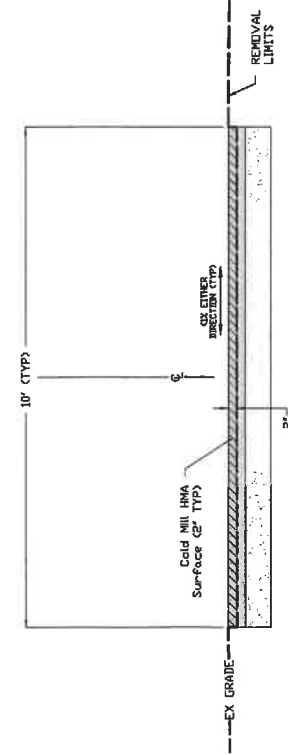
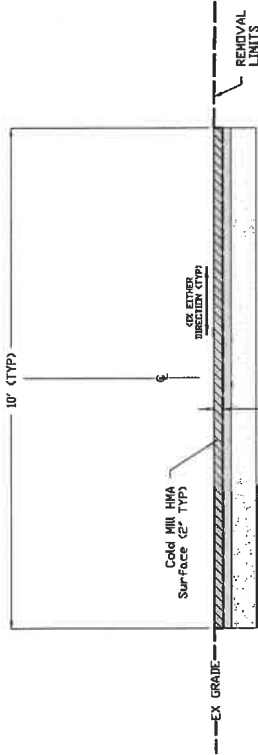
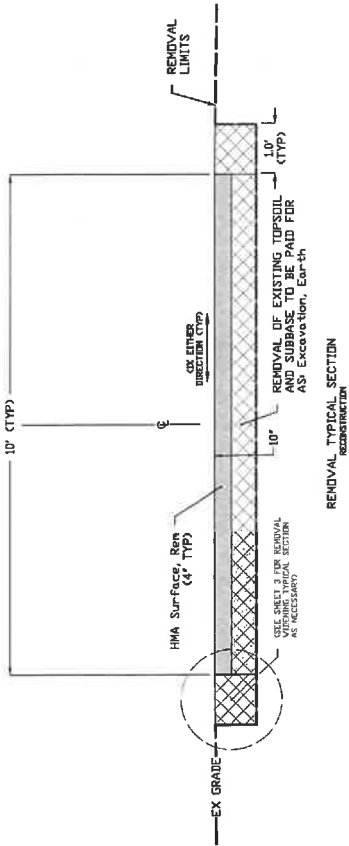
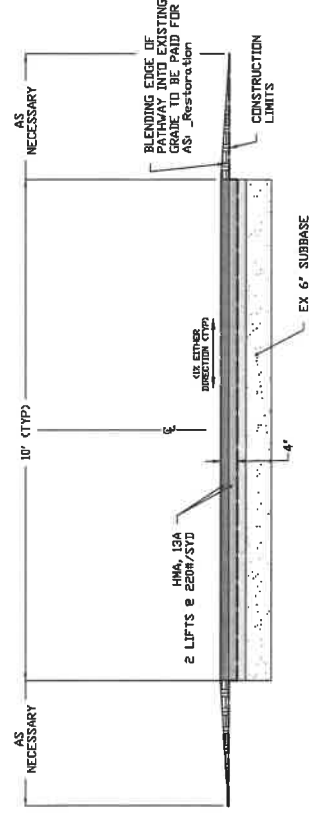
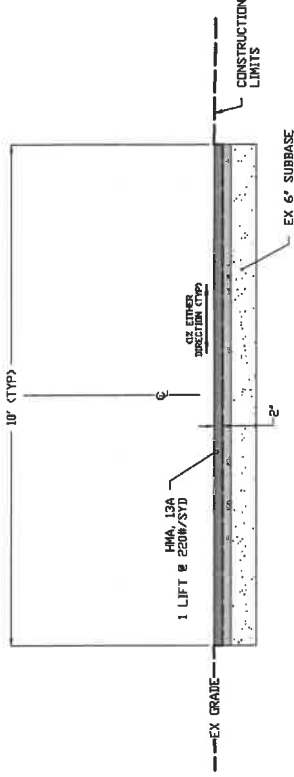
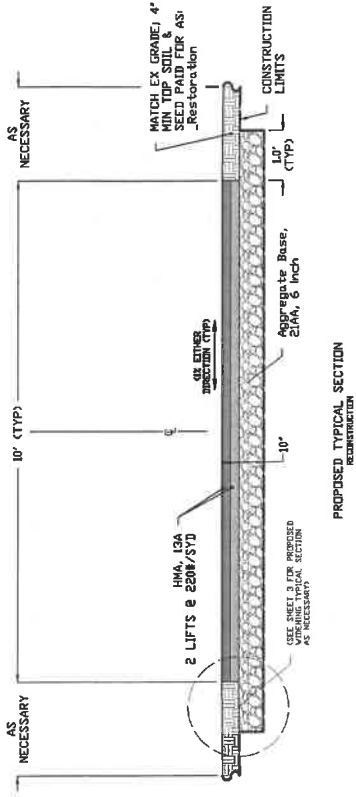
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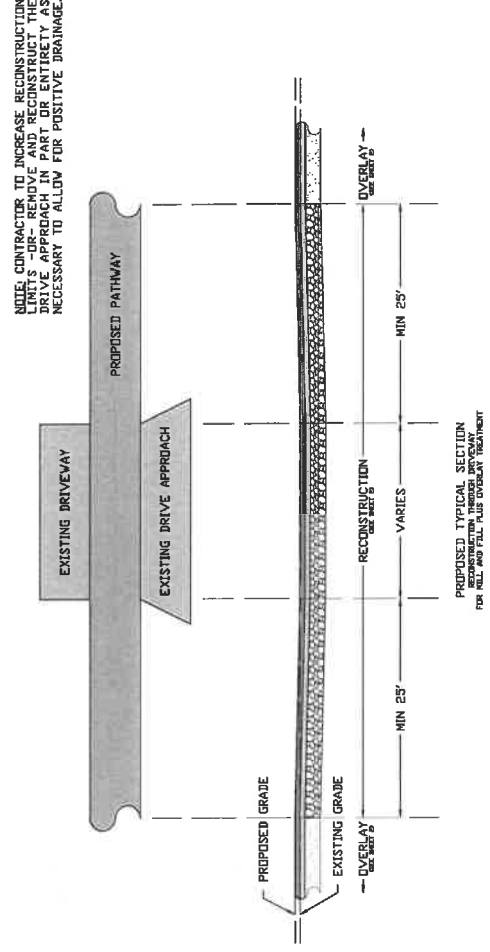
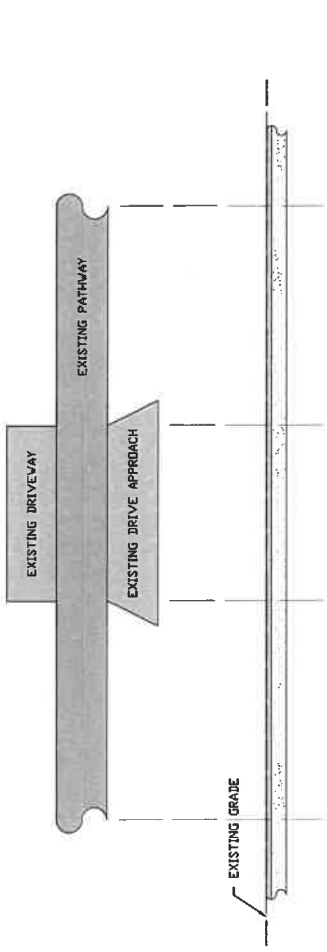
Angela L. ...
ANGELA L. ...
REGISTERED PROFESSIONAL ENGINEER
CASCADIA ENGINEERING
2500 WALKER DR SE
GRAND RAPIDS, MI 49546
PHONE: (616) 845-1500
TELEFAX: (616) 845-1500

DATE: 11/07/2022

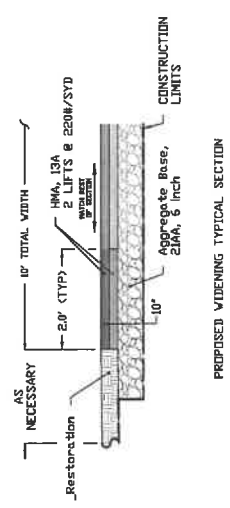
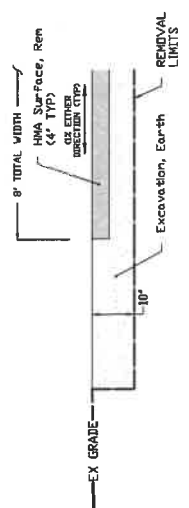


ALL WORK SHALL BE IN ACCORDANCE WITH THE MICHIGAN CONSTRUCTION AND SUPPLEMENTAL SPECIFICATIONS.





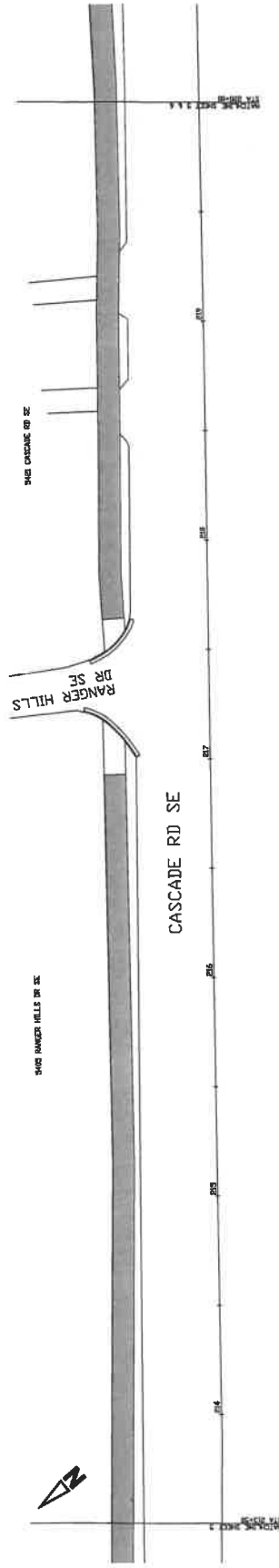
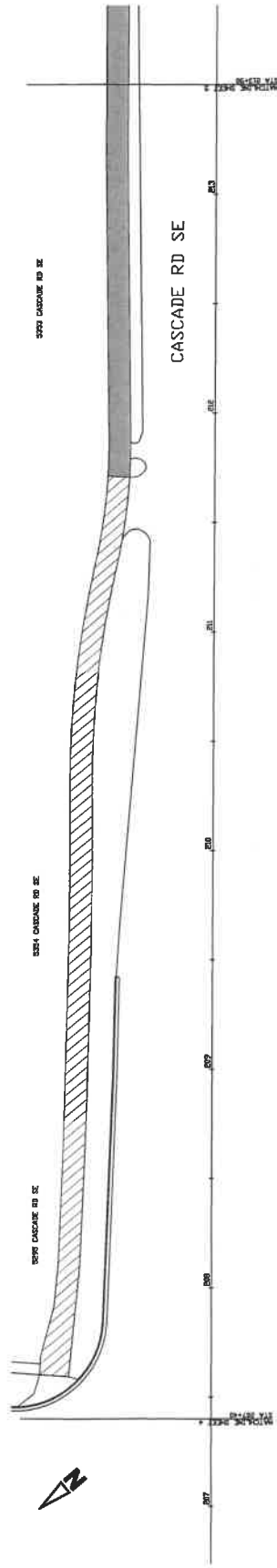
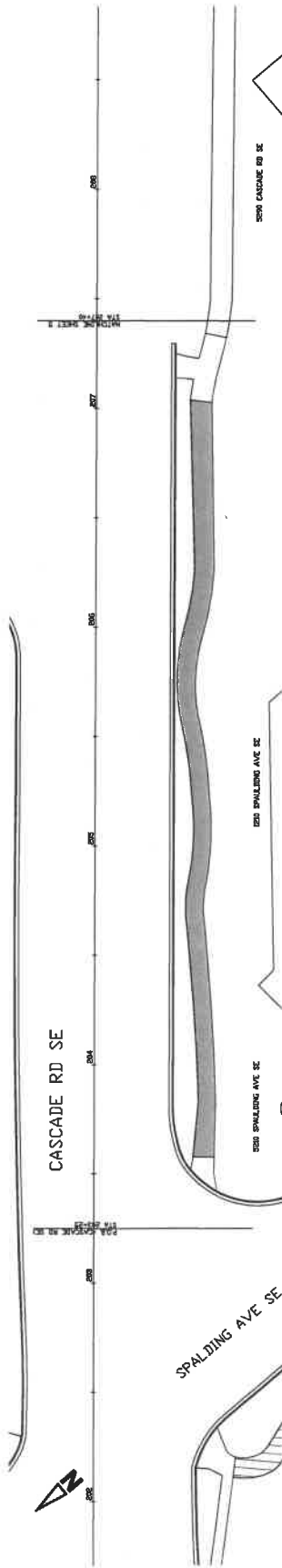
NOTE: CONTRACTOR TO INCREASE RECONSTRUCTION LIMITS OR REMOVE AND RECONSTRUCT THE EXISTING DRIVE APPROACH AS NECESSARY TO ALLOW FOR POSITIVE DRAINAGE.



HMA APPLICATION CHART

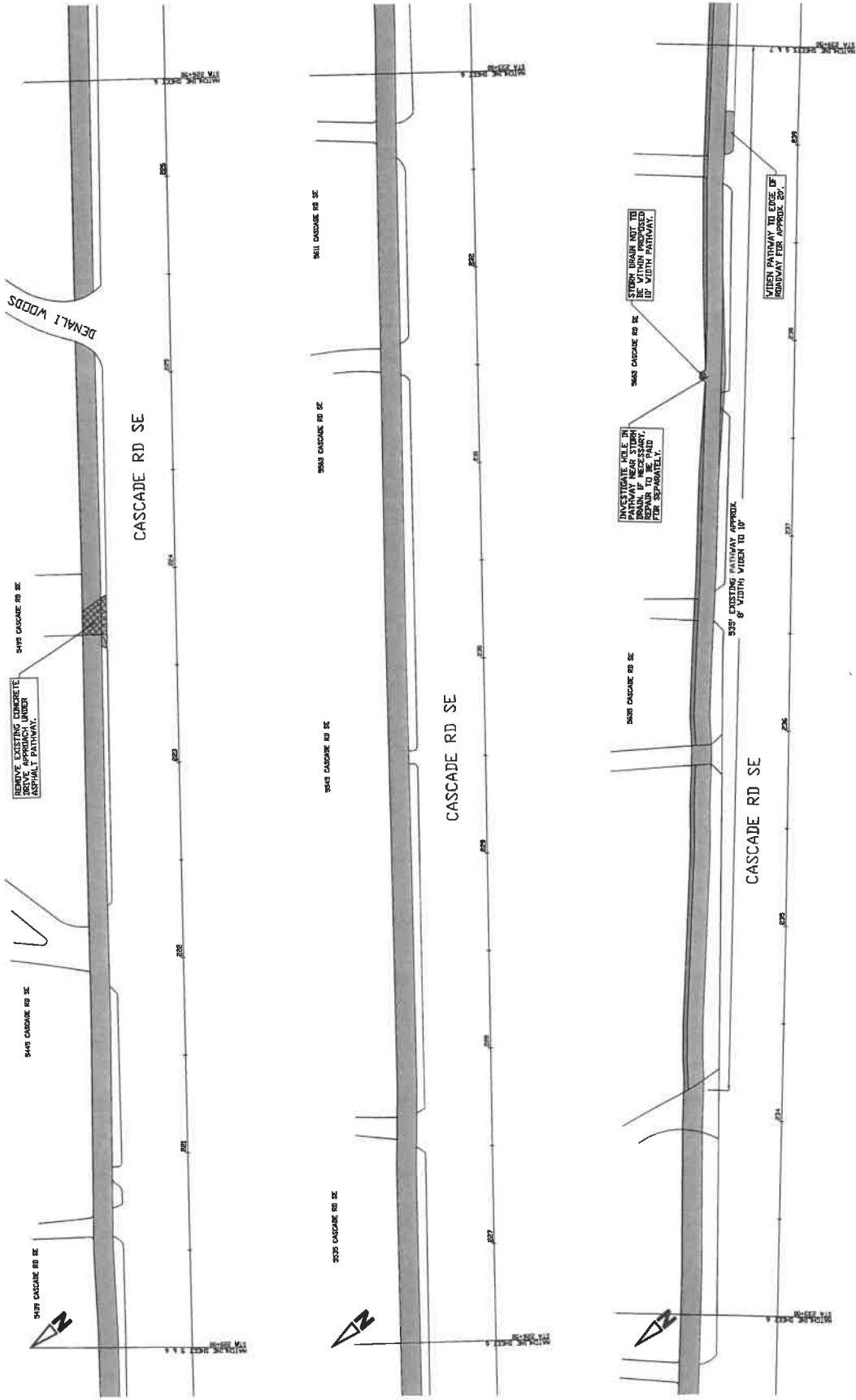
Bid Item	Rate of Application Lb./Syd	Performance Grade	Remarks
HMA, 13A	220	58-28	Wearing course
Hand Patching	275	58-28	HMA 13A, Maximum Lift Thickness = 2.5"
Bituminous Bond Coat*	0.05 TO 0.15 Gal/Syd		

* FOR INFORMATION ONLY. NOT A BID ITEM.



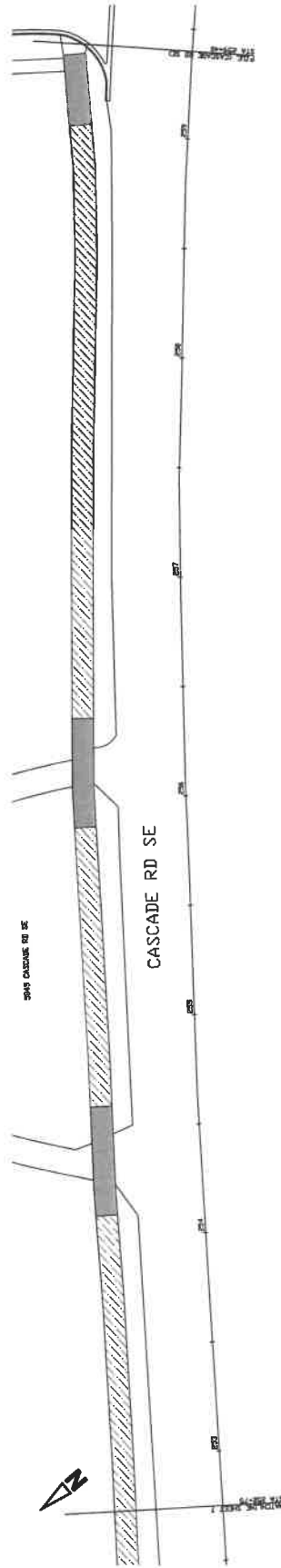
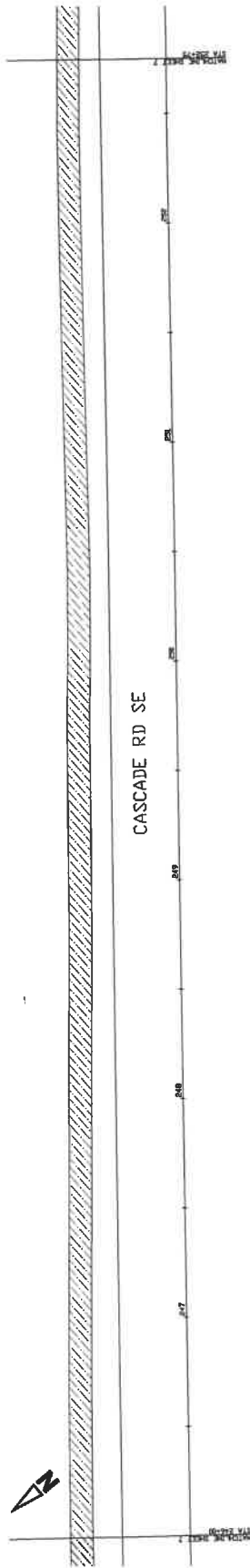
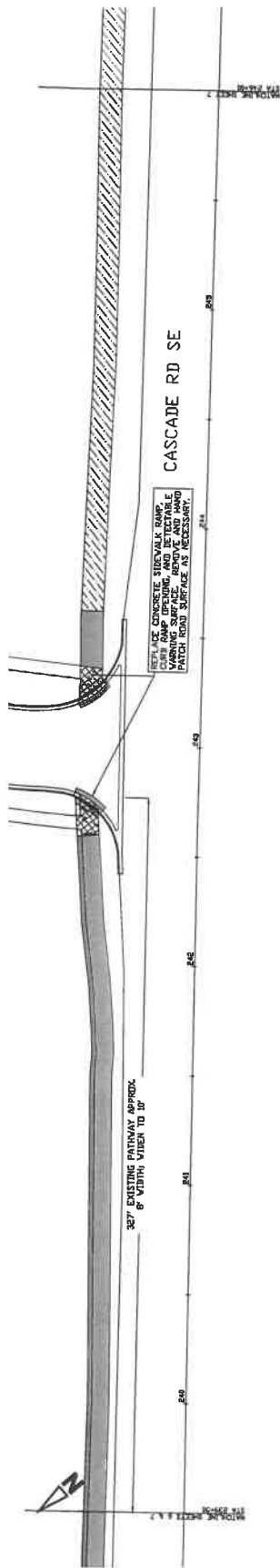
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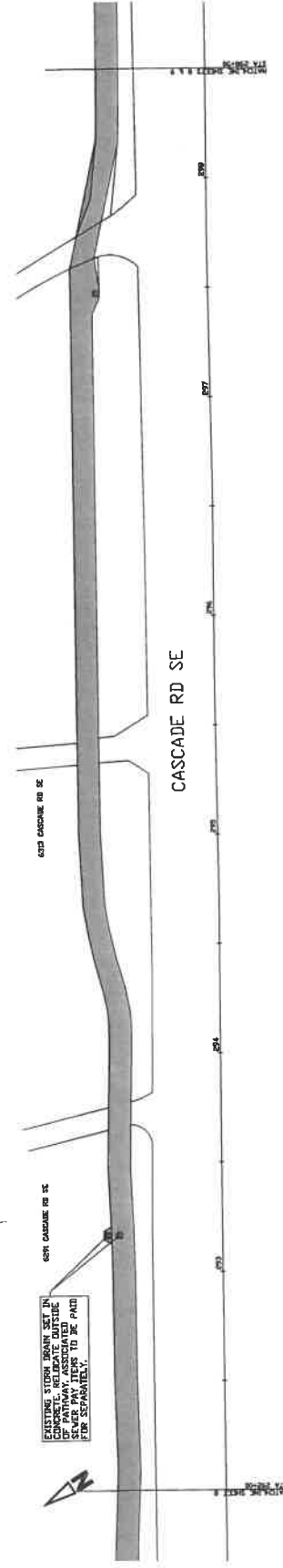
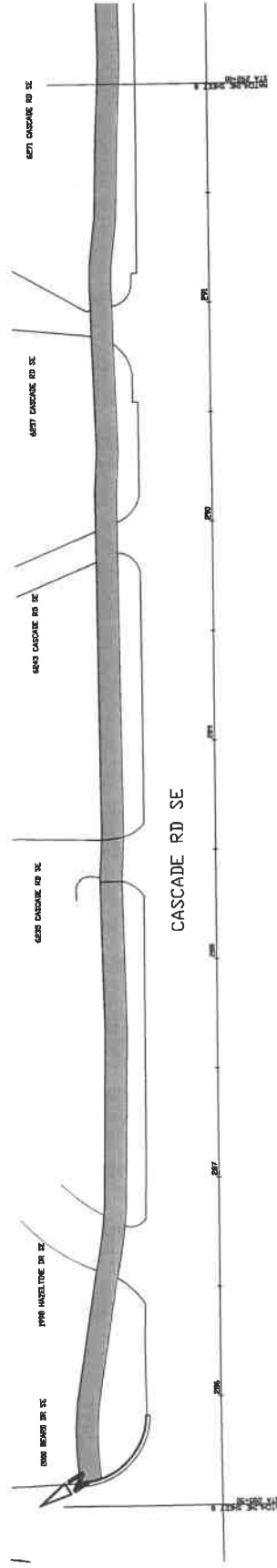
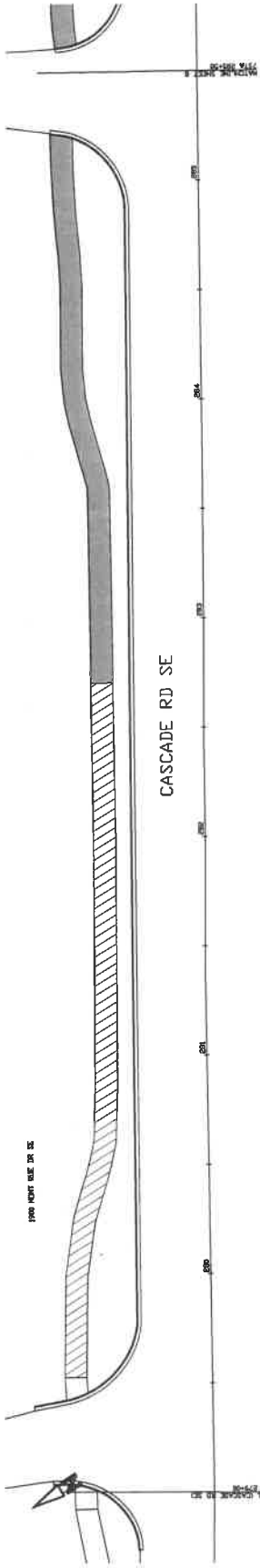
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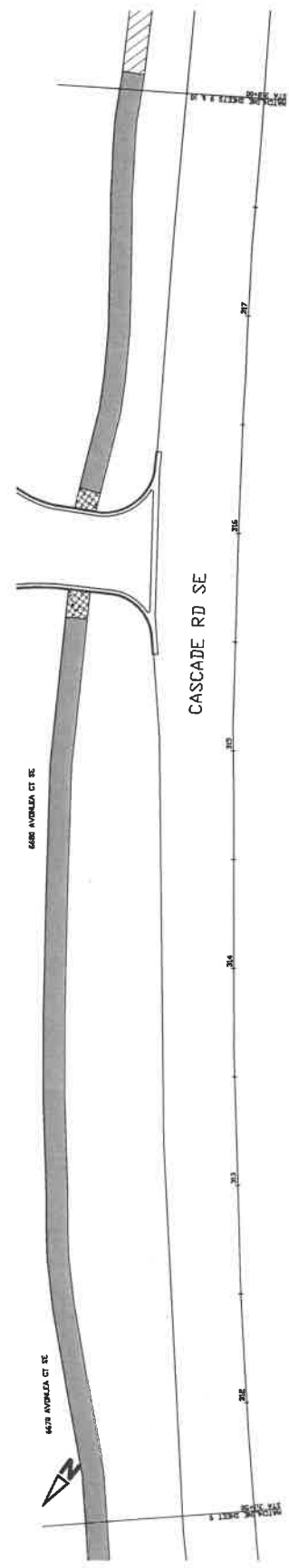
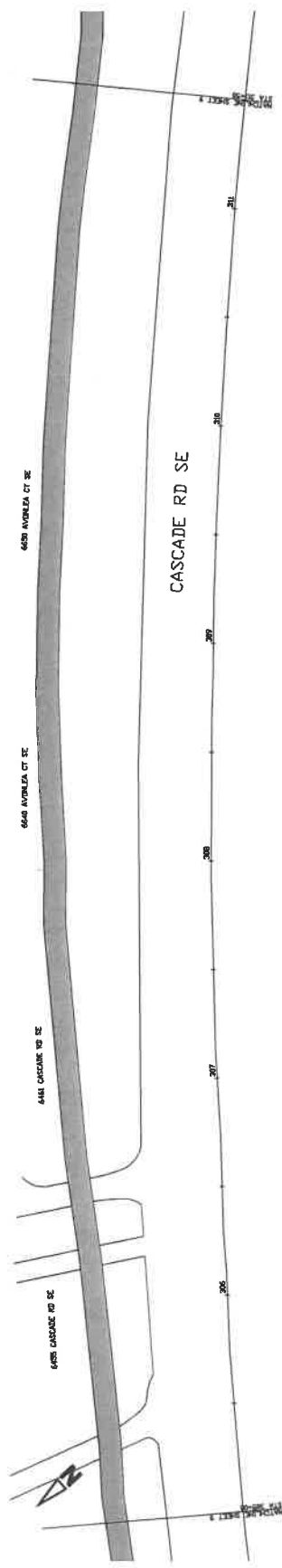
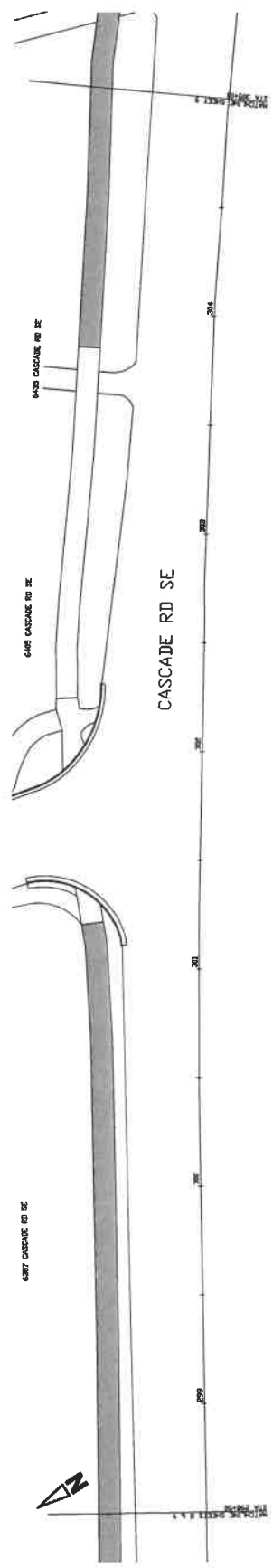
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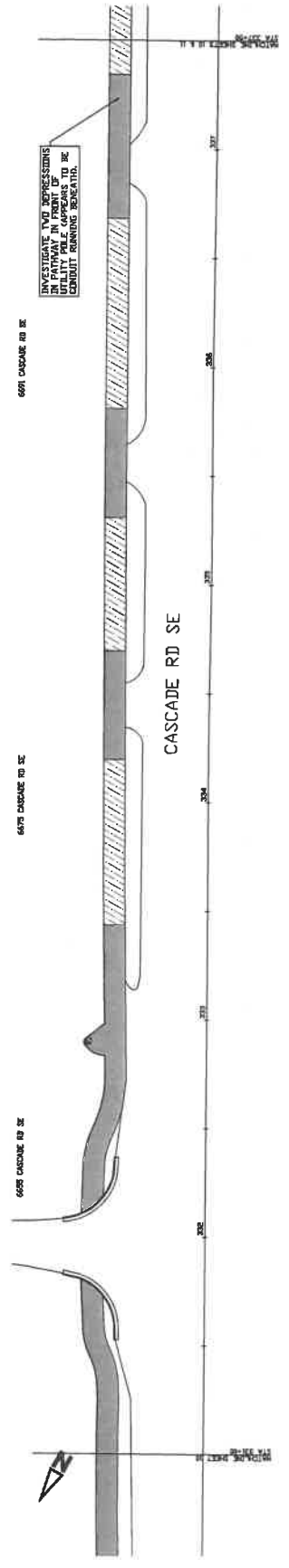
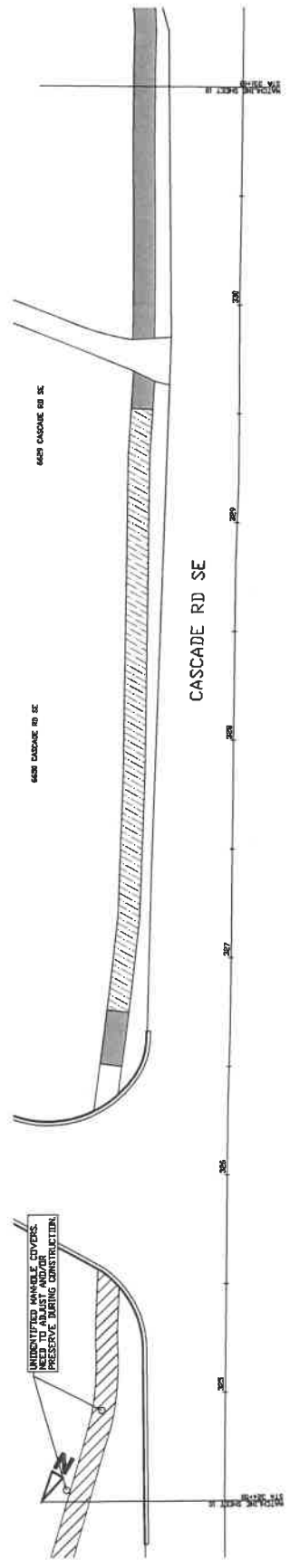
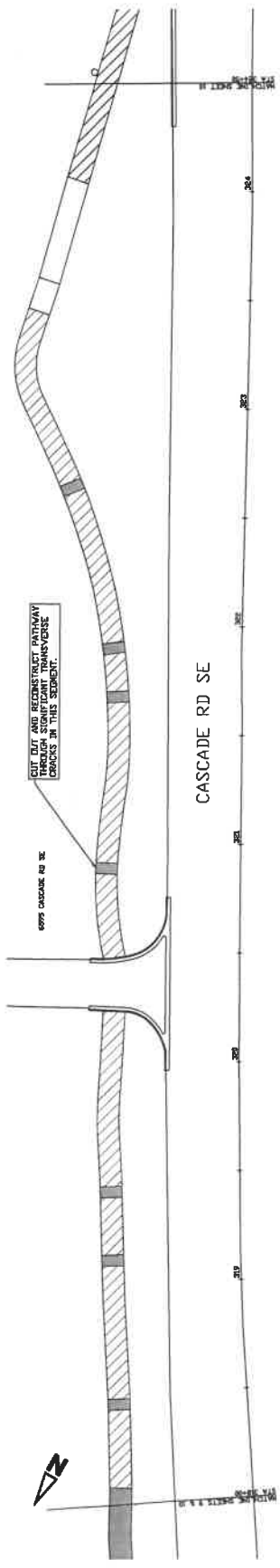
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 - MILL & FILL PLUS OVERLAY
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EXISTING STORM DRAIN SET IN
 CONCRETE. RELOCATE OUTSIDE
 OF ROADWAY. CONTRACTOR TO
 VERIFY ALL UTILITIES AND
 SETBACKS. PAY ITEMS TO BE PAID
 SEPARATELY.



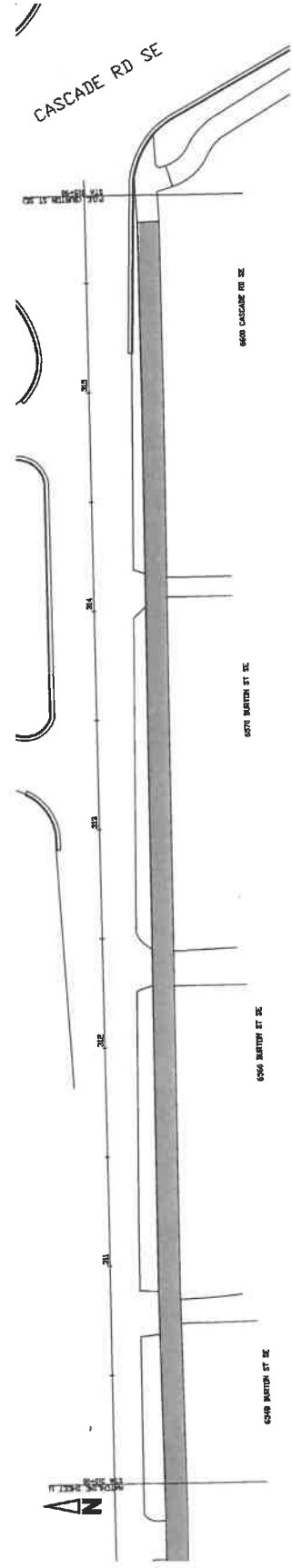
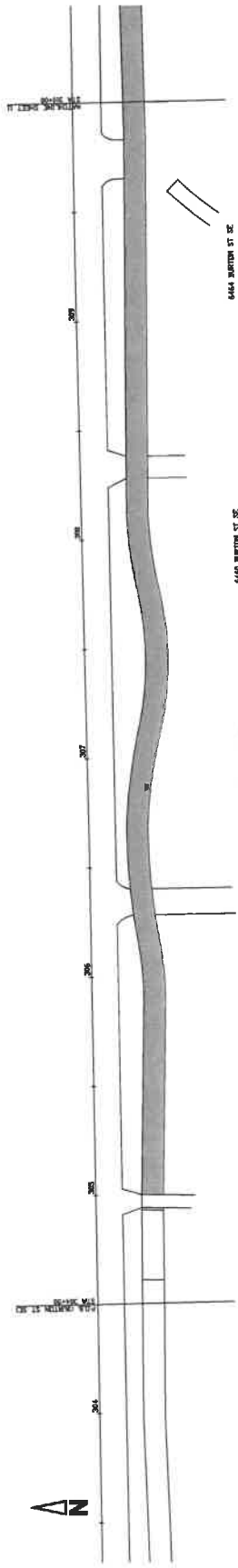
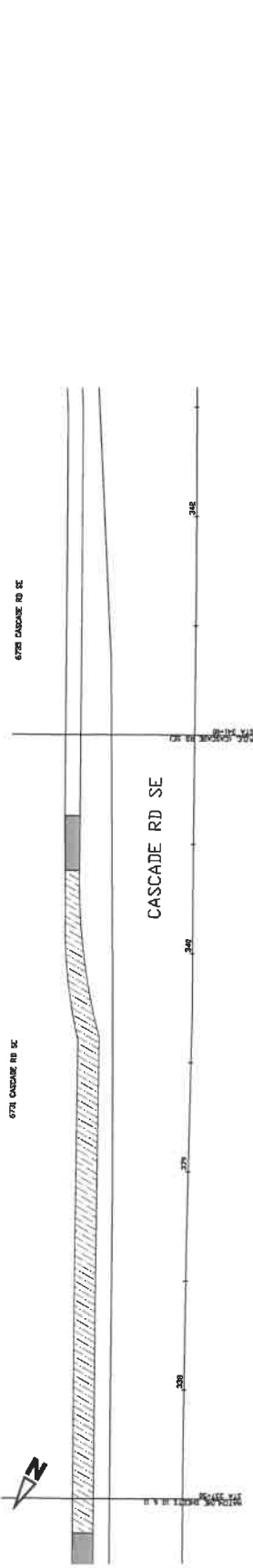
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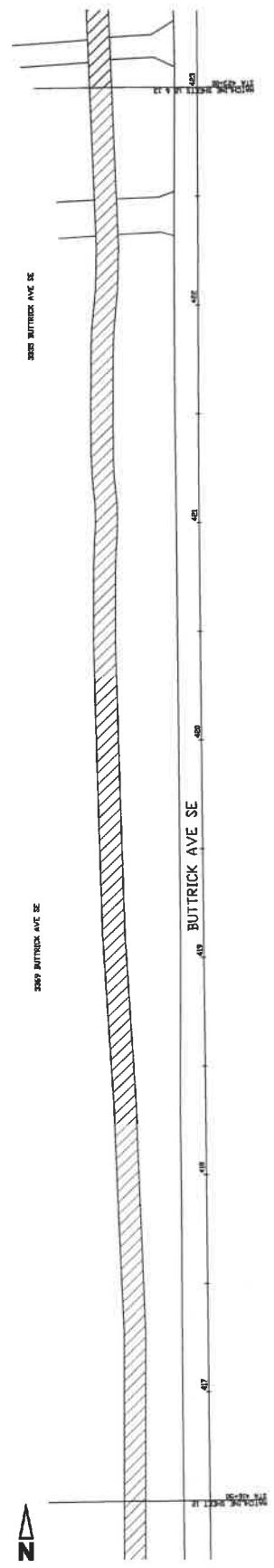
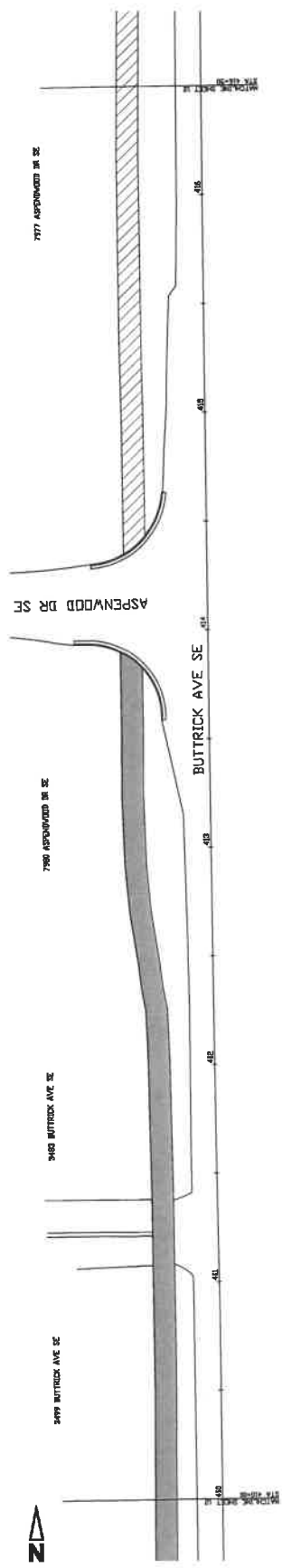
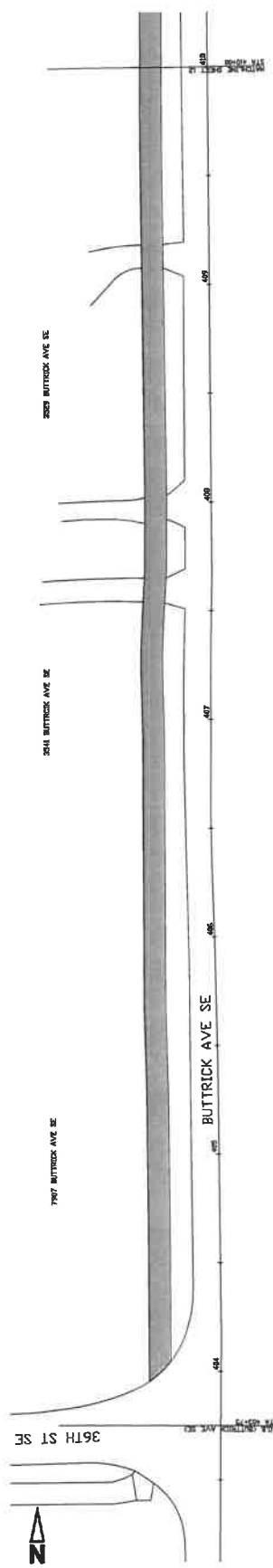
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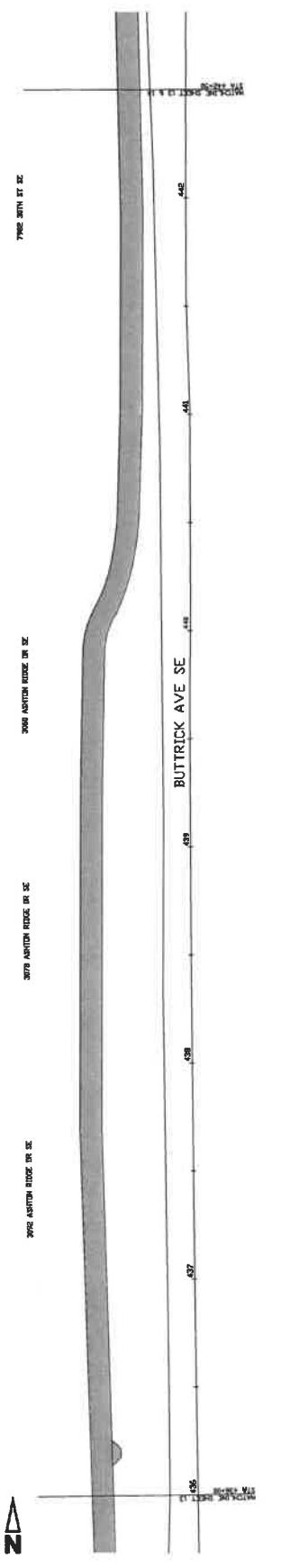
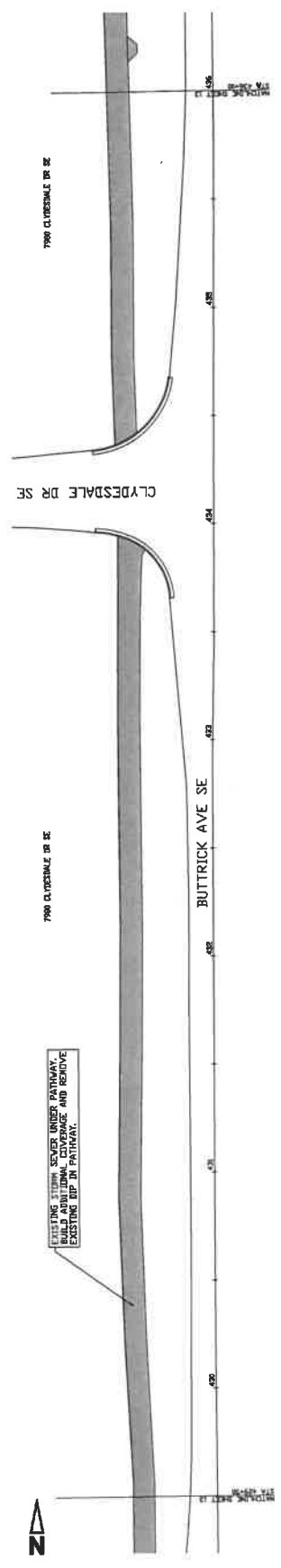
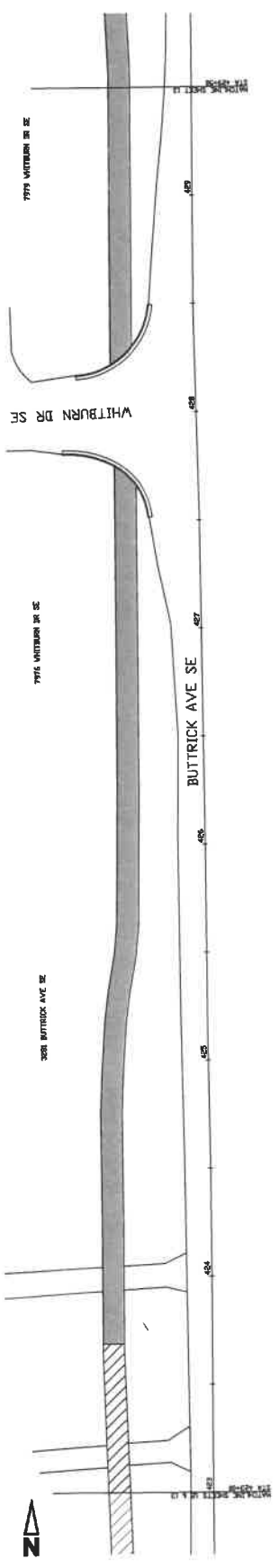
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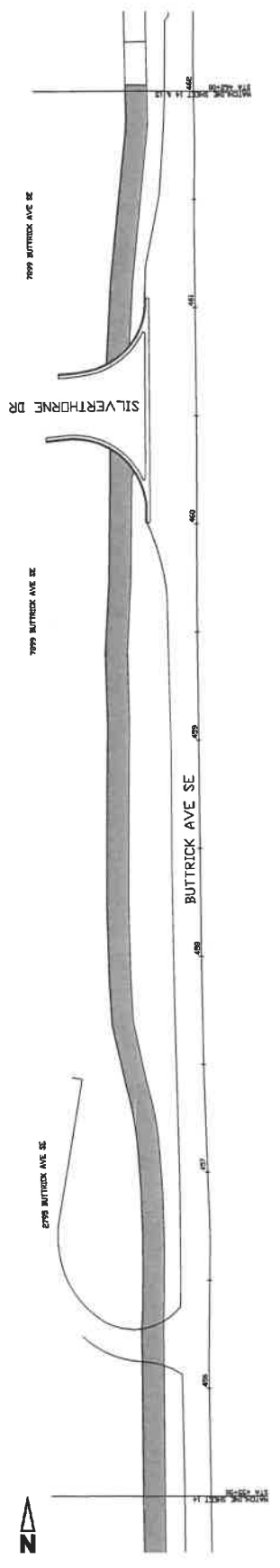
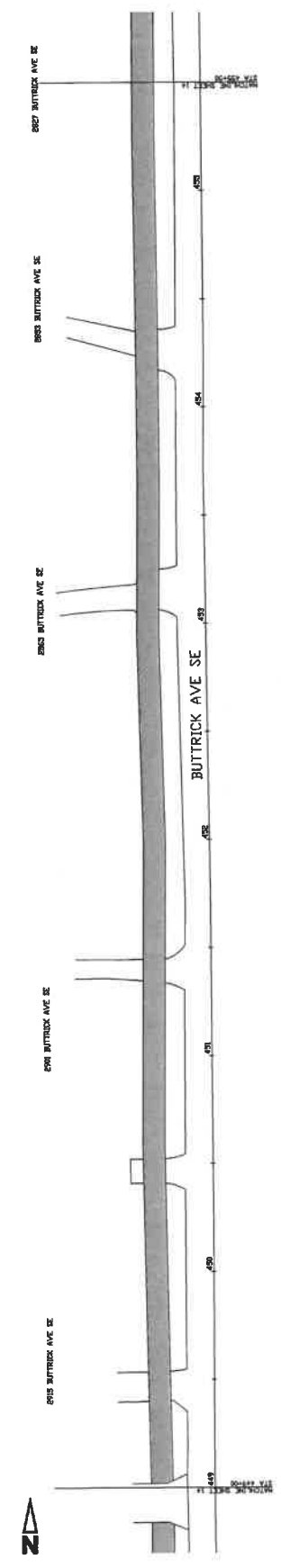
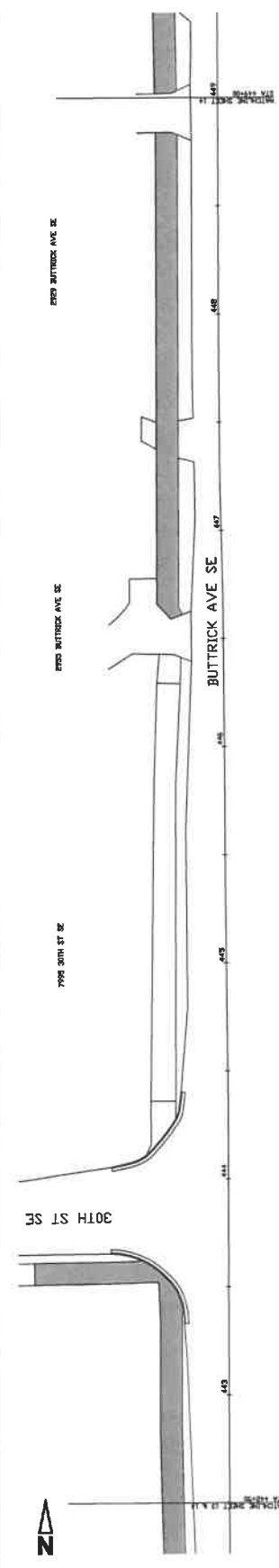
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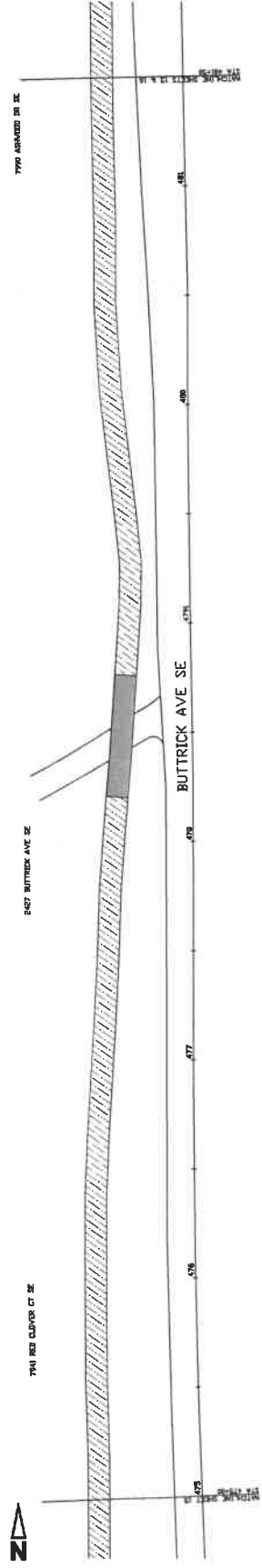
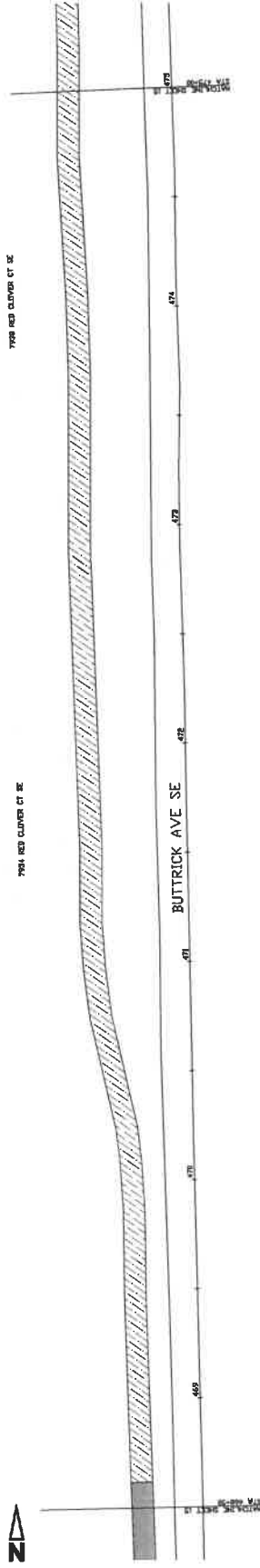
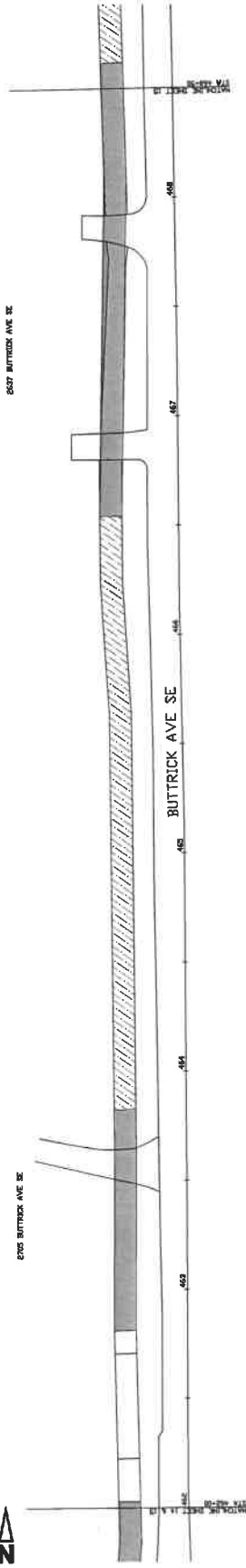
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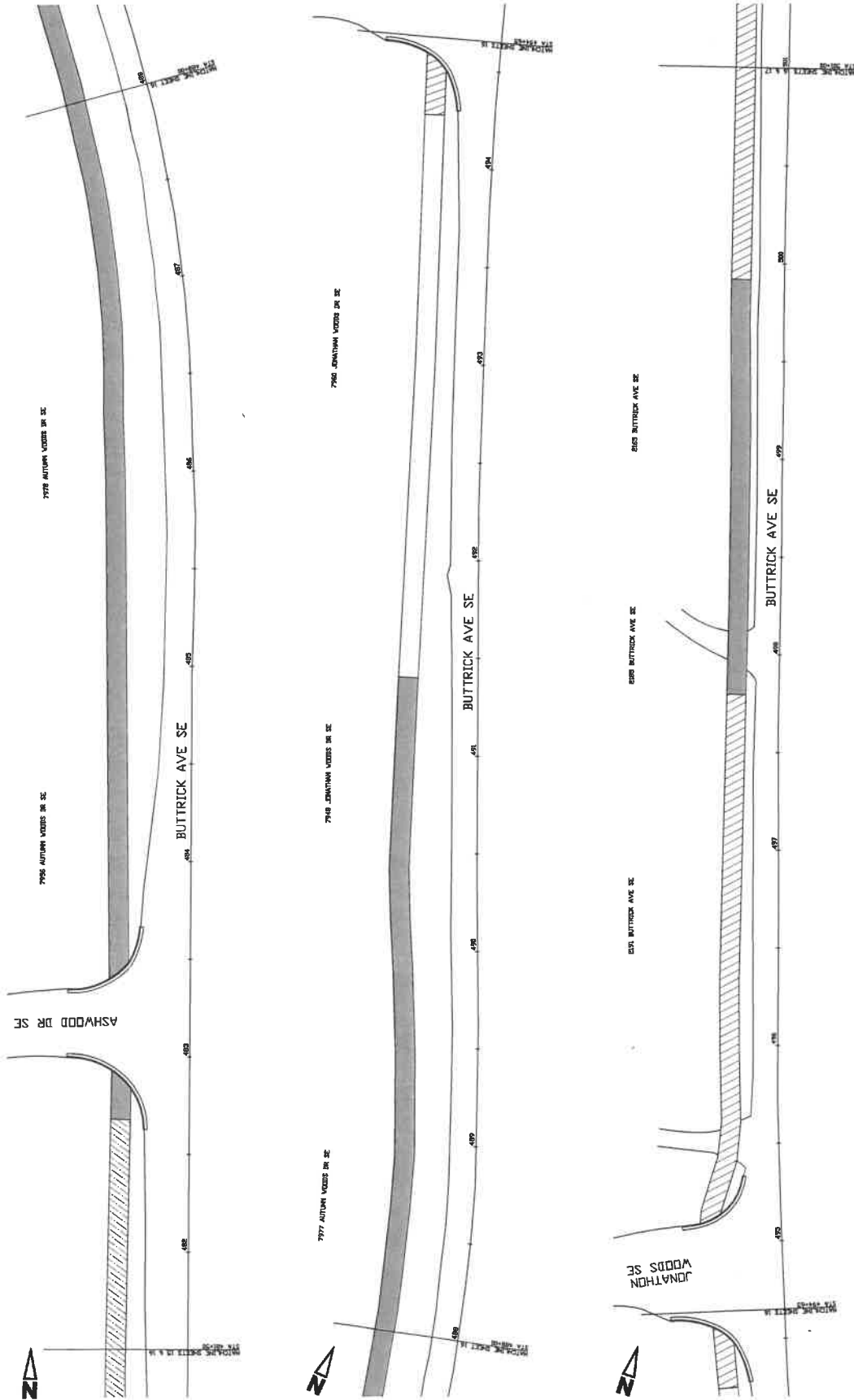
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 - CONCRETE CONSTRUCTION

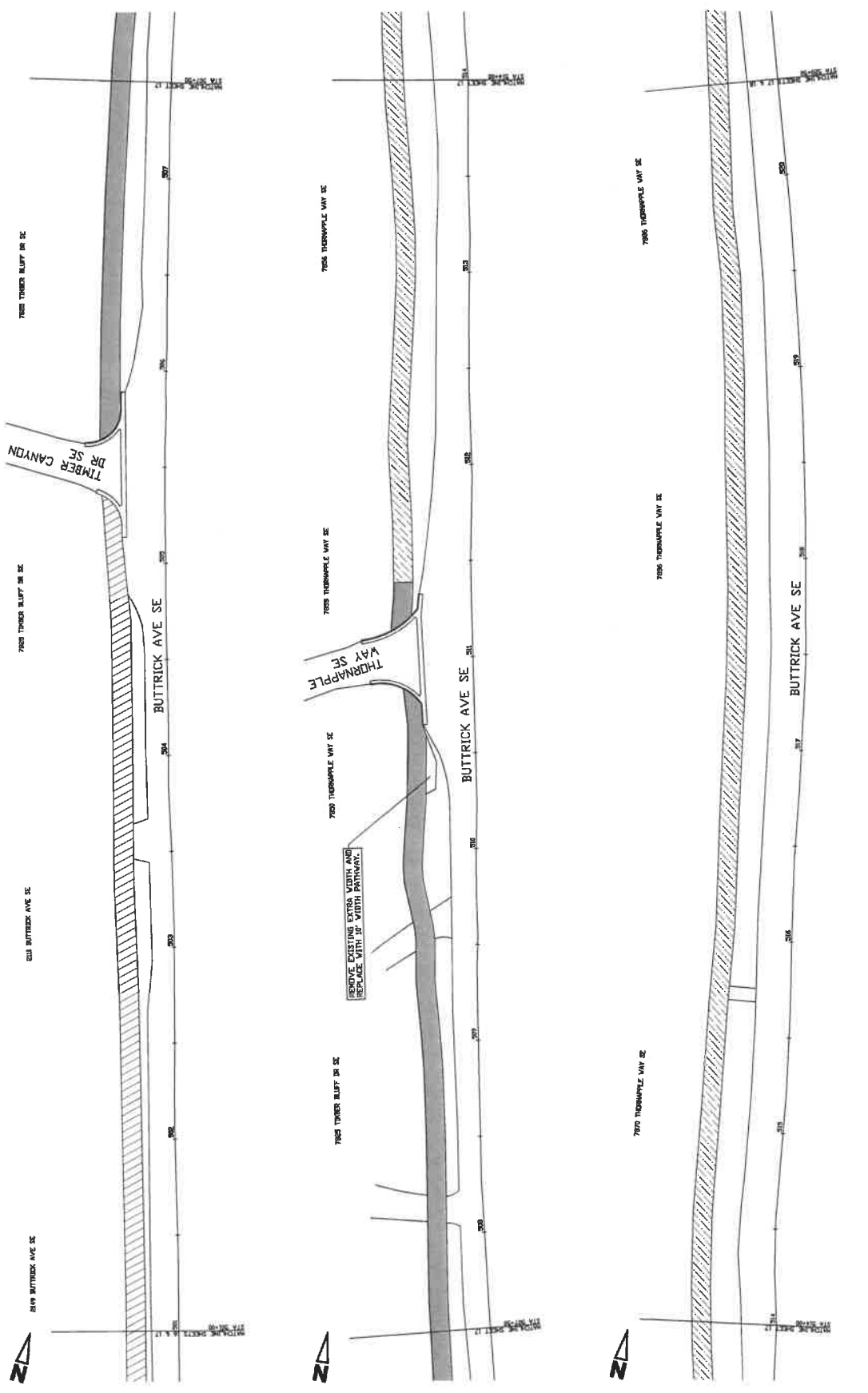




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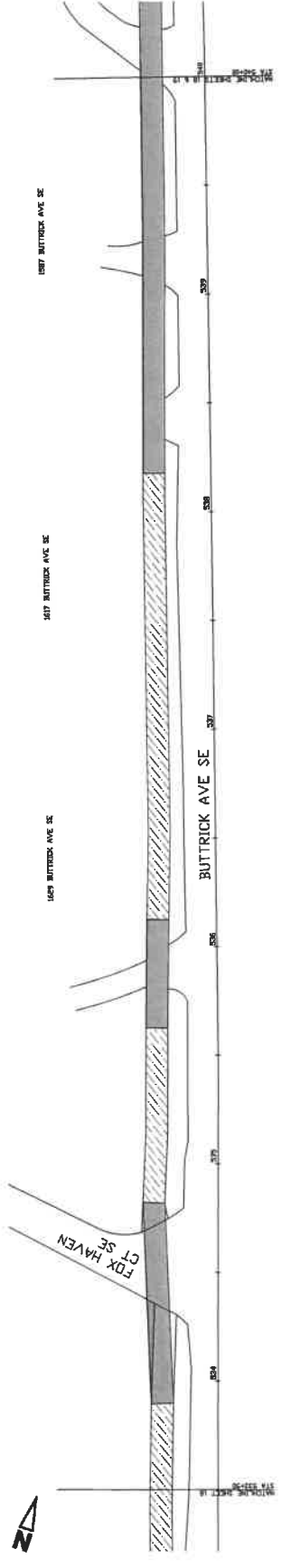
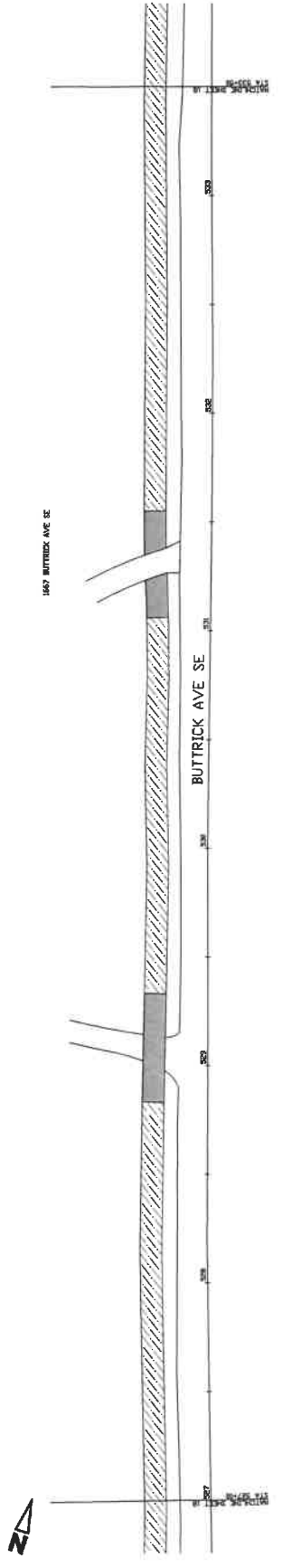
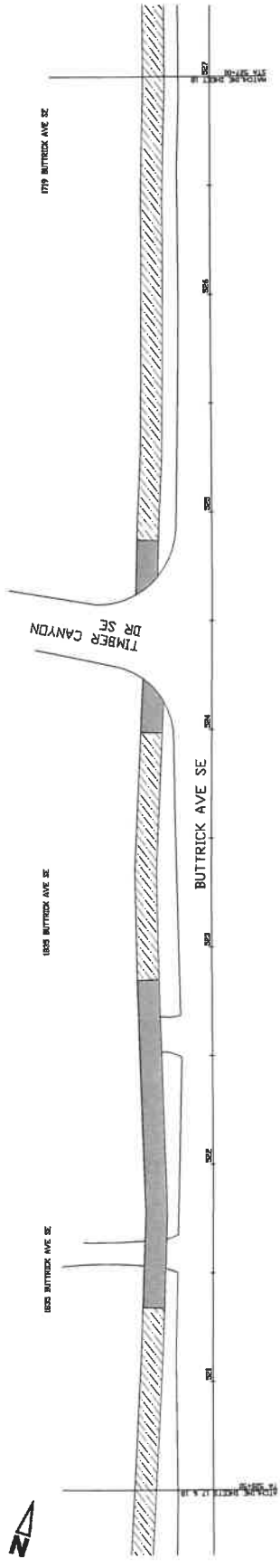
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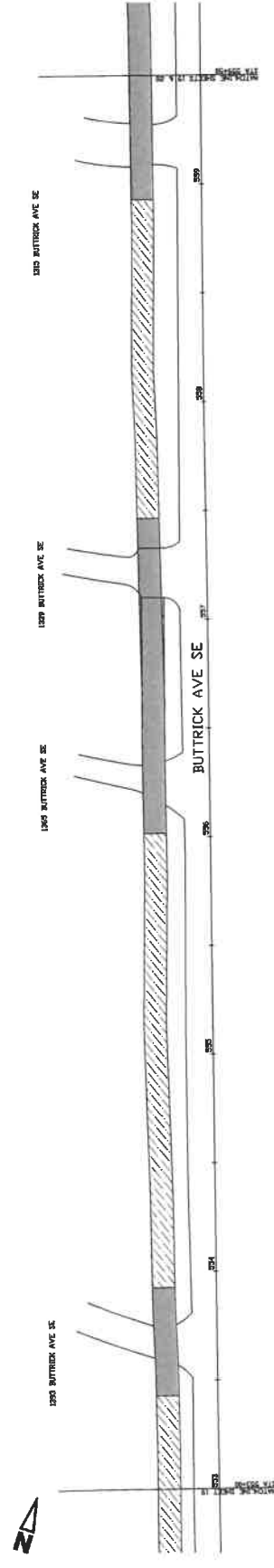
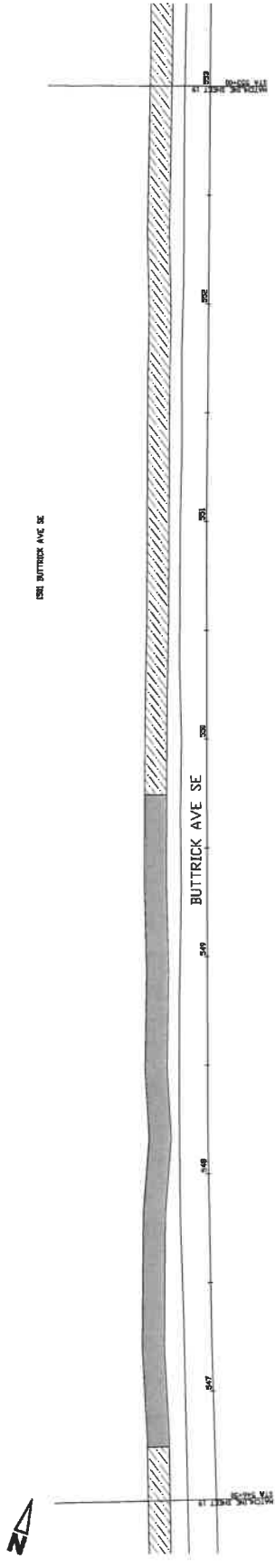
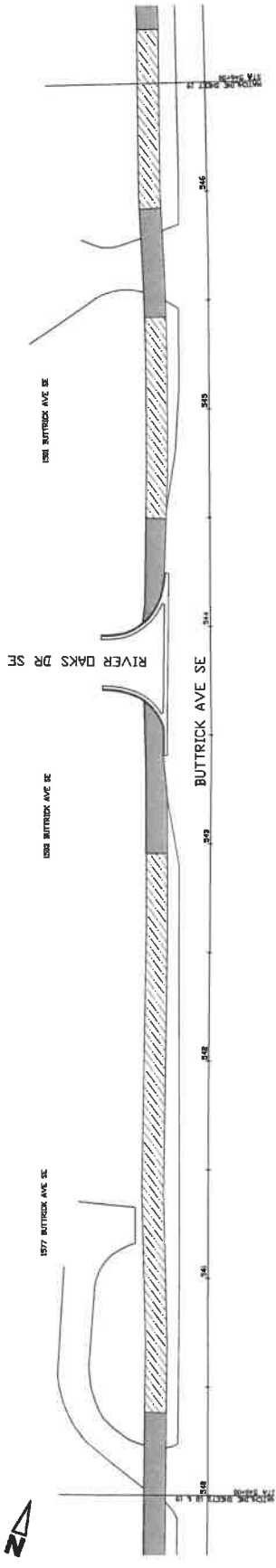
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[Hatched pattern]	RECONSTRUCTION
[Diagonal lines]	MILL & FILL
[Wavy lines]	MILL & FILL PLUS OVERLAY
[Cross-hatched]	CONCRETE REMOVAL
[Dotted pattern]	CONCRETE CONSTRUCTION



LEGEND

[Hatched Box]	RECONSTRUCTION
[Cross-hatched Box]	MILL & FILL
[Diagonal Lines Box]	MILL & FILL PLUS OVERLAY
[Dotted Box]	CONCRETE REMOVAL
[Solid Box]	CONCRETE CONSTRUCTION



LEGEND

[Hatched Pattern]	MILL & FILL
[Solid Grey]	CONCRETE CONSTRUCTION
[Diagonal Hatched]	MILL & FILL PLUS OVERLAY
[Cross-hatched]	CONCRETE REMOVAL
[Dotted]	CONCRETE CONSTRUCTION

CASCADE CHARTER TOWNSHIP
5920 TAHDE DR
GRAND RAPIDS, MI 49546

PLAN SHEET

2023 PATHWAYS IMPROVEMENT PROJECT

AKT
11/07/22
20
DF 20

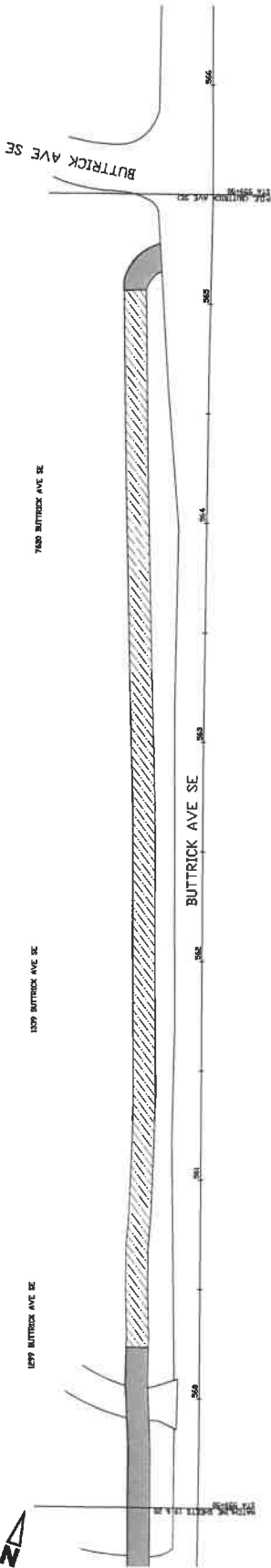


EXHIBIT C – CONTRACTOR’S BID

Bid of _____ hereinafter called Bidder, organized and existing under the laws of or a resident of the State of _____ doing business as _____.*

**Insert as applicable: "a corporation", "a partnership" or "an individual".*

To Cascade Charter Township, hereinafter called Owner.

ARTICLE 1 – BID RECIPIENT

1.1 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the , Bidding Documents.

ARTICLE 2 – BIDDER’S ACKNOWLEDGEMENTS

2.1 Bidder accepts all of the terms and conditions of the Construction Agreement. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

ARTICLE 3 – BIDDER’S REPRESENTATIONS

3.1 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of all which is hereby acknowledged:

<u>Addendum Number</u>	<u>Addendum Date</u>
_____	_____
_____	_____
_____	_____
_____	_____

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

- C. Bidder is familiar with and is satisfied as to Laws and Regulations that may affect cost, progress, and performance of the Work.
- D. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on:
 - (1) The cost, progress, and performance of the Work;
 - (2) The means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and
 - (3) Bidder’s safety precautions and programs.
- E. Based on the information and observations referred to in Paragraph 3.01.D above, Bidder does not consider that further examinations, investigations, explorations, tests, studies or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.
- F. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
- G. Bidder has given Engineer written notice of all conflicts, errors, ambiguities or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.
- H. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

ARTICLE 4 – BIDDER’S CERTIFICATION

4.1 Bidder certifies that:

- A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization or corporation;
- B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

- C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and
- D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:
 - (1) “corrupt practice” means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;
 - (2) “fraudulent practice” means an intentional misrepresentation of facts made
 - (a) to influence the bidding process to the detriment of Owner,
 - (b) to establish bid prices at artificial non-competitive levels, or
 - (c) to deprive Owner of the benefits of free and open competition;
 - (3) “collusive practice” means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which to establish bid prices at artificial non-competitive levels; and
 - (4) “coercive practice” means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

ARTICLE 5 – SUBCONTRACTOR LIST

5.1 Contractor identifies only the following subcontractor(s) authorized to complete work on the Project:

Subcontractor		Scope of Work
1.		
Contact Name		
Phone Number		
Email Address		
2.		
Contact Name		
Phone Number		
Email Address		
3.		
Contact Name		
Phone Number		
Email Address		
4.		
Contact Name		
Phone Number		
Email Address		
5.		
Contact Name		
Phone Number		
Email Address		

ARTICLE 6 – BASIS OF PRIMARY BID

6.1 Bidder will complete the Work in accordance with the Contract Documents for the following unit price(s):

No.	Pay Item	Unit	Quantity	Unit Price	Subtotal
1	Cold Mill HMA Surface	Syd	13,158		
2	HMA Surface, Rem	Syd	18,493		
3	Sidewalk, Rem	Syd	49		
4	Curb and Gutter, Rem	Ft	31		
5	Conc, Rem	Syd	278		
6	Excavation, Earth	Cyd	3,406		
7	Curb Ramp, Conc, 6 inch	Sft	280		
8	Curb Ramp Opening, Conc	Ft	31		
9	Aggregate Base, 21AA, 6 inch	Syd	20,715		
10	_Pathway Grading	Ft	16,653		
11	HMA, 13A	Ton	7,333		
12	Hand Patching	Ton	25		
13	Detectable Warning Surface	Ft	20		
15	Existing Manhole, Adjust	Ea	10		
16	_Restoration	LS	1		
17*	_Mobilization	LS	1		
18*	_Temporary Traffic Control	LS	1		
<i>* Combined 20% Maximum of Total Bid</i>				Total	

The Owner reserves the right to award only a portion or Section of the project based on funds available.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Bidder (Firm or Corporation Name)

ARTICLE 7 – TIME OF COMPLETION FOR PRIMARY BID

7.1 Bidder agrees that the Work will not begin prior to **April 10, 2023** and will be substantially complete on or before **June 30, 2023** and completed and ready for final payment on or before _____. Work in any one area shall be continuous once work has begun with the exception for delays due to unfavorable weather conditions.

ARTICLE 8 – PRIMARY BID SUBMITTAL

8.1 This Bid is submitted by:

SUBMITTED on _____, 2022
Date*

Name of Bidder*

Business Street Address*

Signature

City, State, and Zip*

Name and Title of Signatory

Telephone Number*

Facsimile Number*

Email Address

*Typed or printed ink.

ARTICLE 9 – BASIS OF ALTERNATE BID

9.1 Bidder will complete the Work in accordance with the Contract Documents for the following unit price(s):

No.	Pay Item	Unit	Quantity	Unit Price	Subtotal
1	Cold Mill HMA Surface	Syd	13,158		
2	HMA Surface, Rem	Syd	18,493		
3	Sidewalk, Rem	Syd	49		
4	Curb and Gutter, Rem	Ft	31		
5	Conc, Rem	Syd	278		
6	Excavation, Earth	Cyd	3,406		
7	Curb Ramp, Conc, 6 inch	Sft	280		
8	Curb Ramp Opening, Conc	Ft	31		
9	Aggregate Base, 21AA, 6 inch	Syd	20,715		
10	_Pathway Grading	Ft	16,653		
11	HMA, 13A	Ton	7,333		
12	Hand Patching	Ton	25		
13	Detectable Warning Surface	Ft	20		
15	Existing Manhole, Adjust	Ea	10		
16	_Restoration	LS	1		
17*	_Mobilization	LS	1		
18*	_Temporary Traffic Control	LS	1		
<i>* Combined 20% Maximum of Total Bid</i>				Total	

The Owner reserves the right to award only a portion or Section of the project based on funds available.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

Bidder (Firm or Corporation Name)

ARTICLE 10 – TIME OF COMPLETION FOR ALTERNATE BID

10.1 Bidder agrees that the Work will not begin prior to **April 10, 2023** and will be substantially complete on or before **Oct 27, 2023** and completed and ready for final payment on or before _____. Work in any one area shall be continuous once work has begun with the exception for delays due to unfavorable weather conditions.

ARTICLE 11 – ALTERNATE BID SUBMITTAL

11.1 This Bid is submitted by:

SUBMITTED on _____, 2022
Date* Name of Bidder*

Business Street Address* Signature

City, State, and Zip* Name and Title of Signatory

Telephone Number*

Facsimile Number*

Email Address

*Typed or printed ink.

EXHIBIT D – INSURANCE REQUIREMENTS

Contractor's Liability Insurance

Contractor shall purchase and maintain such comprehensive general liability and other insurance from an insurance company authorized to write casualty insurance in the State of Michigan as shall provide protection from claims set forth below which may arise out of, or result from, Contractor's completion of the Project and Contractor's other obligations under the Contract Documents, whether such performance is by Contractor, by any subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- A. Claims under worker's compensation, disability benefits and other similar employee benefits.
- B. Claims for damages because of bodily injury, occupational sickness or disease or death of Contractor's employees.
- C. Claims for damages because of bodily injury, sickness or disease or death of any person other than Contractor's employees.
- D. Claims for damages insured by personal injury liability coverage which are sustained by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor or by any other person for any other reason.
- E. Claims for damages because of injury to, or destruction of, tangible property, including loss of use resulting there from.
- F. Claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

This insurance shall be written for the following minimum limits of liability and shall have an endorsement covering all Contractor's obligations:

- A. Public Liability, Bodily Injury and Property Damages:

Combined Single Limits for Bodily Injury and Property Damage for each Occurrence:	\$500,000
--------------------------------------------------------------------------------------	-----------

Aggregate:	\$500,000
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The comprehensive general liability insurance shall include completed operations insurance and contractual liability coverage through the Agreement guarantee period. Where the Project includes underground construction, the policy shall specifically provide a statement to the effect that it includes underground hazards, collapse and explosion.

- B. Automobile and Truck Liability, Bodily Injury and Property Damages:

For each occurrence: \$500,000

C. In addition, Contractor shall provide an umbrella policy with combined single limits for personal injury or property damage of: \$1,000,000

Owner’s Protective Liability Insurance

Contractor shall obtain Owner's protective liability insurance in the name of Owner, with such provisions as will protect Owner from liability under the Agreement. A copy of such insurance policy or policies shall be delivered to Owner prior to the commencement of work on the Project. The amounts of coverage shall be the same as Contractor's liability insurance requirements set forth above.

The Owner's protective liability insurance shall also name additional insureds such as KCRC.

General Provisions

Contractor shall maintain and pay the premiums of all required insurance.

Certificates of insurance shall contain a provision that the coverage afforded under the policies shall not be canceled or materially changed until at least 30 days' prior notice has been given to Owner.

Certificates of insurance or certified copies of the policies shall be provided to Owner.

Any insured loss under the property insurance policies is to be adjusted with, and made payable to, Owner as trustee for all the insureds, as their interests may appear.

Owner and Contractor waive all rights against each other and the subcontractors, if any, and their agents and employees and against separate Contractors' agents and employees for damages caused by fire or other perils to the extent covered by insurance, except such rights as they may have to the proceeds of such insurance held by Owner as trustee. Contractor shall require similar waivers by its subcontractors.

Owner as trustee shall have the power to adjust and settle any loss with the insurers.

If Owner finds it necessary to occupy or use a portion or portions of the Project prior to final completion, no such use or occupancy shall commence before the insurers providing the property insurance have acknowledged notice thereof from Owner and consented by endorsement on the policy or policies. The property insurance shall not be canceled or lapse on account of any such use or occupancy.

EXHIBIT E – CONDITIONS

Before Starting Project

- A. Contractor's Review of Contract Documents. Before undertaking the Project, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements, if any. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor may discover and shall obtain a written interpretation or clarification from Engineer before proceeding with the Project.
- B. Preliminary Schedules. Within 10 days after the date of the Agreement, Contractor shall submit to Engineer for his timely review:
 - 1. A preliminary progress schedule indicating the times for starting and completing the various stages of the Project;
 - 2. If applicable, a preliminary schedule of required submittals related to the Project, listing required submittals and the times for submitting, reviewing and processing such submittals; and
 - 3. If applicable, a preliminary schedule of values for the Project, including quantities and prices of items which when added together equal the Contract Price.
- C. Evidence of Insurance. Before the Project begins at the Project site, Contractor shall deliver to the Owner certificates of insurance (and other evidence of insurance which Owner may reasonably request) which Contractor is required to purchase and maintain in accordance with Exhibit D to the Agreement.

Reporting and Resolving Discrepancies

- A. Reporting Discrepancies
 - 1. If, while completing the Project, Contractor discovers any conflict, error, ambiguity or discrepancy in the Contract Documents or between the Contract Documents and any provision of any law or regulation applicable to the Project, Contractor shall report it to Engineer in writing at once. Contractor shall not proceed with the portion of the Project affected thereby until the Contract Documents have been amended or supplemented; provided, however, that Contractor shall not be liable to Owner or Engineer for failure to report any such conflict, error, ambiguity or discrepancy unless Contractor knew or reasonably should have known thereof.
- B. Resolving Discrepancies
 - 1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:
 - a. The provisions of any standard, specification, manual, code, or instruction

(whether or not specifically incorporated by reference in the Contract Documents); or

- b. The provisions of any laws or regulations applicable to the Project (unless such an interpretation of the provisions of the Contract Documents would result in violation of such law or regulation).

Underground Facilities

A. Shown or Indicated

1. The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities, as hereinafter defined, at or contiguous to the Project site is based on information and data furnished to Owner by the owners of such Underground Facilities, including Owner, or by others. Owner shall not be responsible for the accuracy or completeness of any such information or data. The cost of all of the following will be included in the Contract Price and Contractor shall have full responsibility for:
 - a. Reviewing and checking all such information and data,
 - b. Locating all Underground Facilities shown or indicated in the Contract Documents,
 - c. Coordination of the Project with the owners of such Underground Facilities, including Owner, during construction, and
 - d. The safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Project.

B. Not Shown or Indicated

1. If an Underground Facility is uncovered or revealed at or contiguous to the site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof, and before further disturbing conditions affected thereby or performing any work in connection therewith, identify the owner of such Underground Facility and give written notice to that owner and to Owner. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.
2. If Engineer concludes that a change in the Contract Documents is required, an amendment to the Agreement will be executed to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Time, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that

Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated.

3. Definition. "Underground Facilities" shall mean all underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any easements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

Supervision and Superintendence

- A. Contractor shall supervise, inspect, and direct the work related to the Project competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction, but Contractor shall not be responsible for the negligence of Owner in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents. Contractor shall be responsible to see that the completed Project complies accurately with the Contract Documents.
- B. At all times during the progress of the Project, Contractor shall assign a competent resident superintendent thereto. The superintendent will be Contractor's representative and shall have authority to act on behalf of Contractor. All communications given to or received from the superintendent shall be binding on Contractor.

Labor; Working Hours

- A. Contractor shall provide competent, suitably qualified personnel to undertake and construct the Project as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Project.
- B. Except as otherwise required for the safety or protection of persons or the work or property at the Project or adjacent thereto, and except as otherwise stated in the Contract Documents, all work at the Project site shall be performed during regular working hours, and Contractor will not permit overtime work or the performance of work on Saturday, Sunday or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Owner.

Services, Materials and Equipment

- A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation,

construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up and completion of the Project.

- B. All materials and equipment incorporated into the Project shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All warranties and guarantees specifically called for by the Contract Documents shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind and quality of materials and equipment. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable supplier of same, except as otherwise may be provided in the Contract Documents.

Permits

- A. Unless otherwise provided in the Contract Documents, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, as necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the completion of the Project which are applicable on the date of the Agreement. Contractor shall pay all charges of utility owners for connections required in connection with completion of the Project.

Laws and Regulations

- A. Contractor shall give all notices and comply with all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction (the "Laws and Regulations") applicable to the completion of the Project. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.
- B. If Contractor performs any work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such work.
- C. Changes in Laws or Regulations not known on the date of the Agreement having an effect on the cost or time of performance of the Project may be the subject of an adjustment in Contract Price or Contract Time.

Use of Site and Other Areas

- A. Limitation on Use of Site and Other Areas
1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Project site and other areas permitted by Laws and Regulations and shall not unreasonably encumber the Project site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the work related to the Project.
 2. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner, and its officers, directors, partners, employees, agents, and other consultants from and against all claims, costs, losses and damages (including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner or any other party indemnified hereunder to the extent caused by or based upon Contractor's completion of the Project.
- B. Removal of Debris During Performance of the Work. Contractor shall keep the Project site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.
- C. Cleaning. Prior to completion of the Project, Contractor shall clean the Project site and make it ready for utilization by Owner. At the completion of the Project, Contractor shall remove from the Project site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.
- D. Loading Structures. Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Project or adjacent property to stresses or pressures that will endanger it.

Safety and Precaution

- A. Contractor shall be solely responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the Project. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:
1. All persons on the Project site or who may be affected by the Project;
 2. All the work and materials and equipment to be incorporated therein, whether in

- storage on or off the Project site; and
3. Other property at the Project site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities and Underground Facilities not designated for removal, relocation or replacement in the course of construction.
- B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Project work may affect them, and shall cooperate with them in the protection, removal, relocation and replacement of their property. All damage, injury or loss to any property caused, directly or indirectly, in whole or in part, by Contractor, any subcontractor, supplier or any other individual or entity directly or indirectly employed by any of them to perform any portion of the Project, or anyone for whose acts any of them may be liable, shall be remedied by Contractor. Contractor's duties and responsibilities for safety and for protection of the work shall continue until such time as of the Project work is completed.

Indemnification

- A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and its officers, directors, partners, employees, agents, and other consultants and subcontractors from and against all claims, costs, losses, and damages (including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Project work, provided that any such claim, cost, loss, or damage:
1. Is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Project itself), including the loss of use resulting therefrom; and
 2. Is caused in whole or in part by any negligent act or omission of Contractor, any subcontractor, any supplier or any individual or entity directly or indirectly employed by any of them to perform any of the Project work or anyone for whose acts any of them may be liable, regardless of whether or not caused in part by any negligence or omission of an individual or entity indemnified hereunder or whether liability is imposed upon such indemnified party by Laws and Regulations regardless of the negligence of any such individual or entity.

Limitations on Owner's Responsibilities

- A. The Owner shall not supervise, direct or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences or procedures of construction, or the safety precautions and programs incident thereto, or for any failure

of Contractor to comply with Laws and Regulations applicable to the Project. Owner will not be responsible for Contractor's failure to complete the Project in accordance with the Contract Documents.

Notice of Defects

- A. Prompt notice of all defective work of which Owner has actual knowledge will be given to Contractor. All defective work may be rejected, corrected or accepted as provided in "Correction or Removal of Defective Work" and "Correction Period" below.

Access to Work

- A. Owner, other representatives and personnel of Owner, independent testing laboratories and governmental agencies with jurisdiction interests shall have access to the Project site and the Project at reasonable times for their observation, inspecting and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

Tests and Inspections

- A. Contractor shall give Engineer timely notice of readiness of the work for all required inspections, tests or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.
- B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests or approvals required by the Contract Documents except:
 - 1. For inspections, tests or approvals covered by paragraphs C and D below;
 - 2. Those costs incurred in connection with tests or inspections conducted pursuant to "Correction Period" below and shall be paid as provided therein; and
 - 3. As otherwise specifically provided in the Contract Documents.
- C. If Laws or Regulations of any public body having jurisdiction require any portion of the Project (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith and furnish Engineer the required certificates of inspection or approval.
- D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Engineer's acceptance of materials or equipment to be incorporated in the Project; or acceptance of materials, designs, or equipment submitted for approval prior to Contractor's purchase thereof for

incorporation in the Project. Such inspections, tests, or approvals shall be performed by organizations acceptable to Engineer.

- E. If any portion of the Project that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, it must, if requested by Engineer, be uncovered for observation.
- F. Uncovering work as provided in paragraph E above shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

Uncovering Work

- A. If any portion of the Project is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.
- B. If Engineer considers it necessary or advisable that covered work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection or testing, as Engineer may require, that portion of the Project in question, furnishing all necessary labor, material, and equipment. If it is found that such work is defective, Contractor shall pay all claims, costs, losses, and damages (including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including, but not limited to, all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If, however, such work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Time, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction.

Owner May Stop The Work

- A. If the work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the work in such a way that the completed Project will conform to the Contract Documents, Owner may order Contractor to stop work until the cause for such order has been eliminated; however, this right of Owner to stop work shall not give rise any duty on the part of Owner to exercise this right for the benefit of Contractor, any subcontractor, any supplier, any other individual or entity or any surety for, or employee or agent of, any of them.

Correction or Removal of Defective Work

- A. Contractor shall correct all defective work, whether or not fabricated, installed, or completed, or, if the work has been rejected by Engineer, remove it from the Project and replace it with work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including, but not limited to, all costs of repair or replacement of work of others).

Correction Period

- A. If within one year after the date of final completion of the Project, or such longer period of time as may be prescribed by Laws or Regulations or by the terms of any applicable special guarantee required by the Contract Documents or by any specific provision of the Contract Documents, any work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions: (i) repair such defective land or areas, or (ii) correct such defective work or if the defective work has been rejected by Owner, remove it from the Project and replace it with work that is not defective, and (iii) satisfactorily correct or repair or remove and replace any damage to the remainder of the Project, to the work of others or other land or areas resulting therefrom. If Contractor does not promptly comply with the terms of such instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective work corrected or repaired or may have the rejected work removed and replaced, and all claims, costs, losses, and damages (including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including, but not limited to, all costs of repair or replacement of work of others) will be paid by Contractor.
- B. In special circumstances where a particular item of equipment is placed in continuous service before final substantial completion of the Project, the correction period for that item may start to run from an earlier date if so provided in the Contract Documents.
- C. Where defective work (and damage to other work resulting therefrom) has been corrected or removed and replaced, the correction period hereunder with respect to such work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.
- D. Contractor's obligations are in addition to any other obligation or warranty. The provisions of this paragraph shall not be construed as a substitute for or a waiver of the provisions of any applicable statute of limitation or repose.

Acceptance of Defective Work

- A. If, instead of requiring correction or removal and replacement of defective work, Owner prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of, and determination to accept, such defective work (such costs to be approved by Engineer as to reasonableness) and the diminished value of the Project to the extent not otherwise paid by Contractor pursuant to this sentence. Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of the Project so accepted.

Owner May Correct Defective Work

- A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective work or to remove and replace rejected work as required by Engineer in accordance herewith, or if Contractor fails to perform the work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after 7 days' written notice to Contractor, correct and remedy any such deficiency.
- B. In exercising such rights and remedies, Owner shall proceed expeditiously. In connection with such corrective and remedial action, Owner may exclude Contractor from all or part of the Project site, take possession of all or part of the Project and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Project site, and incorporate in the Project all materials and equipment stored at the Project site or for which Owner has paid Contractor but which are stored elsewhere. Contractor shall allow Owner, Owner's representatives, agents and employees, Owner's other contractors and Engineer access to the Project site to enable Owner to exercise the rights and remedies hereunder.
- C. All claims, costs, losses, and damages (including, but not limited to, all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies hereunder will be charged against Contractor, and Owner shall be entitled to an appropriate decrease in the Contract Price. Such claims, costs, losses, and damages will include, but not be limited to, all costs of repair or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective work.
- D. Contractor shall not be allowed an extension of the Contract Time because of any delay in the completion of the Project attributable to the exercise by Owner of Owner's rights and remedies hereunder.

Controlling Law

- A. The Agreement shall be governed by the laws of the State of Michigan.

Pathway Network

Assessment and Asset Management Plan | 09/28/22



Summary

This document outlines the process and effort to collect and analyze pedestrian pathway condition data in Cascade Charter Township. The ongoing goal of this project is to create an asset management plan that:

1. Establishes a standard for regular inspection;
2. Targets an acceptable level of service for pathways;
3. Identifies existing deficiencies in the pathway network; and
4. Recommends repair and maintenance treatments to reach and sustain that level of service throughout the entirety of the network.

The asset management plan should forecast needs several years ahead to facilitate planning and anticipate costs. There are a number of attachments as part of the initial inspection and analysis included at the end of this document and discussed in more detail below.

Identifying the Network

Cascade Charter Township advertises a total pedestrian pathway length of over 17 miles. These pathways are divided into the following five named sections:

1. Spaulding Burton Loop;
2. Laraway Lake Loop;
3. Thornhills Ctr. Segments;
4. Cascade Rd. / 30th – 36th St. Loop; and
5. Buttrick Avenue Segment.

These sections are composed of multiple surface materials (concrete, asphalt, brick, wood) in a variety of conditions. To best capture the areas of need, these sections have been divided into smaller components. The start and end limits of these components are defined by one or more of the following:

1. Crossroads;
2. Surface material changes;
3. Width changes; or
4. A clear and substantial change in surface condition.

An example of a component in the Laraway Lake Loop is *Laraway Lake Dr SE from Cascade Farms Dr SE to Laraway Ln SE*. The entirety of this component is asphalt surface. Should either end of the component feature a concrete ramp, then that ramp would be divided as a separate component. The same applies for portions of differing widths or clear and substantial changes in surface condition. Each component is treated separate and assigned its own condition rating.

Pathway Assessment Scale

A Pathway Assessment Scale has been developed to apply numerical ratings to pathway components. This is based on the Pavement Surface Evaluation and Rating (PASER) scale. The PASER scale is published by the Michigan Transportation Asset Management Council to assess roadway condition throughout the state. This modified version for pathways eliminates or reduces emphasis on load-related (vehicle) distresses. It focuses on deficiencies primarily arising from the climate and underlying failures in base material that arise in pathways.

The Pathway Assessment Scale is provided at the end of this document. It uses the same numerical scale as PASER: Good (8-10), Fair (5-7), and Poor (1-4). Asphalt and concrete surface materials are assessed on different criteria. Brick and wood materials are assessed on abbreviated scales. Refer to the document for score criteria.

Data Collection

The entire pathway network was first visually inspected September 19-23, 2022. Subsequent inspections should be conducted on minimum three year intervals. During inspection each component is assigned a numerical value based on criteria provided in the Pathway Assessment Scale. Ratings for components receiving treatment should be updated following construction in the same year as the treatment performed.

A Geographic Information System (GIS) has been created with the purpose to manage data on pathway components. These data include surface material, width, length, and condition. (It is open for expansion, such as adding surface material thickness and year treated or constructed as this information becomes known.) GIS provides a means to generate color coded maps to identify deficient areas in the network and to highlight components intended for treatment plans.

Any user on GIS may interact with individual components to review and amend data. It provides an interface for interaction; zooming; selecting; and filtering components based on data.

Data Analysis

Pathway data may be exported from GIS in a number of ways, including as an electronic spreadsheet. As part of the initial pathway assessment, a spreadsheet has already been setup for receiving these data. This spreadsheet automatically outputs average condition ratings per section (e.g., the Spalding Burton Loop) and provides a cost estimate for performing treatment on individual components; on full sections; and on the entire network and splits costs by surface material (concrete and asphalt).

Treatment methods for asphalt pavements include (from least to most intensive): overband crack seal (OCS), mill and fill (MF), overlay (OL), and reconstruction (RE). For most asphalt components a combination of these is necessary. Treatment methods are prescribed on a percentage surface area per square yard for each component based on rating. Typically, a

combination of methods is used. The table below provides the current prescription model for asphalt surface treatment methods.

Table 1. Asphalt Surface Treatment Method Prescription by Rating

Rating	OCS		MF		OL		RE		Total
	Qty	Unit P/Syd	Qty	Unit P/Syd	Qty	Unit P/Syd	Qty	Unit P/Syd	
10									
9									
8	100%	\$ 0.50							\$ 0.50
7	100%	\$ 0.75							\$ 0.75
6	75%	\$ 1.25	25%	\$ 23.25	100%	\$ 25.00			\$ 31.75
5	50%	\$ 1.25	50%	\$ 23.25	100%	\$ 25.00			\$ 37.25
4			50%	\$ 23.25	50%	\$ 25.00	50%	\$ 56.45	\$ 52.35
3			25%	\$ 23.25	25%	\$ 25.00	75%	\$ 56.45	\$ 54.40
2							100%	\$ 56.45	\$ 56.45
1							100%	\$ 56.45	\$ 56.45
<i>Cost per square yard</i>									

For example, an asphalt component rated 5 is expected to receive OCS on 50%; MF on 50%; and OL on 100% of its surface area for a cost of \$37.25 per square yard total. The user can adjust the prescription model as desired. This should be considered a tool only to approximate maintenance needs and costs. The most cost-effective treatment action will vary from component to component and require field review and engineering judgement.

The treatment method costs (e.g., OCS, MF, etc.) are calculated from user input unit costs for specific pay items associated with performing each method. Not all pay items are associated with each method and additional items may need to be considered on a case-by-case basis, such as tree root removal, casting adjustments, storm drain features, etc. Unit costs should be updated on a yearly basis to account for inflation. The pay items and current estimated unit costs for asphalt surface treatment methods are provided below:

Table 2. Asphalt Pathway Treatment Pay Items

Pay Item	Unit	Unit Price
_Overband Crack Seal	Lb	\$ 2.50
Cold Mill HMA Surface	Syd	\$ 1.75
HMA Surface, Rem	Syd	\$ 1.75
HMA, 13A	Ton	\$ 150.00
Excavate Earth	Cyd	\$ 10.00
Aggregate Base, 21AA, 6 inch	Syd	\$ 15.00
_Preparation	Syd	\$ 3.50
_Restoration	Syd	\$ 5.00

Concrete pavements are assumed to be removed and replaced in *flags*, or *squares*. This is the area between successive joints (typically 6-feet in spacing). A similar model is implemented and provided below. Component lengths shorter than 18-feet are assumed to be removed and replaced entirely. For lengths 18-feet and longer a percentage of flags is assumed.

Table 3. Concrete Pathway Treatment Method Prescription by Rating

Rating	Replace for Length < <i>L_{min}</i>			Replace for Length ≥ <i>L_{min}</i>		
	Qty	Unit Price	Unit P/Syd	Qty	Unit Price	Unit P/Syd
10						
9						
8						
7	100%	\$ 93.50	\$ 93.50	5.0%	\$ 93.50	\$ 4.68
6	100%	\$ 93.50	\$ 93.50	7.5%	\$ 99.75	\$ 7.48
5	100%	\$ 93.50	\$ 93.50	10.0%	\$ 101.83	\$ 10.18
4	100%	\$ 93.50	\$ 93.50	12.5%	\$ 106.00	\$ 13.25
3	100%	\$ 93.50	\$ 93.50	15.0%	\$ 118.50	\$ 17.78
2	100%	\$ 93.50	\$ 93.50	17.5%	\$ 118.50	\$ 20.74
1	100%	\$ 93.50	\$ 93.50	20.0%	\$ 118.50	\$ 23.70
<i>Cost per square yard</i>						
<i>L_{min} (ft) 18</i>						

For example, a concrete component 18-feet or over and rated 5 is expected to have 10% of its flags removed and replaced. On a 150-foot-long and 6-foot-wide component (100 square yard area), this would total \$1,018. Again, this is a tool only to approximate maintenance needs and costs and can be adjusted by the user. The table below provides the pay items associated with concrete pavement removal and replacement and current estimated unit costs.

Table 4. Concrete Pathway Treatment Pay Items

Pay Item	Unit	Unit Price
Sidewalk, Rem	Syd	\$ 3.00
Sidewalk, Conc, 4 inch	Sft	\$ 9.00
Sidewalk, Conc, 6 inch	Sft	\$ 10.00
_Tree Roots, Rem	Ea	\$ 100.00
_Restoration	Syd	\$ 5.00

An additional method to consider is *grinding*. This is a relatively quick and inexpensive method used to remove joint faults between flags. It is not accounted for here, but may be used on a case-by-case basis. Brick and wood surface treatments are not provided for in this spreadsheet. The infrequent occurrence and unique nature of each requires that deficiencies be evaluated individually to determine proper repair and maintenance actions.

Current Assessment

The table below provides the average rating per pathway section as determined from data collected in the initial September 19-23, 2022 inspection. A color-coded map for condition by each component is provided at the end of this document. Note that where sections overlap (e.g., Spaulding Burton Loop, Laraway Lake Loop, and Thornhills Ctr. Segments along Cascade Rd SE) that only one section is credited with owning the components inside the overlap (in this case, Cascade Rd SE is made part of the Thornhills Ctr. Segments). This can be seen in the pathway section inspection reports also included at the end of this document.

Table 3. Current Pathway Section Average Rating

Pathway Section	Average Rating
Spaulding Burton Loop	4.8
Laraway Lake Loop	4.7
Thornhills Ctr. Segments	7.1
Cascade Rd 30-36 th St Loop	4.6
Buttrick Avenue Segment	4.5
Cascade Township Park	5.9

All sections have an average assessment of fair to poor condition. The pathway section inspection reports highlight surface distresses that are characteristic of the pathway network and their locations. Photos are included with each. These are not all inclusive of the deficiencies, but only select samples.

Maintenance and Repair Plan

Contractor cost to perform treatment methods is best mitigated by concentrating construction at one time in a specific area (e.g., isolate work under one contract to the Spaulding Burton Loop). The exception to this may be in using the overband crack seal method, which is a faster and more mobile operation than the other more intensive methods. Should a contractor be hired specifically and only to overband crack seal, it may be cost-effective to treat multiple or all sections of pathway in need at one time.

As a first attempt to identify potential improvement areas, fourteen groups of adjacent components are identified as potential contract work limits. Groups are typically 1.0-1.5 miles in total length and are created with the intention to lump similar condition components and a total sum value of treatment work together. Exceptions are isolated pathways and/or majority concrete pathway areas. A map of these groups and tables with the cost per component in each is provided at the end of this document.

The groups and treatment methods (and in turn, costs) are amenable and may be adjusted to suit budget and acceptable level of service. What is provided for here is an aggressive approach with the intention for longevity.

Conclusion and Attachments

The following is provided for in this report and as part of the development of an asset management plan for the pedestrian pathway network in Cascade Charter Township:

1. Creation of a Pathways Assessment Scale;
2. Development of GIS to store and present pathway condition and treatment data;
3. An electronic spreadsheet for analyzing existing pathway condition data and prescribing treatment methods and estimating costs; and
4. An initial attempt to identify deficient pathway areas and quantify necessary future maintenance and repair activities on the network.

Important action items to fine tune the asset management plan to the desires and the capabilities of the Township include determining acceptable level of service (e.g., maintaining pathways at a rated 7 or higher condition) and the projected annual budget for maintenance and repair in the years ahead.

A final part in the effort to establish process for pathway network assessment and management was setting up the software Roadsoft. This is an asset management system for collecting, storing, and analyzing data for transportation infrastructure. Roadsoft is maintained by the Center of Technology & Training at Michigan Technological University for local road agencies in Michigan. It is similar to GIS; it can receive exports from GIS; and it displays the same data as GIS.

Roadsoft provides a considerably easier to navigate interface, particularly for the inexperienced user. This makes it a more suitable and useful tool for anyone at the Township to view data. Any employee with access to the shared drive where the database is stored can download Roadsoft and be assigned an account. The account can be granted all or limited permissions to eliminate their potential to accidentally edit or delete data. Beyond pathways, it affords tools and methods to track and analyze other assets such as street lights, traffic signals, etc., which could prove useful toward other future asset management goals.

Attachments:

Pathway Assessment Scale
Current Pathway Rating Map
Pathway Section Inspection Reports
 Spaulding Burton Loop
 Laraway Lake Loop
 Thornhills Ctr. Segments
 Cascade Rd. 30th – 36th St. Loop
 Buttrick Avenue Segment
 Cascade Township Park
Pathway Group Treatment Plan Map
Pathway Group Treatment Plan Cost Estimate

Pathway Assessment Scale



Rating	Asphalt	Concrete
Good	10 Newly constructed (Age < 1 year) No defects Smooth surface	
	9 Like new condition (Age > 1 year) No defects Smooth surface	
	8 Transverse cracks > 40' spacing Infrequent defects All cracks tight	Meander cracks isolated and tight Occasional minor defects Few pop outs
Fair	7 Transverse cracks 10' – 40' spacing Occasional longitudinal cracks Very little to no surface raveling Crack openings < 1/4"	Transverse cracks isolated First signs of cracks at corners Minor scaling Moderate pop outs
	6 Transverse cracks < 10' spacing Frequent longitudinal cracks First signs of edge cracking Crack openings < 1/2"	Minor map cracking Settlement or heaves isolated Scaling < 25% surface Crack openings < 1/4"
	5 Block cracking 1' – 5' areas Persistent edge cracking Moderate surface raveling Crack openings > 1/2"	Cracks at corners with broken pieces Scaling and/or spalling < 50% surface Multiple joint faults < 1/2" Crack openings > 1/4"
Poor	4 Block cracking < 1' areas Deterioration of edge Significant surface raveling Rutting or distortion < 1"	Map cracking > 50% surface Scaling and/or spalling > 50% surface Prevalent joint and/or corner deterioration Multiple joint faults < 1"
	3 Development of alligator cracking Moderate crack erosion Rutting or distortion < 2"	Crack openings > 1" Severe spalling Multiple joint faults < 2"
	2 Alligator cracking > 25% surface Extensive crack erosion Rutting or distortion > 2"	Significant settlement or heaves Multiple joint faults > 2"
	1 Severe distress Loss of surface integrity and visible base	

Notes

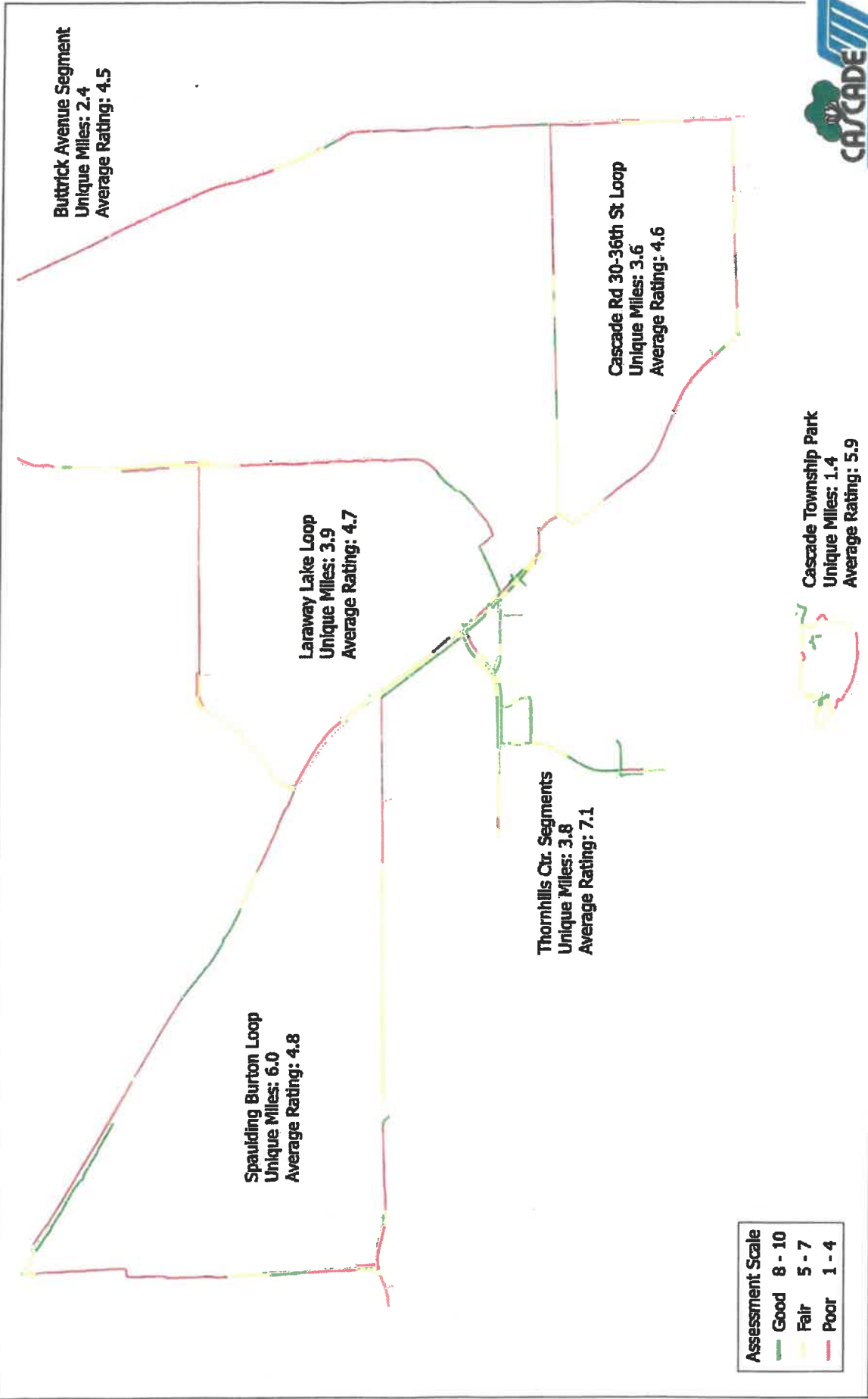
Brick material pathways are assessed on an abbreviated scale. 10: No defects. 7: Minor settlement or heaves. 4: Multiple faulted bricks < 1". 1: Multiple faulted bricks > 2" and/or missing bricks.

Wood material pathways are assessed on an abbreviated scale. 10: No defects. 7: Boards starting to exhibit deterioration. 4: Faults present due to warping or deteriorated boards. 1: Missing or completely deteriorated parts of boards.

Assess based on current visual distresses. Do not consider prior known distresses (e.g., treated with overlay or crack seal) or anticipate future ones.

Assess each segment based on the worst prevailing condition in that segment. For example, one occurrence of the development of alligator cracking in an asphalt segment dictates the rating for that entire segment (3).

Percentage values of distresses are interpreted on a per width basis for asphalt and a per flag basis for concrete. A flag of concrete is considered the space between two joints.



Spaulding Burton Loop
09/21/22

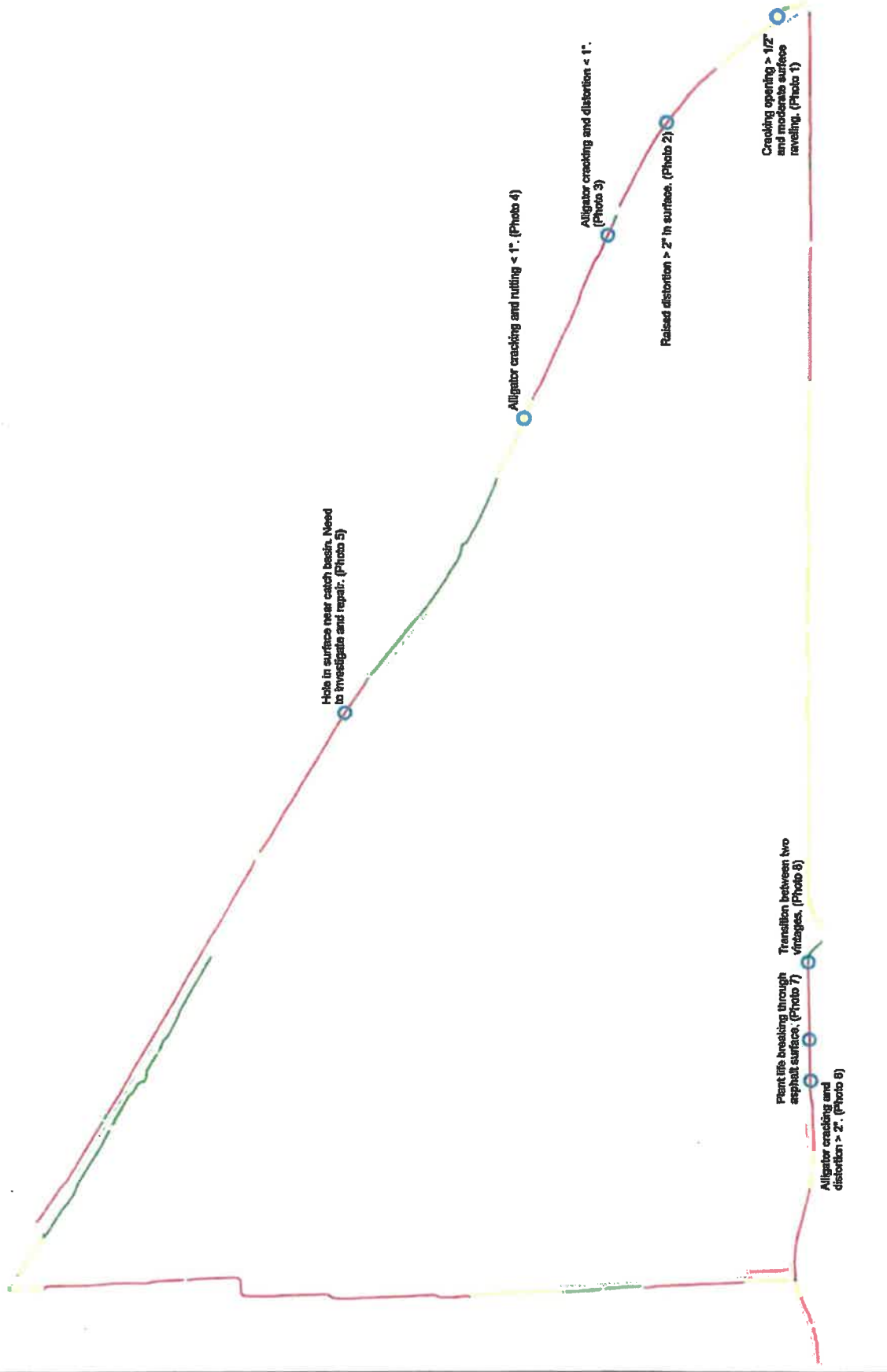




Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8

Laraway Lake Loop
09/23/22

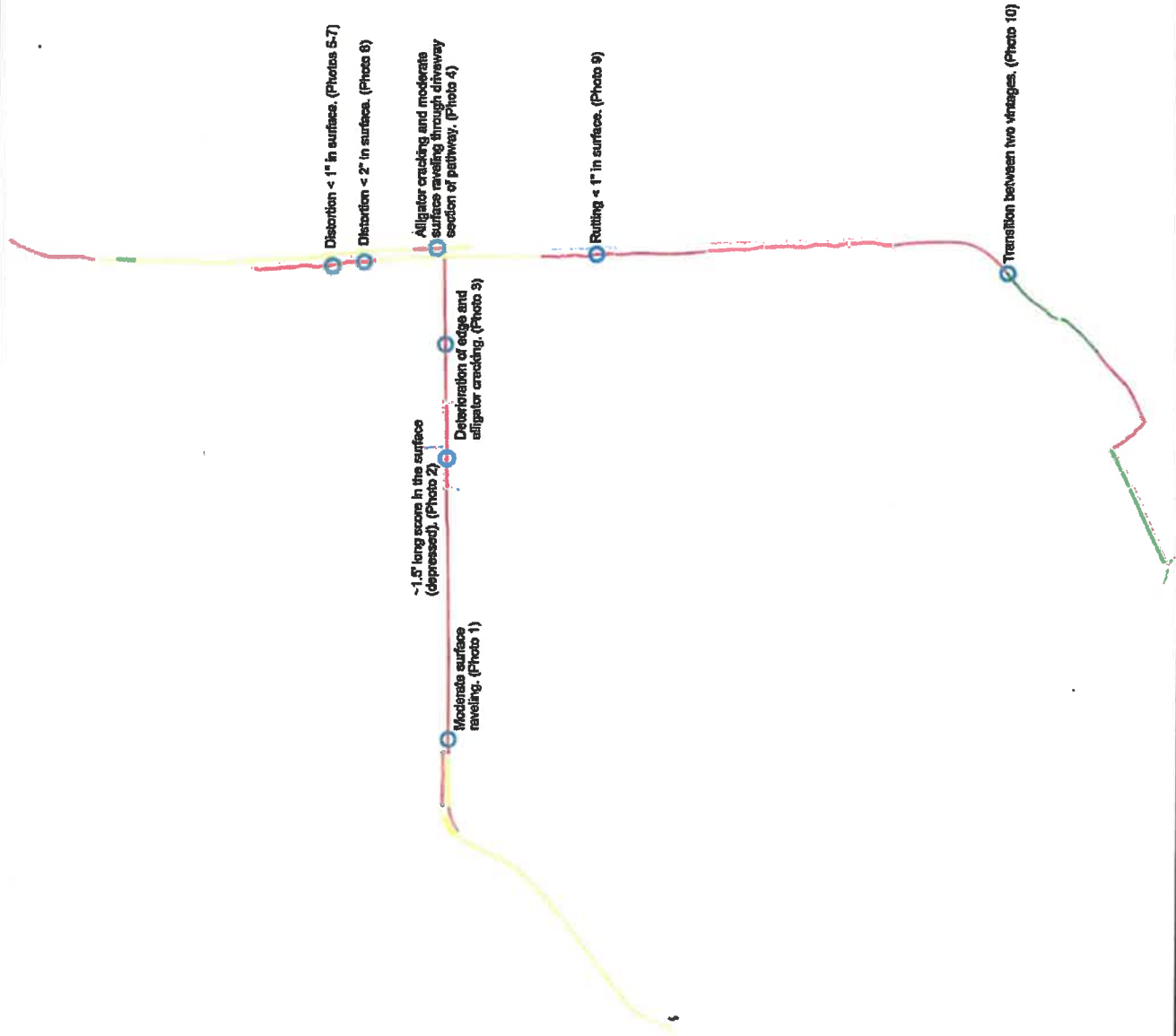




Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10

Thornhills Cr. Segments
09/19/22

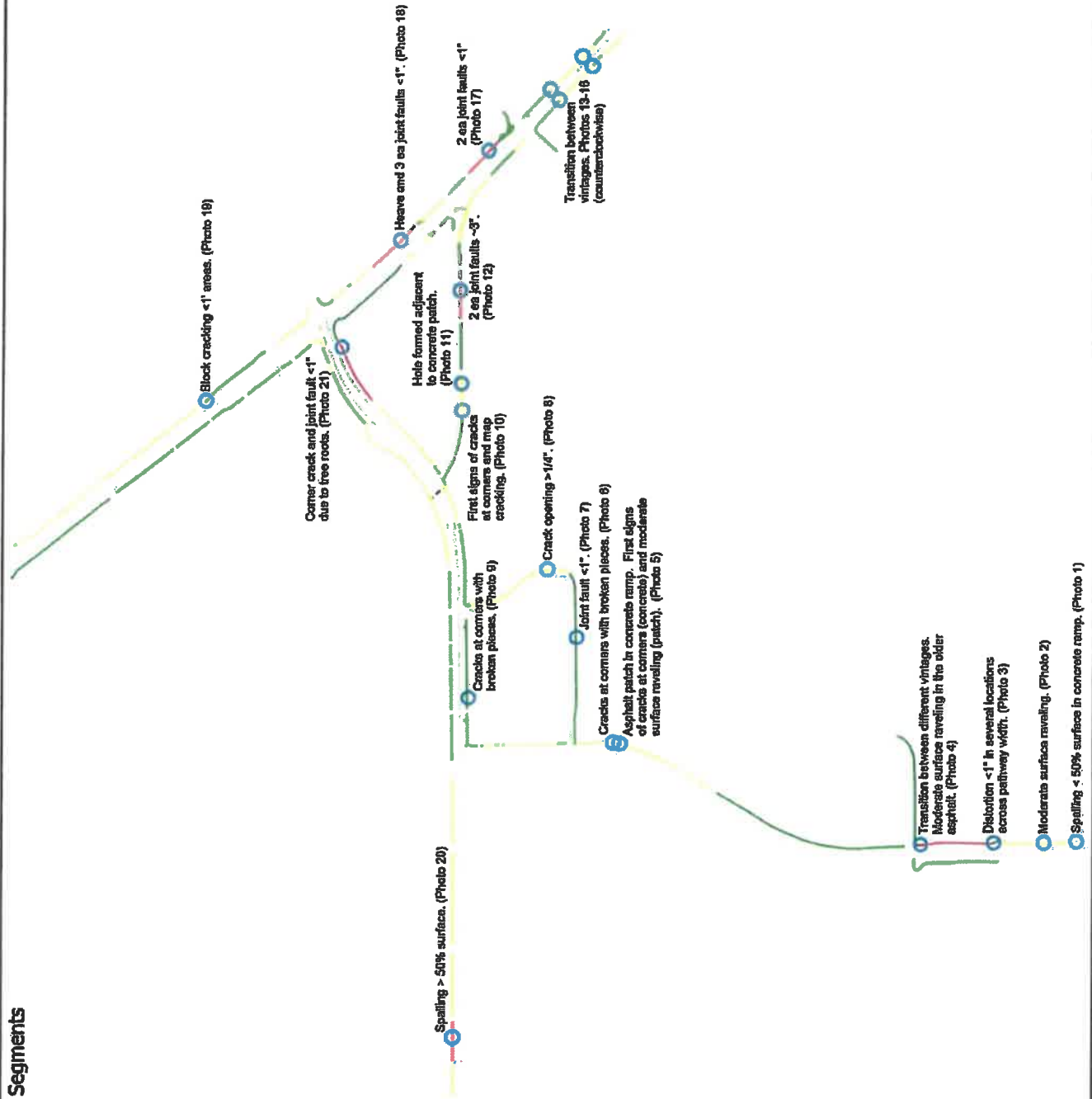




Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11



Photo 12



Photo 13

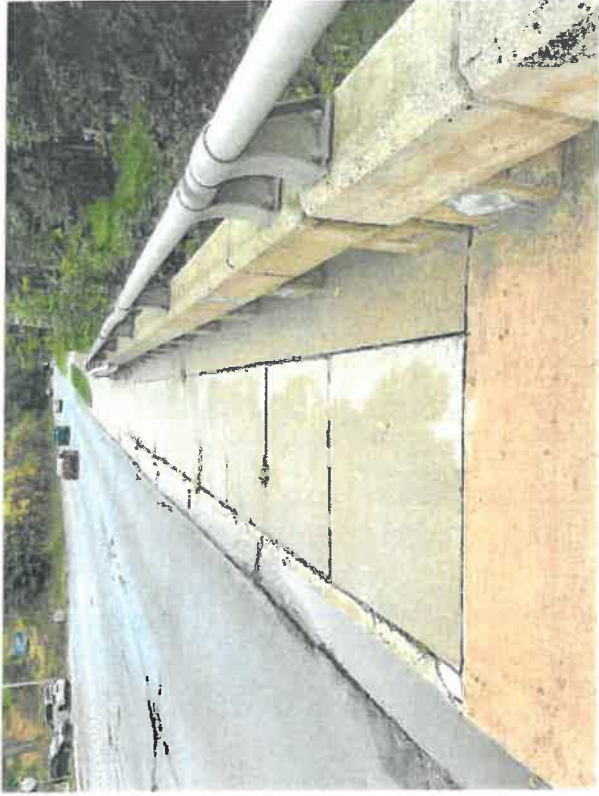


Photo 14



Photo 15

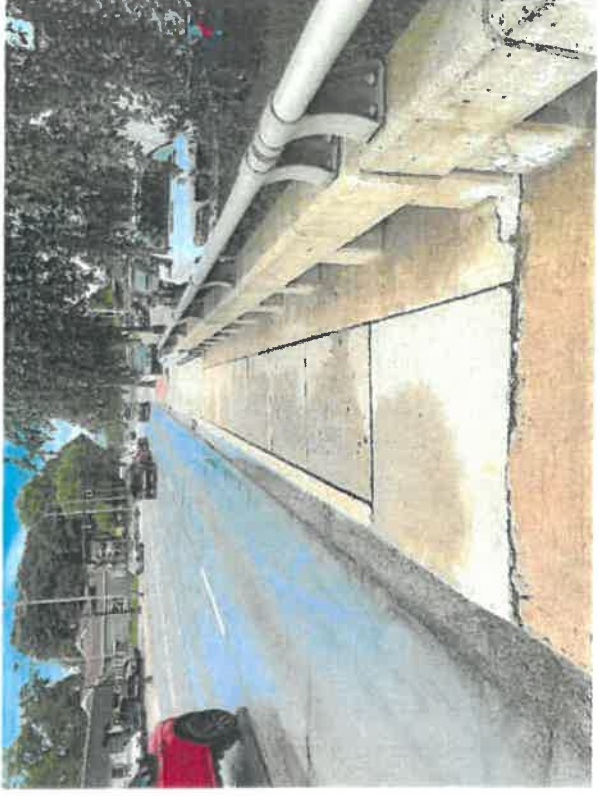


Photo 16



Photo 17



Photo 18



Photo 19

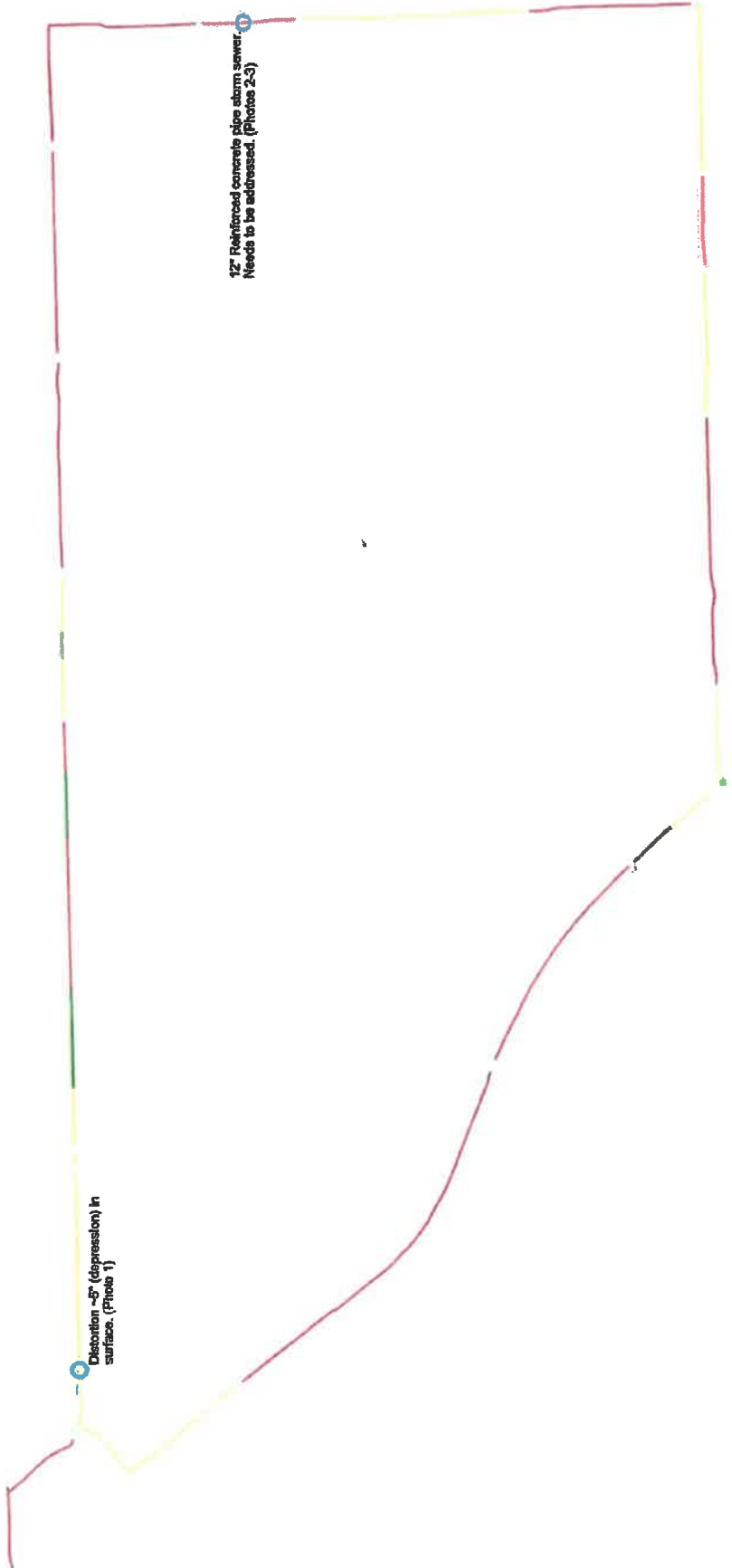


Photo 20



Photo 21

Cascade Rd 30-36th St Loop
09/23/22



12" Reinforced concrete pipe storm sewer
Needs to be addressed. (Photos 2-3)





Photo 1



Photo 2



Photo 3

Buttrick Avenue Segment
09/22/22

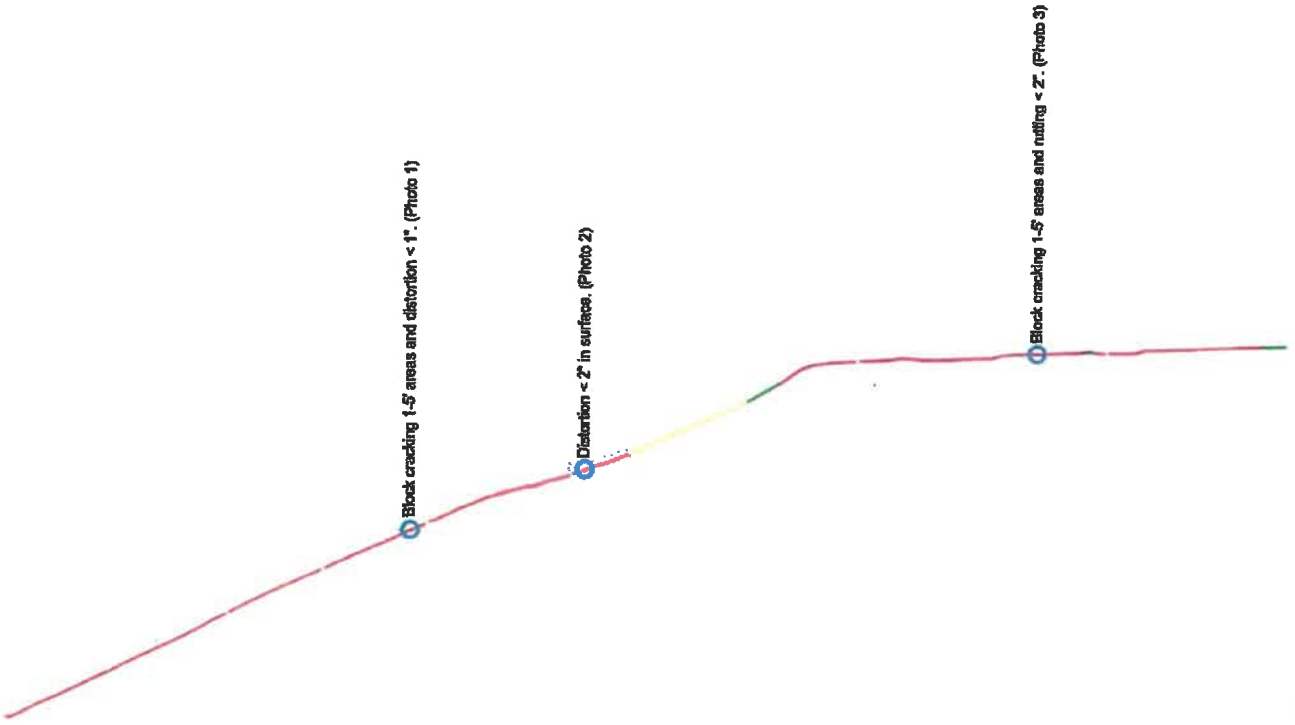




Photo 1



Photo 2



Photo 3



Photo 1



Photo 2



Photo 3



Photo 4



Photo 5



Photo 6



Photo 7



Photo 8



Photo 9



Photo 10



Photo 11



Photo 12



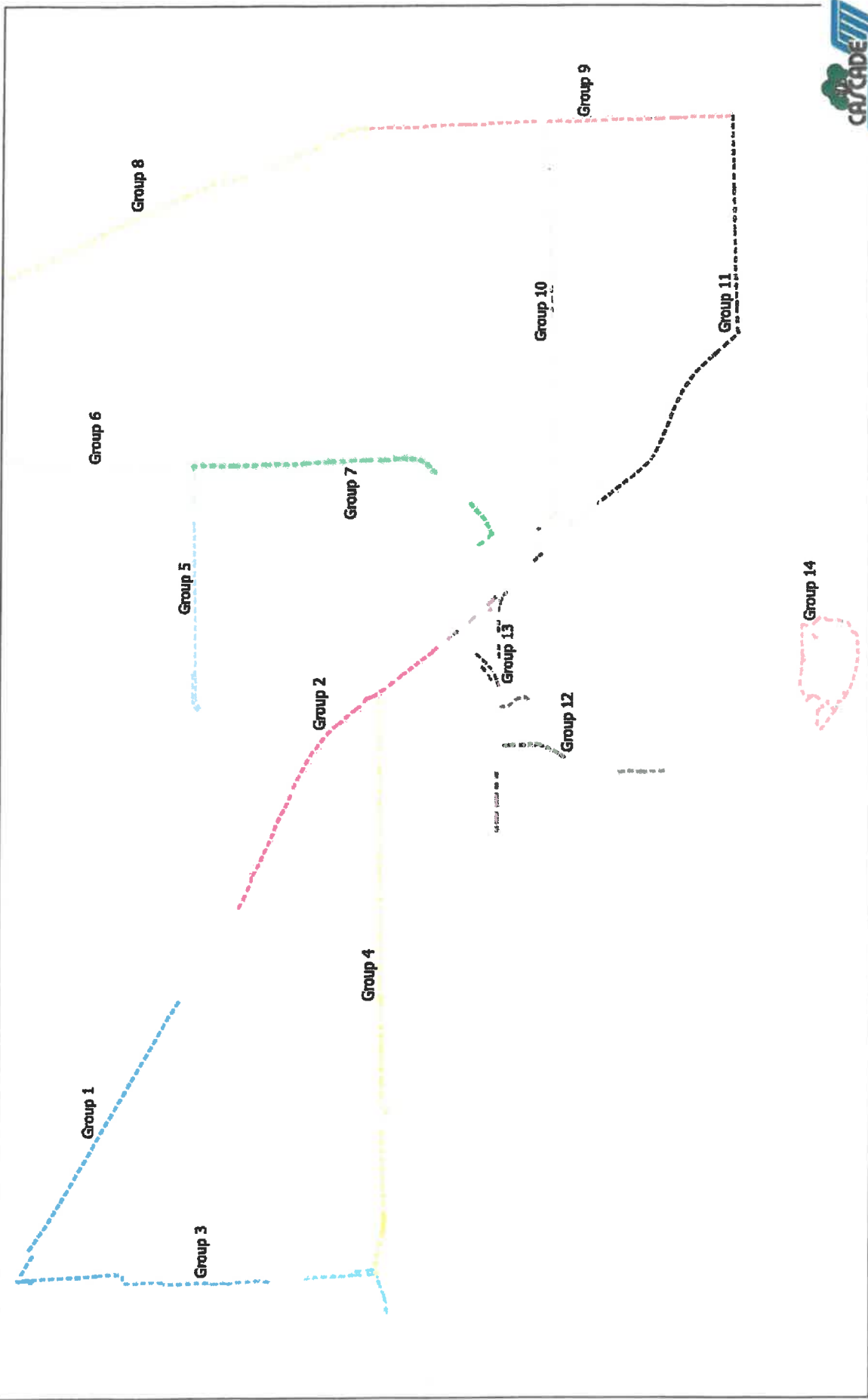
Photo 13



Photo 14



Photo 15



Segment	Material	Width	Thickness	Length	Year	Condition	GID	Group	Total
Cascade Rd SE	Asphalt	10	0	952	0	3	137	1 \$	57,543
Cascade Rd SE	Asphalt	10	0	2,423	0	3	140	1 \$	146,457
Cascade Rd SE	Asphalt	10	0	1,632	0	3	143	1 \$	98,645
Cascade Rd SE	Asphalt	10	0	355	0	5	124	1 \$	14,693
Spaulding Ave SE	Asphalt	8	0	129	0	7	169	1 \$	86
Spaulding Ave SE	Asphalt	10	0	136	0	5	170	1 \$	5,629
Spaulding Ave SE	Asphalt	10	0	1,405	0	3	168	1 \$	84,924
				1.33				\$	407,978

Cascade Rd SE	Asphalt	10	0	573	0	5	149	2 \$	23,716
Cascade Rd SE	Asphalt	10	0	412	0	5	155	2 \$	17,052
Cascade Rd SE	Asphalt	10	0	307	0	5	156	2 \$	12,706
Cascade Rd SE	Asphalt	10	0	150	0	7	159	2 \$	125
Cascade Rd SE	Asphalt	10	0	1,367	0	4	161	2 \$	79,514
Cascade Rd SE	Asphalt	10	0	1,509	0	2	163	2 \$	94,648
Cascade Rd SE	Asphalt	10	0	520	0	6	517	2 \$	18,344
Cascade Rd SE	Asphalt	10	0	707	0	6	518	2 \$	24,941
Cascade Rd SE	Asphalt	10	0	134	0	4	508	2 \$	7,794
Burton St SE	Asphalt	10	0	1,083	0	2	102	2 \$	67,928
				1.28				\$	346,769

Spauling Ave SE	Asphalt	10	0	884	0	6	176	3 \$	31,186
Spauling Ave SE	Asphalt	10	0	1,415	0	4	177	3 \$	82,306
Spauling Ave SE	Asphalt	10	0	1,487	0	3	178	3 \$	89,881
Burton St SE	Asphalt	10	0	237	0	2	114	3 \$	14,865
Spauling Ave SE	Asphalt	10	0	351	0	4	172	3 \$	20,417
Spauling Ave SE	Asphalt	10	0	345	0	5	173	3 \$	14,279
Spauling Ave SE	Asphalt	10	0	1,003	0	3	174	3 \$	60,626
Burton St SE	Asphalt	10	0	155	0	6	116	3 \$	5,468
Burton St SE	Asphalt	10	0	201	0	4	122	3 \$	11,692
				1.15				\$	330,718

Burton St SE	Asphalt	10	0	520	0	4	104	4 \$	30,247
Burton St SE	Asphalt	10	0	974	0	3	105	4 \$	58,873
Burton St SE	Asphalt	10	0	1,081	0	5	106	4 \$	44,741
Burton St SE	Asphalt	10	0	617	0	6	107	4 \$	21,766
Burton St SE	Asphalt	10	0	286	0	6	108	4 \$	10,089
Burton St SE	Asphalt	10	0	710	0	6	109	4 \$	25,047
Burton St SE	Asphalt	10	0	540	0	6	110	4 \$	19,050
Burton St SE	Asphalt	10	0	546	0	7	111	4 \$	455
Burton St SE	Asphalt	10	0	127	0	7	113	4 \$	106
Burton St SE	Asphalt	10	0	690	0	4	118	4 \$	40,135
Burton St SE	Asphalt	10	0	127	0	6	119	4 \$	4,480
Burton St SE	Asphalt	10	0	1,371	0	3	120	4 \$	82,869
				1.44				\$	337,859

Laraway Lake Dr SE	Asphalt	10	0	192	0	5	322	5 \$	7,947
Laraway Lake Dr SE	Asphalt	10	0	359	0	4	308	5 \$	20,882
Laraway Lake Dr SE	Asphalt	10	0	11	0	4	309	5 \$	640
Laraway Lake Dr SE	Asphalt	10	0	198	0	2	301	5 \$	12,419
Laraway Lake Dr SE	Asphalt	10	0	11	0	4	310	5 \$	640
Laraway Lake Dr SE	Asphalt	10	0	7	0	4	311	5 \$	407
Laraway Lake Dr SE	Asphalt	10	0	1800	0	4	312	5 \$	104,700
Laraway Lake Dr SE	Asphalt	10	0	876	0	3	302	5 \$	58,994
Laraway Lake Dr SE	Asphalt	10	0	291	0	6	332	5 \$	10,266
Laraway Lake Dr SE	Asphalt	10	0	564	0	4	320	5 \$	32,806
				0.84				\$	249,700

Thomapple River Dr SE	Asphalt	10	0	540	0	6	326	6 \$	19,050
Thomapple River Dr SE	Asphalt	10	0	1099	0	3	305	6 \$	66,428
Thomapple River Dr SE	Asphalt	10	0	173	0	6	327	6 \$	6,103
Thomapple River Dr SE	Asphalt	10	0	1080	0	5	323	6 \$	44,700

Segment	Material	Width	Thickness	Length	Year	Condition	GID	Group	Total
Thomapple River Dr SE	Asphalt	10	0	23	0	6	328	6 \$	811
Thomapple River Dr SE	Asphalt	10	0	207	0	5	324	6 \$	8,568
Thomapple River Dr SE	Asphalt	10	0	572	0	6	329	6 \$	20,179
Thomapple River Dr SE	Asphalt	10	0	270	0	6	330	6 \$	9,525
Thomapple River Dr SE	Asphalt	10	0	279	0	6	331	6 \$	9,843
Thomapple River Dr SE	Asphalt	10	0	258	0	4	318	6 \$	15,007
Thomapple River Dr SE	Asphalt	10	0	795	0	4	319	6 \$	46,243
Thomapple River Dr SE	Asphalt	10	0	45	0	3	307	6 \$	2,720
Thomapple River Dr SE	Asphalt	5	0	250	0	6	333	6 \$	4,410
				1.06				\$	253,586

Thomapple River Dr SE	Asphalt	10	0	879	0	6	325	7 \$	31,009
Thomapple River Dr SE	Asphalt	10	0	682	0	3	303	7 \$	41,223
Thomapple River Dr SE	Asphalt	10	0	829	0	3	304	7 \$	50,108
Thomapple River Dr SE	Asphalt	10	0	494	0	4	313	7 \$	28,734
Thomapple River Dr SE	Asphalt	10	0	736	0	4	314	7 \$	42,811
Thomapple River Dr SE	Asphalt	10	0	357	0	4	315	7 \$	20,766
Thomapple River Dr SE	Asphalt	10	0	1133	0	4	316	7 \$	65,903
Peace St SE	Asphalt	10	0	338	0	4	317	7 \$	19,660
Thomapple River Dr SE	Asphalt	10	0	668	0	3	306	7 \$	40,377
				1.16				\$	340,591

Buttrick Ave SE	Asphalt	10	0	779	0	3	910	8 \$	47,086
Buttrick Ave SE	Asphalt	10	0	28	0	5	912	8 \$	1,159
Buttrick Ave SE	Asphalt	10	0	1029	0	5	913	8 \$	42,589
Buttrick Ave SE	Asphalt	10	0	1301	0	4	915	8 \$	75,675
Buttrick Ave SE	Asphalt	10	0	1890	0	4	916	8 \$	109,935
Buttrick Ave SE	Asphalt	10	0	2126	0	4	917	8 \$	123,662
				1.35				\$	400,106

Buttrick Ave SE	Asphalt	10	0	1391	0	3	904	9 \$	84,078
Buttrick Ave SE	Asphalt	10	0	127	0	4	905	9 \$	7,387
Buttrick Ave SE	Asphalt	10	0	2021	0	4	909	9 \$	117,555
Buttrick Ave SE	Asphalt	10	0	983	0	4	725	9 \$	57,178
Buttrick Ave SE	Asphalt	10	0	130	0	5	726	9 \$	5,381
Buttrick Ave SE	Asphalt	10	0	559	0	4	727	9 \$	32,515
Buttrick Ave SE	Asphalt	10	0	903	0	3	728	9 \$	54,581
Buttrick Ave SE	Asphalt	10	0	874	0	5	729	9 \$	36,174
Buttrick Ave SE	Asphalt	10	0	319	0	6	730	9 \$	11,254
				1.38				\$	406,103

Thomcrest Dr SE	Asphalt	10	0	337	0	4	743	10 \$	19,602
Wycliff Dr SE	Asphalt	10	0	462	0	3	744	10 \$	27,925
30th St SE	Asphalt	10	0	16	0	5	701	10 \$	662
30th St SE	Asphalt	10	0	509	0	3	702	10 \$	30,766
30th St SE	Asphalt	10	0	900	0	4	703	10 \$	52,350
30th St SE	Asphalt	10	0	915	0	4	704	10 \$	53,223
30th St SE	Asphalt	10	0	246	0	5	705	10 \$	10,182
30th St SE	Asphalt	10	0	227	0	4	706	10 \$	13,204
30th St SE	Asphalt	10	0	41	0	7	707	10 \$	34
Wycliff Dr SE	Asphalt	10	0	350	0	6	745	10 \$	12,347
Cascade Rd SE	Asphalt	10	0	755	0	5	742	10 \$	31,249
30th St SE	Asphalt	10	0	1179	0	6	708	10 \$	41,593
30th St SE	Asphalt	10	0	250	0	5	709	10 \$	10,347
30th St SE	Asphalt	10	0	689	0	3	711	10 \$	41,646
30th St SE	Asphalt	10	0	252	0	5	713	10 \$	10,430
				1.35				\$	355,560

Cascade Rd SE	Asphalt	10	0	2094	0	4	733	11 \$	121,801
Cascade Rd SE	Asphalt	10	0	1197	0	4	736	11 \$	69,626
Cascade Rd SE	Asphalt	10	0	130	0	4	737	11 \$	7,562
Cascade Rd SE	Asphalt	10	0	258	0	5	741	11 \$	10,678

Segment	Material	Width	Thickness	Length	Year	Condition	GID	Group	Total
36th St SE	Asphalt	10	0	407	0	7	719	11 \$	339
36th St SE	Asphalt	10	0	1194	0	4	720	11 \$	69,451
36th St SE	Asphalt	10	0	626	0	5	721	11 \$	25,909
36th St SE	Asphalt	10	0	382	0	4	722	11 \$	22,220
36th St SE	Asphalt	10	0	740	0	5	723	11 \$	30,628
				1.33					\$ 358,214

Thornhills Ave SE	Asphalt	10	0	209	0	7	540	12 \$	174
Thornhills Ave SE	Asphalt	10	0	563	0	7	541	12 \$	469
Thornhills Ave SE	Asphalt	8	0	455	0	4	506	12 \$	21,173
Thomapple River Dr SE	Asphalt	10	0	427	0	5	512	12 \$	17,673
Thornhills Ave SE	Asphalt	10	0	311	0	6	524	12 \$	10,971
				0.37					\$ 50,460

Cascade Rd SE	Concrete	6	0	199	0	6	519	13 \$	993
Cascade Rd SE	Concrete	6	0	118	0	6	520	13 \$	589
28th St SE	Concrete	6	0	399	0	5	509	13 \$	2,709
Old 28th St SE	Concrete	6	0	165	0	7	534	13 \$	514
Old 28th St SE	Concrete	6	0	142	0	2	501	13 \$	1,963
Cascade Rd SE	Concrete	6	0	196	0	6	521	13 \$	978
Cascade Rd SE	Concrete	6	0	40	0	7	537	13 \$	125
28th St SE	Concrete	6	0	13	0	7	538	13 \$	810
28th St SE	Concrete	6	0	174	0	7	539	13 \$	542
Jacksmith Ave SE	Concrete	6	0	634	0	5	510	13 \$	4,304
Thornhills Ave SE	Concrete	10	0	79	0	6	523	13 \$	657
28th St SE	Concrete	6	0	397	0	5	514	13 \$	2,695
28th St SE	Concrete	6	0	267	0	5	515	13 \$	1,813
28th St SE	Concrete	6	0	169	0	4	507	13 \$	1,493
Cascade Rd SE	Concrete	6	0	190	0	7	546	13 \$	592
Cascade Rd SE	Concrete	6	0	167	0	6	525	13 \$	833
Old 28th St SE	Concrete	10	0	145	0	5	516	13 \$	1,641
28th St SE	Concrete	6	0	264	0	6	526	13 \$	1,317
				0.71					\$ 24,566

Cascade Township Park	Asphalt	8	0	166	0	7	1114	14 \$	111
Cascade Township Park	Asphalt	8	0	396	0	4	1107	14 \$	18,427
Cascade Township Park	Asphalt	8	0	1073	0	4	1101	14 \$	49,930
Cascade Township Park	Asphalt	8	0	310	0	4	1110	14 \$	14,425
Cascade Township Park	Asphalt	8	0	460	0	6	1105	14 \$	12,982
Cascade Township Park	Asphalt	8	0	172	0	5	1113	14 \$	5,695
Cascade Township Park	Asphalt	8	0	244	0	5	1111	14 \$	8,079
Cascade Township Park	Asphalt	8	0	59	0	7	1123	14 \$	39
Cascade Township Park	Asphalt	6	0	61	0	5	1121	14 \$	1,515
Cascade Township Park	Asphalt	8	0	34	0	5	1126	14 \$	1,126
Cascade Township Park	Asphalt	8	0	151	0	7	1115	14 \$	101
Cascade Township Park	Asphalt	8	0	11	0	6	1132	14 \$	310
Cascade Township Park	Asphalt	8	0	128	0	6	1118	14 \$	3,612
Cascade Township Park	Asphalt	6	0	177	0	4	1112	14 \$	6,177
Cascade Township Park	Asphalt	8	0	150	0	5	1116	14 \$	4,967
Cascade Township Park	Asphalt	8	0	753	0	5	1102	14 \$	24,933
Cascade Township Park	Asphalt	8	0	697	0	6	1103	14 \$	19,671
Cascade Township Park	Asphalt	8	0	347	0	7	1108	14 \$	231
Cascade Township Park	Asphalt	8	0	603	0	6	1104	14 \$	17,018
				1.13					\$ 189,350

\$ 4,051,561