2265 E. Hathaway Road
Harbor Springs, MI 49740
Office: (231) 347-8142
Fax: (231) 347-5787
www.emmetcrc.org

PROPOSAL

Project: Supply of a Triple Span Timber Bridge for Lake Shore Drive over the Wycamp Creek

Description: Supplying Materials for this project will include design, fabrication, and delivery of a timber structure per the Engineer's plans and specifications.

Materials shall be delivered by or before June 27, 2024, to the Road Commission garage at 2265 E. Hathaway Road, Harbor Springs, MI 49740 or to the site (will be determined based on contractor's schedule).

The Emmet County Road Commission will accept Bids until **9:00 a.m.** local time on **February 5, 2024** at: 2265 E. Hathaway Road, Harbor Springs, MI 49740. Bid packages are available at the Emmet County Road Commission Office or on Emmet County Road Commission website at www.emmetcrc.org.

ALL BIDS WILL BE SEALED AND PLAINLY MARKED AS "Lake Shore Drive Timber Bridge Supply.

The bidder has examined the plans, specification, special provisions and related materials in the proposal, as well as the location of the work described in the proposal for this project, and is fully informed as to the nature of the work and conditions relating to its performance and understands that the quantities shown are approximate only and are subject to either increase or decrease.

The bidder hereby proposes to furnish all necessary machinery, tools, apparatus and other means of construction, do all the work, furnish all the materials except as otherwise specified and, or each unit price, lump sum, or one each named in the itemized bid, to complete the work in strict conformity with the plans therefore and the entire proposal which is incorporated by reference in these pages, and in strict conformity with the requirements of the 2020 Standard Specifications for Construction, Michigan Department of Transportation and such other special provisions and supplemental specifications as may be part of the proposal for this project.

THE BIDDER UNDERSTANDS AND AGREES THAT THE EMMET COUNTY ROAD COMMISSION RESERVES THE RIGHT TO REJECT ANY AND ALL BIDS; TO WAIVE IRREGULARITIES OR INFORMALITIES; AND NO CONTRACTUAL RELATIONSHIP SHALL EXIST BETWEEN THE BIDDER AND THE EMMET COUNTY ROAD COMMISSION FOR THE WORK DESCRIBED HEREIN UNTIL SUCH TIME AS THE CONTRACT HAS BEEN FORMALLY EXECUTED BY BOTH THE BIDDER AND THE EMMET COUNTY ROAD COMMISSION.

Bid Sheet

Board of Emmet County Road Commissioners
2265 East Hathaway Road
Harbor Springs, MI 49740

Gentlemen:

The undersigned proposes to furnish any and all materials, labor, and equipment necessary for the delivery of a Supply of a Triple Span Timber Bridge as spelled out in the "Invitation to Bid" for the price below.

The Emmet County Road Commission reserves the right to reject any and/or all bids based on what is in the best interest of Emmet County.

Payment for structure will not be authorized until ECRC has been reimbursed by the Little Traverse Bay Bands of Odawa Indians.

Contractor Name: _____

Project: Supplying Materials for this project will include design, fabrication, and delivery of a timber structure per the Engineer's plans and specifications.

Materials shall be delivered by or before June 27, 2024, to the Road Commission Garage at 2265 E. Hathaway Road, Harbor Springs, MI 49740 or to the site (will be determined based on contractor's schedule).

This project is subject to The Build America, Buy America Act requires that all of the iron, steel, manufactured products, and construction materials used in infrastructure projects are produced in the United States.

Item	Quantity	Unit	Unit Price	Total
Triple Span Timber Bridge	1	Ea		
			TOTAL PROJECT COST ESTIMATE =	

Estimated Delivery Date: _____

Bidder:	_____	Address:	_____
	_____		_____
Signature:	_____	Phone No.:	_____
Printed Name:	_____	Date:	_____
Title:	_____	Email:	_____

EMMET COUNTY ROAD COMMISSION

IN COOPERATION WITH THE

Little Traverse Bay Bands of Odawa Indians

&

USDA Natural Resources Conservation Services

PLANS OF PROPOSED CROSSING IMPROVEMENTS

N LAKE SHORE DRIVE OVER WYCAMP CREEK

SECTION 35, TOWN 38 NORTH, RANGE 6 WEST

CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

VICINITY MAP

SHEET INDEX

NRCS STANDARDS

AQUATIC ORGANISM PASSAGE	(396)

MDOT STANDARD PLANS

GUARDRAIL AT BRIDGES AND EMBANKMENTS	R-59-E
GUARDRAIL TYPES A, B, BD, T, TD, MGS-8, & MGS-8D	R-59-J
GUARDRAIL APPROACH TERMINALS TYPE 2M	R-62-H
GUARDRAIL DEPARTING TERMINAL TYPES B, T & MGS	R-66-E
GUARDRAIL ANCHORAGE, BRIDGE DETAILS	R-67-SD
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R-96-E
SEEDING AND TREE PLANTING	R-100-H
GRADING CROSS-SECTIONS	R-105-D

WORK ZONE DEVICES / SPECIAL DETAILS

GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS	WZD-100-A
TEMPORARY TRAFFIC CONTROL DEVICES	WZD-125-E

GENERAL NOTES

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION.

PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH AASHTO'S A POLICY ON GEOMETRIC DEIGN OF HIGHWAYS AND STREETS, 2011 EDITION.

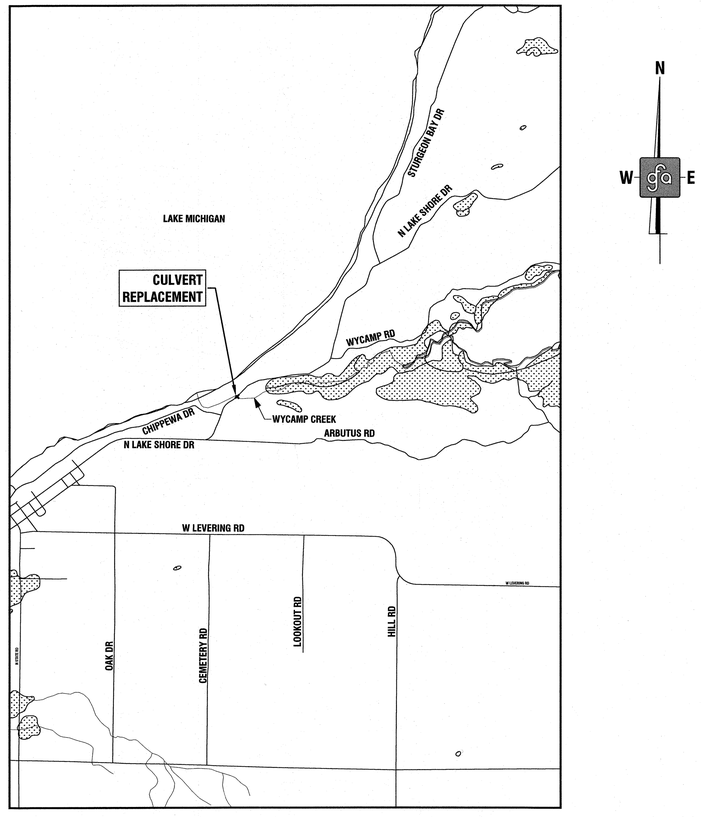
FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMATION WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 811 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

PLACE TOPSOIL, SEED, FERTILIZER, AND MULCH AS SOON AS POSSIBLE. CRITICAL GRADES SHOULD BE PROTECTED WITH MULCH BLANKETS OR TURF REINFORCEMENT MATS AS DIRECTED BY THE ENGINEER.

CONTRACTOR SHALL PRESERVE AND/OR REPLACE ANY EXISTING PARCEL CORNERS ENCOUNTERED DURING THE WORK.

THE SOIL BORINGS REPRESENT POINT INFORMATION, NO INFERENCE SHOULD BE MADE THAT SUBSURFACE CONDITIONS ARE THE SAME AT OTHER LOCATIONS.

PAVEMENT MARKINGS AND THE PLACING OF TRAFFIC CONTROL SIGNS SHALL BE DONE IN ACCORDANCE WITH THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAVEMENT MARKINGS ARE TO BE PERFORMED AS A PART OF THIS CONTRACT.



SCALE: 1" = 2000'

ISSUED DATE: 7-28-2023

FOR CONSTRUCTION

811 Know what's **below.** **Call** before you dig.

Contract For:

REMOVAL OF EXISTING CULVERTS, VERTICAL CURVE IMPROVEMENTS, CONSTRUCTION OF PRE-ENGINEERED TIMBER BRIDGE, GUARDRAIL INSTALLATION, AGGREGATE BASE, HMA SURFACING, AND RELATED WORK AT STREAM CROSSING.

Prepared under Supervision of:

STATE OF MICHIGAN
JOSEPH DAVID WILLIAMS
ENGINEER
No. 69873
LICENSED PROFESSIONAL ENGINEER

Joseph Williams, P.E.
GOURDIE FRASER
REGISTERED PROFESSIONAL ENGINEER No. 69873

Gourdie-Fraser
Municipal | Development | Transportation

PH 231.946.5874
FAX 231.946.3703
WWW.gourdiefraser.com
123 W Front Street
Traverse City, MI 49684

Link ENGINEERING SERVICES

NRCS IS ACCEPTING THESE CONSTRUCTION DRAWINGS AND SPECIFICATIONS ON THE BASIS THAT THEY HAVE BEEN SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. BASED ON THE INFORMATION PROVIDED BY THE PROFESSIONAL ENGINEER, THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS APPEAR TO MEET APPLICABLE NRCS STANDARDS AND SPECIFICATIONS. ANY DEFICIENCIES IN THE DESIGN, CONSTRUCTION DRAWINGS OR SPECIFICATIONS ARE THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THE CONSTRUCTION DRAWINGS.

NRCS REPRESENTATIVE. — DATE 8-11-23

TO THE BEST OF MY KNOWLEDGE, JUDGEMENT AND BELIEF, THE DESIGN, CONSTRUCTION DRAWINGS AND SPECIFICATIONS MEET APPLICABLE NRCS STANDARDS AND SPECIFICATIONS.

JOSEPH D. WILLIAMS, P.E. — DATE 8/3/2023

Emmet County Road Commission

FRANK ZELSKI, CHAIRMAN — DATE 8/3/2023

BRENT SHANK, PE, MANAGER — DATE 8/3/2023

JOB NO.	GPF NO.	SHEET NO.
22084		1

T:\PROJECTS\22084\DWG\ENG\22084_EG_WYCAMP.DWG (08-01-23 11:44 AM) BVANDERHEIDE

LEGEND

Survey Legend

Existing / Proposed

- Lot Line
- Property Line
- Right-Of-Way Line
- Right-Of-Way Centerline
- Physical Centerline
- Easement
- Benchmark
- Set GPS Point
- Found Iron
- Set Iron
- Found Monument
- Monument Box
- Section Corner
- Quarter Corner
- Top of Water

Paving Legend

Existing / Proposed

- Concrete
- Asphalt
- Gravel
- Brick
- Wood
- Railroad
- Pavement Markings
- Curb
- Sidewalk
- Two-track / Trail
- Concrete
- Asphalt
- Gravel
- Brick

Sanitary Legend

Existing / Proposed

- Sanitary Sewer
- Sanitary Sewer Lead
- Cleanout
- Sanitary Manhole

Storm Water and Grading Legend

Existing / Proposed

- Storm Sewer / Culvert
- Major Contour (100)
- Minor Contour (100)
- Silt Fence
- Round Catch Basin
- Square Catch Basin
- Storm Manhole
- End Section
- Soil Boring
- Clearing & Grubbing Limits

Watermain Legend

Existing / Proposed

- Watermain
- Water Service
- Water Meter
- Curb Stop
- Gate Well
- Hydrant
- Well
- Spigot
- Blowoff

Miscellaneous Legend

Existing / Proposed

- Building
- Minor Building Structure
- Fence
- Rip-Rap
- Guardrail
- Sign
- Sheet Pile
- Trees / Brush
- Landscaping
- Edge of Water
- Ditch
- Wetlands
- Building
- Sign
- Parking Meter
- Stump
- Mailbox
- Post
- Tank Cover
- Trees (As Noted)

Grading Legend

- XXX.XX — Existing Grade
- XXX.XX BC / XXX.XX G — Proposed Back of Curb Elev. / Proposed Gutter Elev.
- XXX.XX TA — Proposed Top of Asphalt Elev.
- XXX.XX TW — Proposed Top of Concrete Elev.
- XXX.XX FF — Proposed Finish Floor Elev.
- XXX.XX TG — Proposed Top of Gravel Elev.
- XXX.XX I.E. — Proposed Culvert Invert
- XXX.XX D.I. — Proposed Ditch Invert
- XXX.XX — Proposed Ground Elev.
- XXX.XX HP — Proposed High Point
- XXX.XX LP — Proposed Low Point
- Proposed Drainage Arrow
- H.P. — Proposed High Point Breakline

Electric & Gas Legend

Existing / Proposed

- GAS — Gas Main
- Pipeline
- OHE — Overhead Electric
- UGE — Underground Electric
- OHT — Overhead Telephone
- UGT — Underground Telephone
- CATV — Cable Television
- FOPT — Fiber Optic
- Gas Meter
- Electric Meter
- Utility Pole
- Guy Wire
- Satellite Dish
- Light
- Fiber Optic Marker
- Light Pole
- Guy Pole
- Electric Manhole
- Telephone Manhole
- Monitor Well
- Miss Dig Flag

GENERAL NOTES

1. CONTRACTOR SHALL CALL MISS DIG (1-800-482-7171) A MINIMUM OF 3 WORKING DAYS PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL CONFORM TO SOIL EROSION AND SEDIMENTATION CONTROL ACT, PART 91 OF ACT 451 OF 1994.
3. DEBRIS CONSIDERED TO BE WASTE SHALL BE DISPOSED OF BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL REMOVE, REPLACE, AND MAINTAIN ALL EXISTING MAIL BOXES, FENCES AND SIGNS. MAILBOX POSTS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. ALL COSTS SHALL BE INCLUDED IN THE UNIT PRICE BID LUMP SUMP PRICE FOR THE TIMBER BRIDGE CONSTRUCTION.
5. THE CONTRACTOR SHALL MAINTAIN LOCAL TRAFFIC AT ALL TIMES ON THE PROJECT.
6. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING ANY WORK.
7. CONSTRUCT CENTERLINE OF PROPOSED CREEK AT CENTERLINE OF EXISTING CREEK UNLESS OTHERWISE INDICATED.
8. CONTRACTOR SHALL SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS DAILY. LAWN AREAS SHALL RECEIVE 4" OF TOPSOIL AND BE RESTORED AS STATED IN THE SPECIFICATIONS AND SHOWN ON THE PLANS.
9. COORDINATE RIPRAP INSTALLATIONS WITH THE DESIGN ENGINEER PRIOR TO CONSTRUCTION.
10. INSTALL EROSION CONTROL BLANKETS AND FABRICS ACCORDING TO MANUFACTURERS SPECIFICATIONS.
11. ALL ELEVATIONS ARE BASED ON NAVD88 DATUM.
12. SPECIAL CARE SHALL BE TAKEN IN EXCAVATING IN THE PROXIMITY OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL SECURE ASSISTANCE FROM THE APPROPRIATE UTILITY COMPANY IN LOCATING ITS LINES. THE CONTRACTOR SHALL ALSO: PROVIDE SUPPORT FOR ANY UTILITY WITHIN THE EXCAVATION, PROVIDE PROPER COMPACTION UNDER ANY UNDERMINED UTILITY STRUCTURE AND, IF NECESSARY, INSTALL TEMPORARY SHEETING OR USE A TRENCH BOX TO MINIMIZE THE EXCAVATION. THE CONTRACTOR SHALL PROTECT AND SAVE HARMLESS FROM DAMAGE ALL UTILITIES, WHETHER PRIVATELY OR PUBLICLY OWNED, ABOVE OR BELOW GROUND SURFACE, WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
13. THE LOCATION OF EXISTING PUBLIC UTILITIES AND UNDERGROUND STRUCTURES SUCH AS PIPE LINES, ELECTRIC CONDUITS, SEWERS AND WATER LINES, OF RECORD ARE SHOWN ON THE PLANS. THE INFORMATION SHOWN IS BELIEVED TO BE REASONABLY CORRECT AND COMPLETE. HOWEVER, NEITHER THE CORRECTNESS NOR THE COMPLETENESS OF SUCH INFORMATION IS GUARANTEED. PRIOR TO THE START OF ANY OPERATIONS IN THE VICINITY OF ANY UTILITIES, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AND MISS DIG AND REQUEST THAT THEY STAKE OUT THE LOCATIONS OF THE UTILITIES IN QUESTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITIES WITH THE UTILITY PROVIDER. COST OF REPAIR FOR ANY DAMAGED UTILITY LINES THAT IS PROPERLY STAKED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
14. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND USE OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK

SOIL EROSION & SEDIMENTATION CONTROL NOTES

1. TEMPORARY SEEDING SHALL BE CONDUCTED ON ALL DISTURBED AREAS THAT WILL BE FINISH GRADED AT A LATER DATE. TEMPORARY SEEDING SHALL BE LIMITED TO DATES BETWEEN APRIL 1ST AND NOVEMBER 1ST.
2. FINAL SEEDING SHALL BE COMPLETED WITHIN 24 HOURS OF FINAL GRADING. WEEKLY INSPECTIONS OF SEEDED AREAS SHALL BE COMPLETED TO VERIFY GRASS GROWTH. ANY AREAS NOT ESTABLISHED SHALL BE FERTILIZED, SOILS AMENDED AND RE-SEEDED AS NECESSARY.
3. CONTRACTOR TO INSTALL AND MAINTAIN ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THE APPROVED PLANS PRIOR TO COMMENCEMENT OF CONSTRUCTION OR MASS GRADING.
4. ALL MUD, DIRT, AND DEBRIS TRACKED ONTO EXISTING ROADWAYS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR NO LESS THAN ON A DAILY BASIS BY SCRAPING AND SWEEPING.
5. ALL PERMANENT SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE WITHIN 24 HOURS OF FINAL GRADE (GRADE LISTED ON PLANS), THIS INCLUDES ALL VEGETATIVE STABILIZATION. REMOVAL OF TEMPORARY MEASURES, FOLLOWING ACCEPTANCE OF THE PROJECT, IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED TO BE NECESSARY BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER THEY SHALL BE IN PLACE NO LATER THAN 24 HOURS FROM THE TIME OF NOTIFICATION TO THE GENERAL CONTRACTOR FOR THE PROJECT. IF NOT PLACED IN 24 HOURS OR LESS ALL ON SITE CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES ARE INSTALLED AND APPROVED BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER.
7. ALL SOIL EROSION CONTROL MEASURES SHALL BE INSPECTED DAILY BY THE CONTRACTOR, AND INSPECTED AFTER EACH RAIN EVENT TO ENSURE PROPER MAINTENANCE OF THE SOIL EROSION CONTROL MEASURES. ANY DEFICIENCIES OR REPAIRS TO SOIL EROSION CONTROL MEASURES ARE TO BE CORRECTED IMMEDIATELY.
8. INSTALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES BEFORE OR UPON COMMENCEMENT OF THE EARTH CHANGE ACTIVITY AND MAINTAIN MEASURES ON A DAILY BASIS. REMOVE TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AFTER PERMANENT SOIL EROSION MEASURES ARE IN PLACE AND THE AREA IS STABILIZED ("STABILIZED" MEANS THE ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING, OR COVERING OF SOIL TO ENSURE ITS RESISTANCE TO SOIL EROSION, SLIDING, OR OTHER EARTH MOVEMENT).
9. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT MEASURES ARE INSTALLED IN COMPLIANCE WITH THE APA MANUAL AND THAT THE SESC MEASURES ARE MONITORED AND MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED ("STABILIZED" MEANS THE ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING, OR COVERING OF SOIL TO ENSURE ITS RESISTANCE TO SOIL EROSION, SLIDING, OR OTHER EARTH MOVEMENT) AND TEMPORARY MEASURES ARE REMOVED. CONTRACTOR ACKNOWLEDGES THAT SESC MEASURES MAY NEED TO BE ADAPTED, ADJUSTED, OR ADDED BASED ON SITE CONDITIONS IN ORDER TO REMAIN IN COMPLIANCE WITH PART 91 REQUIREMENTS.
10. RESTORE DISTURBED AREAS WITH 4" TOPSOIL SURFACE, MDOT CLASS A SEED MIXTURE, 300#/ACRE CHEMICAL FERTILIZER NUTRIENTS AND 2 TONS/ACRE MULCH. PLACE TOPSOIL/SEED/FERTILIZER PRIOR TO PLACING MULCH BLANKET. WORK TO BE INCLUDED IN PAYMENT FOR "SLOPE RESTORATION, NON-FREEWAY".
11. CONTRACTOR IS RESPONSIBLE FOR CLEANUP & RESTORATION INCLUDING PROGRESS CLEANING. PROGRESS CLEANING INCLUDES BUT IS NOT LIMITED TO REMOVAL OF WASTE MATERIALS, DEBRIS, RUBBISH, AND EXCESS SPOILS, COMPLETE LEVELING AND RESTORE DAMAGE NOT MORE THAN 1000 FEET BEHIND CONSTRUCTION. ALSO INCLUDES DAILY CLEANING OF ALL ROAD SURFACES.
12. CONTRACTOR SHALL OBTAIN AND PAY ALL FEES FOR SOIL EROSION CONTROL PERMIT.

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED ON OUR SURVEYS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

Charter Communications
Attention: Rick Rousseau
231-463-1941
rick.rousseau@charter.com

AT&T
Attention: Jeffrey Collard
586-764-8260
jc7632@att.com

DTE Energy
Larry Bourke
231-592-3244

Emmet County Road Commission
Brent Shank
231-347-8142
bshank@emmetcrc.org

811 Know what's **below.** **Call** before you dig.

GENERAL MAINTENANCE PROCEDURES

1. PERFORM MAINTENANCE ACTIVITIES DURING LOW FLOW PERIODS.
2. START MAINTENANCE AT DOWNSTREAM END OF PROJECT.
3. REMOVE SEDIMENT WITH LIMITED DISTURBED BANK AREA.
4. APPLY SEED AND MULCH DAILY TO DISTURBED AREAS.
5. MAINTAIN VEGETATIVE BUFFER BY PLACING SEDIMENT SPOILS AS CLOSE TO EASEMENT BOUNDARY AS POSSIBLE.
6. APPLY SEED AND MULCH IMMEDIATELY AFTER LEVELING SPOILS.

CONSTRUCTION NOTES

1. REMOVE AND PROPERLY DISPOSE OF EXISTING TILE & STRUCTURES LOCATED WITHIN PROPOSED CULVERT TRENCH. REMOVED STRUCTURES & TILE OR DEBRIS SHALL BECOME PROPERTY OF THE CONTRACTOR. REMOVAL TO BE INCLUDED IN THE COST PER LINEAR FOOT OF BOX CULVERT. EXISTING TILE LOCATED OUTSIDE THE INFLUENCE OF THE PROPOSED TRENCH SHALL BE TIED INTO THE PROPOSED STORM SEWER AT THE DOWNSTREAM END WITH ENGINEER APPROVED FITTINGS.
2. DURING REMOVAL OF THE EXISTING OF THE EXISTING STRUCTURE, EVERY PRECAUTION SHALL BE TAKEN TO PREVENT DEBRIS FROM ENTERING WATERCOURSE,. ANY DEBRIS REACHING WATERCOURSE DURING THE REMOVAL OF THE STRUCTURE SHALL BE IMMEDIATELY REMOVED FROM WATER. ALL MATERIAL SHALL BE DISPOSED OF IN AN ACCEPTABLE MANNER CONSISTENT WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
3. ALL SPRINKLER SYSTEMS DAMAGED SHALL BE REPAIRED BY CONTRACTOR. COST TO BE INCLUDED IN THE LUMP SUM BID PRICE FOR Slope Restoration, Non-Freeway, Type B.
4. ANY UTILITIES ENCOUNTERED DURING CONSTRUCTION SHALL BE SUPPORTED, PER THE SPECIFICATIONS OF THE INDIVIDUAL UTILITY COMPANY CLAIMING OWNERSHIP OF THE UTILITY. COST TO BE INCLUDED WITH THE PAY ITEM BEING INSTALLED. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR SHALL MAINTAIN ACCESS FOR MAIL DELIVERY AND GARBAGE PICKUP AT ALL PARCEL AFFECTED BY CONSTRUCTION. IF THESE SERVICES CANNOT BE PERFORMED CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY MEASURES TO CARRY THEM OUT.
6. ALL WORK SHALL BE WITHIN ROAD RIGHT-OF-WAY. WORK OUTSIDE RIGHT-OF-WAY MUST BE AGREED UPON BY LANDOWNER AND ENGINEER WITH A SIGNED LANDOWNER AGREEMENT PRIOR TO WORK ON THAT PROPERTY.
7. GROUNDWATER SEEPAGE IS ANTICIPATED TO BE A FACTOR DURING CONSTRUCTION. DEWATERING METHODS MAY BE NECESSARY. ALL DEWATERING REQUIRED IS THE CONTRACTOR'S RESPONSIBILITY AND COST SHALL BE INCLUDED IN THE PAY ITEM BEING INSTALLED. THE METHOD FOR DEWATERING SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
8. ALL PAVEMENT JOINTS BETWEEN EXISTING AND NEW PAVEMENT SHALL BE SAW CUT WITH BUTT-JOINTS.
9. STRIP AND SALVAGE TOPSOIL PRIOR TO INSTALLING BOX CULVERT. REPLACE TOPSOIL TO AFTER INSTALLATION.
10. CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL DEVICES AS REQUIRED BY THE COUNTY ROAD COMMISSION AND THE TRAFFIC CONTROL PLAN.
11. CONTRACTOR IS RESPONSIBLE TO FIELD LOCATE AND USE CARE WHEN WORKING AROUND UTILITIES AND TO NOT DISRUPT SERVICE. ANY DAMAGE TO UTILITIES SHALL BE REPAIRED AND/ OR REPLACED AT NO ADDITIONAL COST.
12. THE ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO BITUMINOUS PAVING.
13. THE PREPARED SUBBASE MUST BE TESTED AND APPROVED PRIOR TO PLACEMENT OF BASE.
14. Embankment, CIP, Backfill, Structure, CIP, Excavation, Fdn, Excavation, Channel AND Subbase, CIP ARE TO BE PAID AT PLAN QUANTITY UNLESS OTHERWISE KNOWN CHANGES. EARTHWORK FOR DRIVES, APPROACHES, AND INTERSECTIONS ARE INCLUDED IN PLAN QUANTITIES. ALL NECESSARY EMBANKMENT FOR ROADWAY, APPROACHES, AND DRIVEWAYS SHALL MEET GRANULAR MATERIAL CLASS II REQUIREMENTS UNLESS OTHERWISE NOTED.
15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE GRAVEL TO BE USED ON THIS PROJECT IS APPROVED PRIOR TO PLACEMENT.
16. THE PREPARED GRAVEL WIDTH, DEPTH, AND COMPACTION MUST BE REVIEWED AND APPROVED BY THE OWNERS ENGINEER PRIOR TO BITUMINOUS PAVING.
17. ALL CONSTRUCTION SIGNING SHALL MEET MMUTCD STANDARDS.
18. ALL PAVEMENT CUTS ARE TO BE MADE WITH SAW, IMMEDIATELY PRIOR TO PAVING.
19. THE CONTRACTOR SHALL NOTIFY RESIDENTS 24 HOURS (EXCLUDING SATURDAYS AND SUNDAYS) IN ADVANCE OF DISRUPTION TO SERVICE, SUCH AS DRIVEWAY CLOSING.
20. PAVEMENT MARKINGS SHALL MEET MDOT SPECIFICATIONS AND STANDARDS.

ESTIMATED PROJECT QUANTITIES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. SEVERAL ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

1	LSUM	Mobilization, Max 10%
0.5	Acre	Clearing
1	Ea	Culv, Rem, Over 48 inch
1000	Cyd	Embankment, CIP
1000	Cyd	Excavation, Channel
600	Cyd	Backfill, Structure, CIP
600	Cyd	Excavation, Fdn
2	Ea	Erosion Control, Filter Bag
10	Cyd	Erosion Control, Maintenance, Sediment Removal
600	Ft	Erosion Control, Silt Fence
35	Ft	Erosion Control, Turbidity Curtain, Shallow
400	Cyd	Subbase, CIP
1400	Syd	Aggregate Base, 6 inch
5	Ton	Maintenance Gravel
50	Syd	Approach, Cl II, 6 inch
50	Syd	Shld, Cl II, 3 inch
1040	Syd	HMA Surface, Rem
10	Syd	Pavt for Butt Joints, Rem
350	Ton	HMA, 4EL
1	LSUM	Pile Driving Equipment, Furn
1500	Ft	Pile, Treated Timber, Furn
1500	Ft	Pile, Treated Timber, Driven
4	Ea	Test Pile, Treated Timber
260	Ft	Curb, Sloped, HMA
300	Ft	Guardrail, Type MGS-8
12.5	Ft	Guardrail, Curved, Type B
4	Ea	Guardrail Anch, Bridge, Det T3
3	Ea	Guardrail Approach Terminal, Type 2M
1	Ea	Guardrail Departing Terminal, Type B
16	Ea	Guardrail Reflector
16	Ft	Post, Steel, 3 pound
16	Sft	Sign, Type IIIB
850	Ft	Pavt Mrkg, Waterborne, 4 inch, White
850	Ft	Pavt Mrkg, Waterborne, 4 inch, Yellow
11	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Furn
11	Ea	Barricade, Type III, High Intensity, Double Sided, Lighted, Oper
1	LSUM	Minor Traf Devices
332	Sft	Sign, Type B, Temp, Prismatic, Furn
332	Sft	Sign, Type B, Temp, Prismatic, Oper
52	Sft	Sign, Type B, Temp, Prismatic, Spec, Furn
52	Sft	Sign, Type B, Temp, Prismatic, Spec, Oper
450	Syd	Riprap, Fieldstone
125	Ton	Instream Material, Near Structures
150	Ton	Instream Material, Boulders
25	Syd	Paved Ditch, HMA
700	Syd	Slope Restoration, Non-Freeway, Type B
1	Ea	Hydrant, Rem
1	LSUM	Timber Structure, Modified

http://gfa.ic
231.946.5874 (p)
231.946.3703 (f)
gfa
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

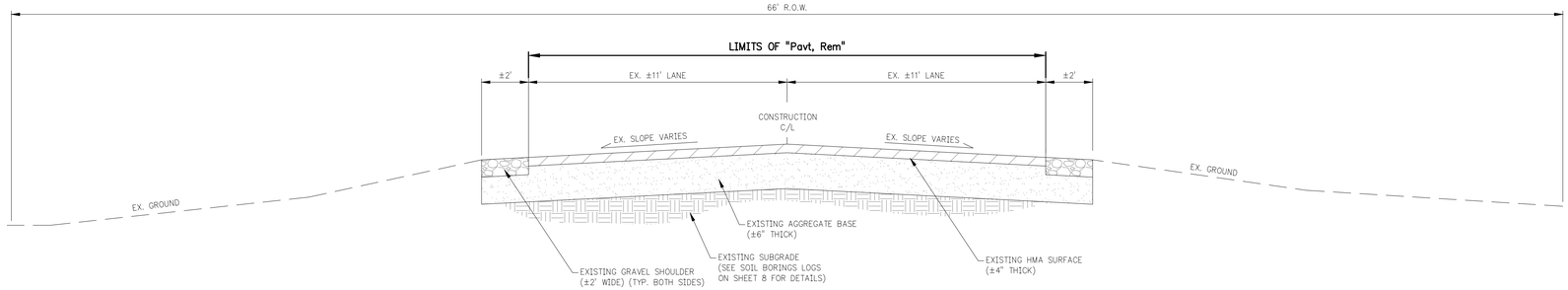
REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS
B	1-6-23	SJG	REVISED PER NRCS COMMENTS
C	7-21-23	JDW	NRCS FINAL REVIEW

These documents are prepared in accordance with the contractual terms and conditions for this project.

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
LEGEND & NOTES
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

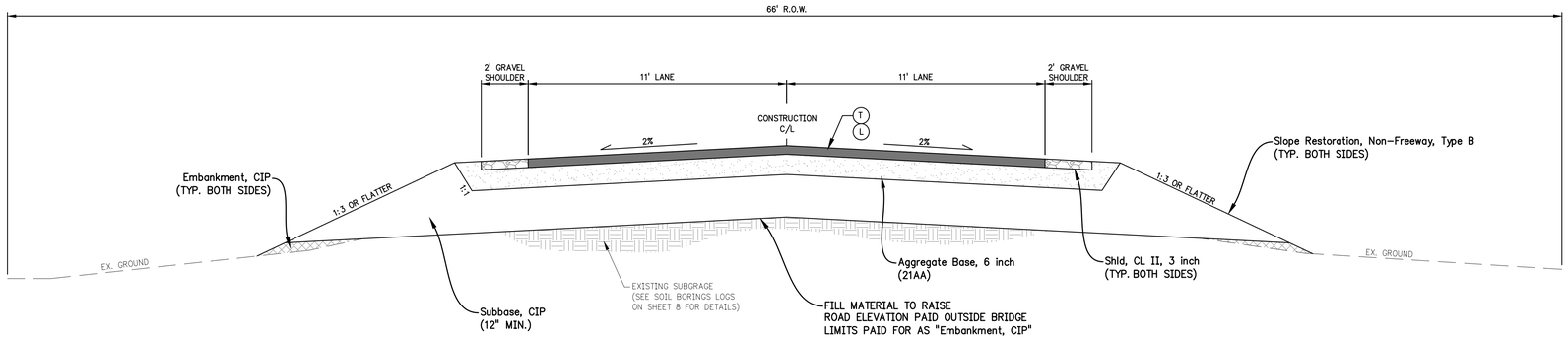
P.M.: JOE WILLIAMS, PE
DR.: SJG | CHD.: JDW
JOB NO.: 22084
SHT 2 OF 10

T:\PROJECTS\22084\DWG\ENG\22084_ES_WYCAMP.DWG 08/14/23 4:02 PM BVANDERHEIDE



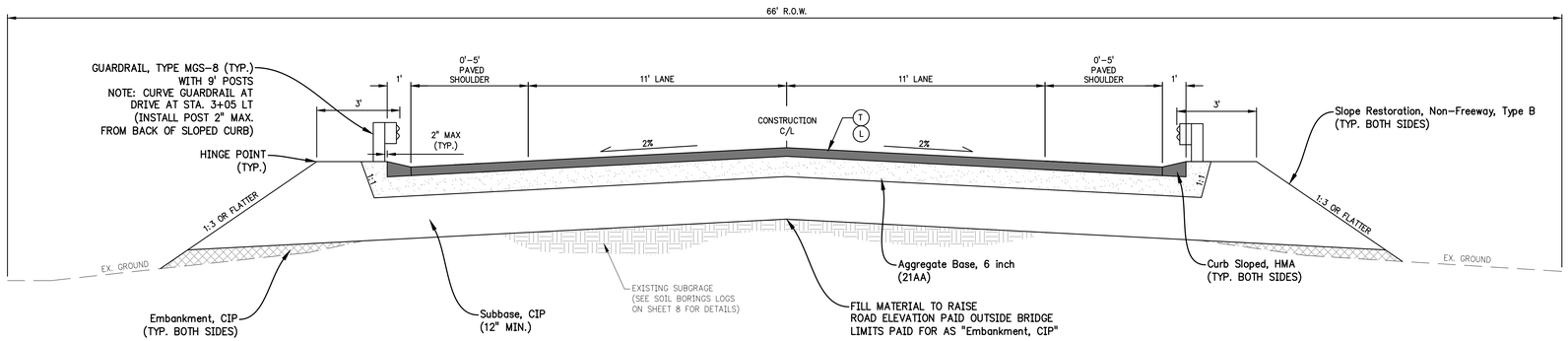
N. LAKE SHORE DRIVE EXISTING TYPICAL CROSS SECTION

TO APPLY: P.O.B. TO P.O.E.
SCALE: 1" = 3'



N. LAKE SHORE DRIVE PROPOSED TYPICAL CROSS SECTION

TO APPLY: P.O.B. TO STA 0+81.43 & STA 2+92.86 TO P.O.E.
SCALE: 1" = 3'



N. LAKE SHORE DRIVE PROPOSED TYPICAL CROSS SECTION

TO APPLY: STA 0+81.43 TO STA 2+92.86
SCALE: 1" = 3'

HMA APPLICATION ESTIMATE					
IDENT.	ITEM	RATE LBS/SYD	PERFORMANCE GRADE	AGGREGATE WEAR INDEX	REMARKS
T	HMA, 4EL	220	58-28	220 MIN	TOP COURSE
L	HMA, 4EL	220	58-28	–	LEVELING COURSE
	*BITUMINUOUS BOND COAT	0.05 TO 0.15 GAL/SYD			

*FOR INFORMATION ONLY

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS
B	1-6-23	SJG	REVISED PER MDOS COMMENTS
C	7-21-23	JDW	MDOS FINAL REVIEW

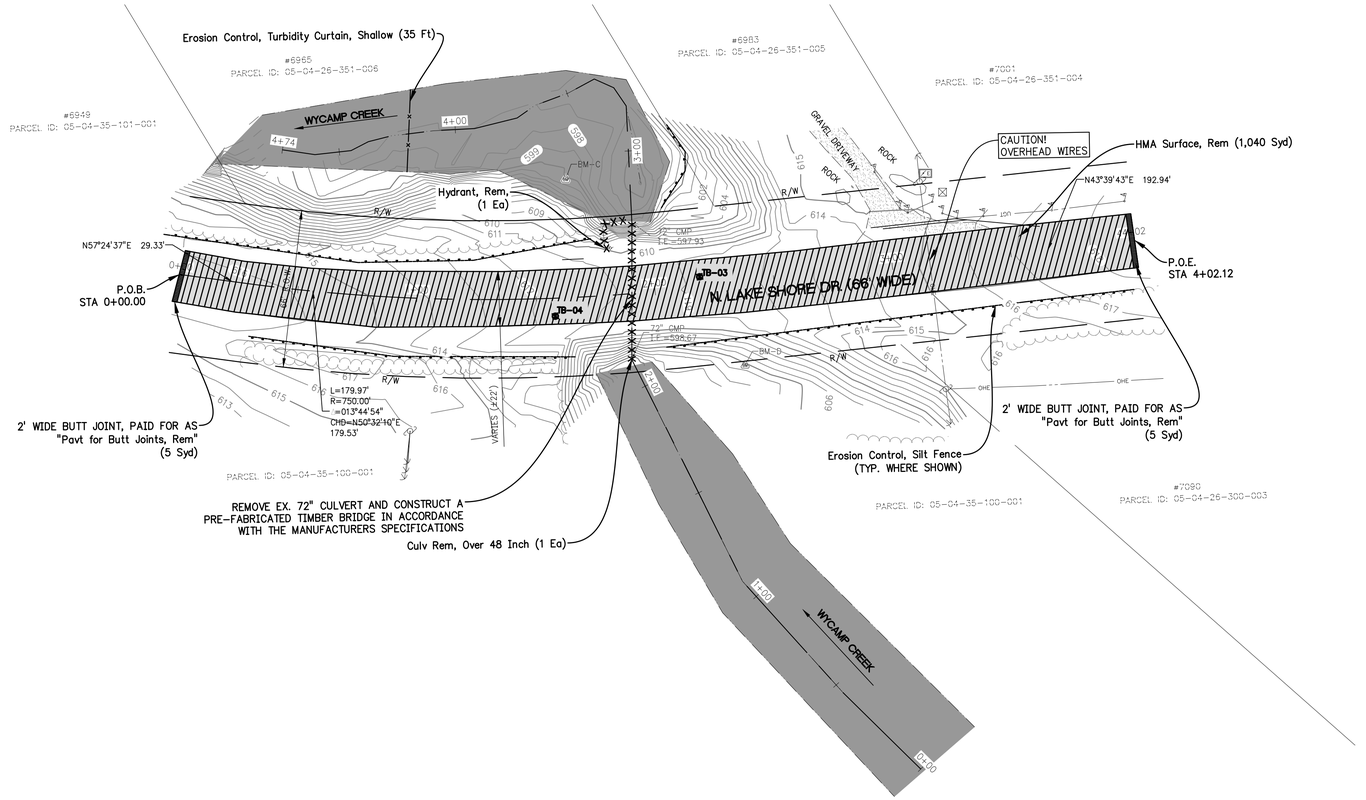
EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
TYPICAL CROSS SECTIONS
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

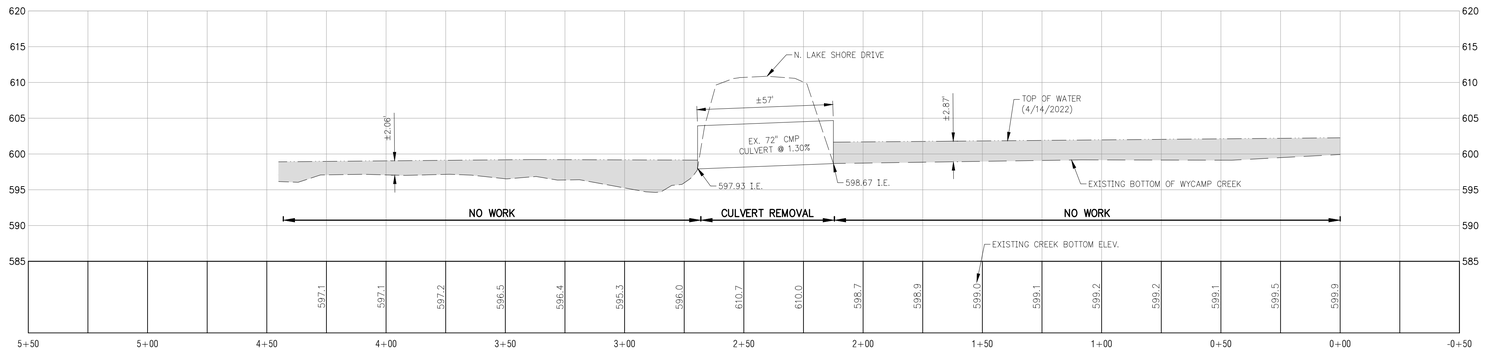
P.M.: JOE WILLIAMS, PE
DR.: SJG CKD.: JDW
JOB NO.: 22084
SHT 3 OF 10

BENCHMARKS

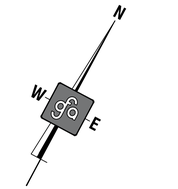
BM–C
BENCH TIE IN N. SIDE OF 10" SPRUCE TREE
ELEV. = 602.28 (NAVD88)

BM–D
BENCH TIE IN S.W. SIDE OF 18" CEDAR TREE
ELEV. = 605.66 (NAVD88)





WYCAMP CREEK EXISTING PROFILE
SCALE:
HORIZONTAL: 1"=30'
VERTICAL: 1"='10



GRAPHIC SCALE: 1 inch = 30 feet
0 15 30 60 90

EXISTING STRUCTURE CROSSING
ONE 72" DIA. CMP CULVERT

PROPOSED STRUCTURE CROSSING
THREE SPAN (18', 26', 18') x 34' (CLR) TIMBER BRIDGE

GENERAL REMOVAL NOTES:
1. THE WORK COVERED BY THESE PLANS INCLUDES THE REMOVAL OF THE EXISTING UNDERSIZED CULVERT, RAIL, ASSOCIATED STRUCTURE, HMA REMOVAL, VERTICAL CURVE IMPROVEMENTS, MAINTAINING TRAFFIC, CONSTRUCTION OF THE PROPOSED TIMBER BRIDGE AND PLACEMENT OF SLOPE PROTECTION/RESTORATION.
2. CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN SUCH A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
3. LAKE SHORE DRIVE TRAFFIC IS TO BE DETOURED OVER OTHER EXISTING ROADS.
4. ALL REMOVED CULVERT MATERIALS AND DEBRIS, UNLESS OTHERWISE NOTED, SHALL BE REMOVED FROM SITE AND ARE THE RESPONSIBILITY OF THE CONTRACTOR.
5. NO DEBRIS SHALL ENTER WYCAMP CREEK DURING THE REMOVAL OF THE EXISTING CULVERT AND ASSOCIATED EXCAVATION.
6. WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXISTING DURING CONSTRUCTION.
7. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
8. CONTRACTOR SHALL SUBMIT SCHEDULE TO ENGINEER FOR REVIEW AND APPROVAL.

Estimated Quantities This Sheet

Pay Item	Quantity	Unit
Clearing	0.5	Acre
Culv, Rem, Over 48 Inch	1	Ea
Erosion Control, Filter Bag	2	Ea
Erosion Control, Maintenance, Sediment Removal	10	Cyd
Erosion Control, Silt Fence	600	Ft
Erosion Control, Turbidity Curtain, Shallow	35	Ft
HMA Surface, Rem	1,040	Syd
Pavt for Butt Joints, Rem	10	Syd
Hydrant, Rem	1	Ea

http://gtacc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR CONSTRUCTION
B	1-6-23	SJG	REVISED PER NRCS COMMENTS
C	7-21-23	JDW	NRCS FINAL REVIEW

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
REMOVAL & SESC PLAN
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG CKD.: JDW
JOB NO.: 22084
SHT 4 OF 10

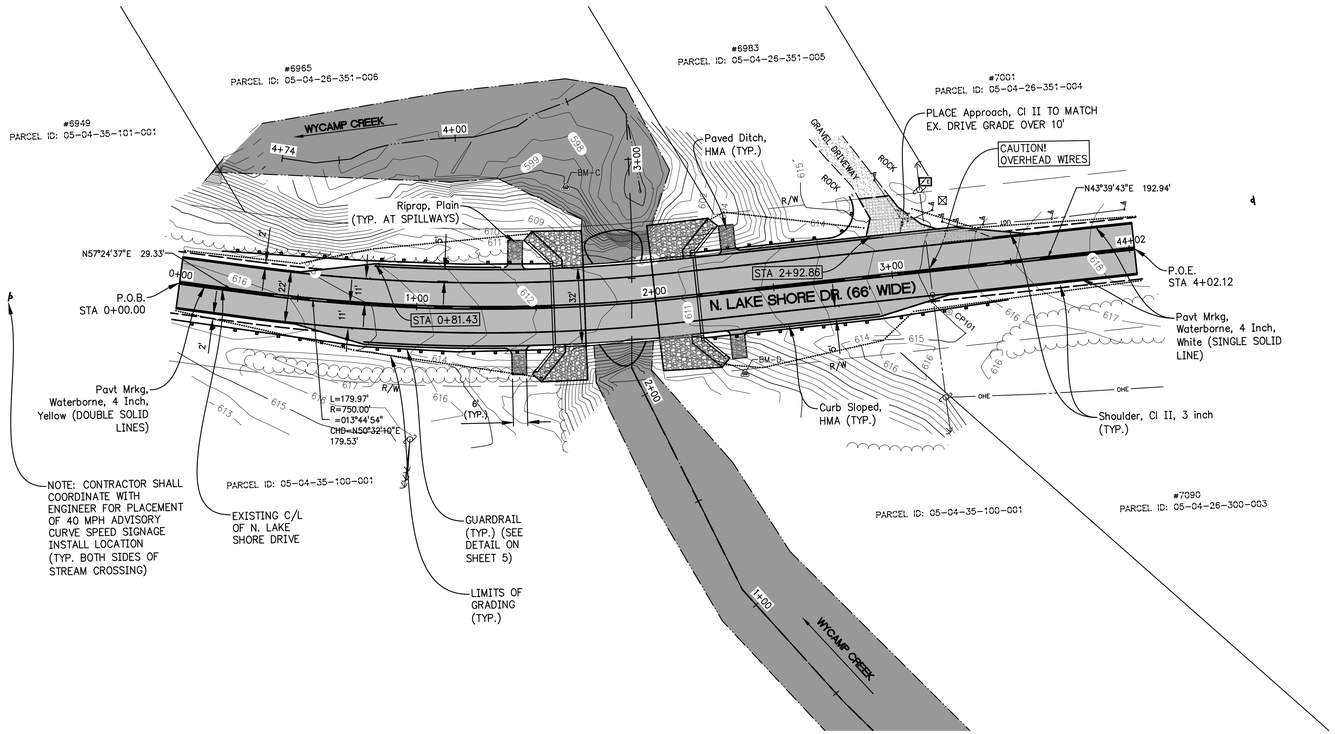
BENCHMARKS

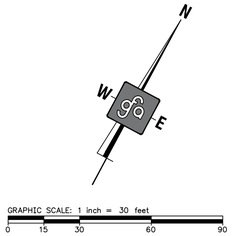
BM–C
BENCH TIE IN N. SIDE OF 10" SPRUCE TREE
ELEV. = 602.28 (NAVD88)

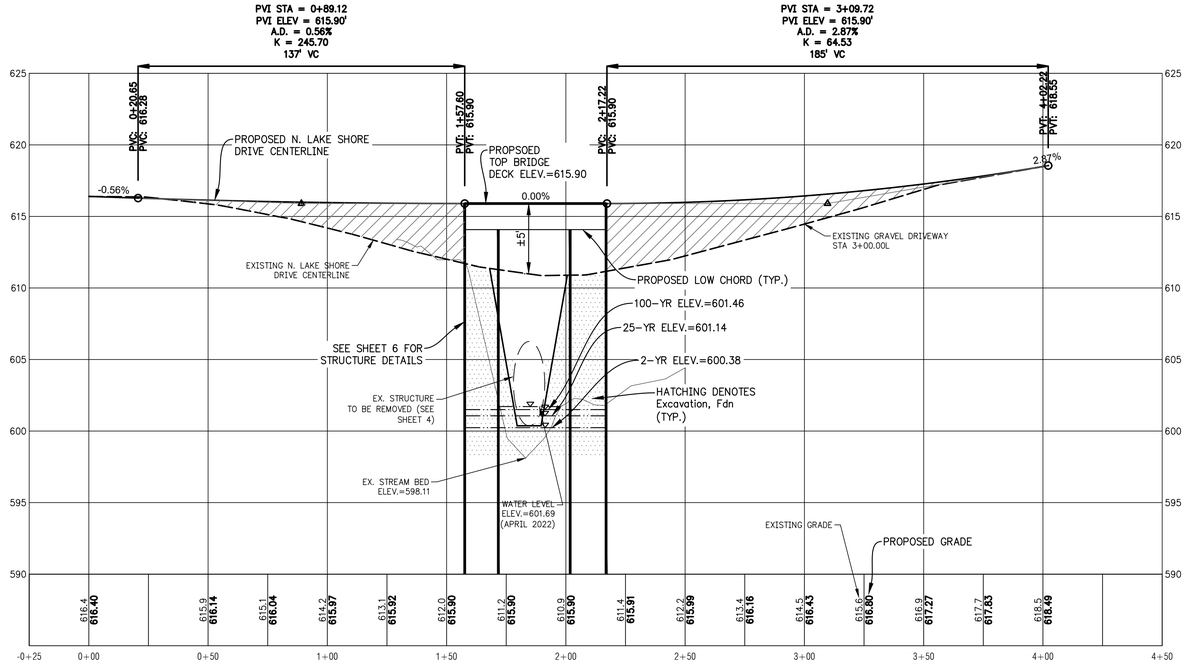
BM–D
BENCH TIE IN S.W. SIDE OF 18" CEDAR TREE
ELEV. = 605.66 (NAVD88)

Estimated Quantities This Sheet		
Pay Item	**Quantity**	**Unit**
Embankment, CIP	1000	Cyd
Subbase, CIP	400	Cyd
Aggregate Base, 6 Inch	1400	Syd
Approach, Cl II, 6 inch	50	Syd
Shld, Cl II, 3 Inch	50	25
HMA, 4EL	350	Ton
Curb Sloped, HMA	260	Ft
Paved Ditch, HMA	25	Syd
Post, Steel, 3 pound	16	Ft
Sign, Type IIIB	16	Sft
Pavt Mrkg, Waterborne, 4 Inch, White	850	Ft
Pavt Mrkg, Waterborne, 4 Inch, Yellow	850	Ft
Slope Restoration, Non-Freeway, Type B	700	Syd

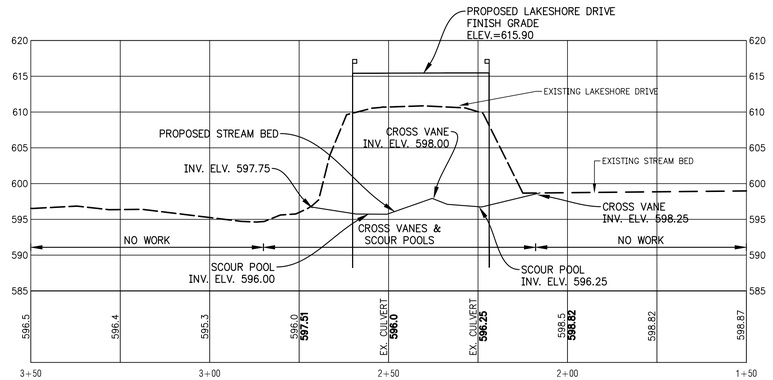
NOTES:
1. TEMPORARY STORED MATERIAL SHALL NOT BE ALLOWED TO ERODE INTO THE WATERCOURSE.
2. THE DESIGN OF THE STRUCTURE IS BASED ON 1.2 TIMES THE CURRENT AASHTO LRFD BRIDGE DESIGN, HL-93 LOADING. THE DESIGN TANDEM PORTION SHALL BE REPLACED BY A SINGLE KIP AXLE LOAD PER APPLICATION OF THE 1.2 FACTOR. THE RESULTING LOAD IS DESIGNATED HL-93 MOD. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED L/425 OF THE SPAN LENGTH.
3. IMMEDIATELY AFTER THE CONSTRUCTION OF AN ABUTMENT IS COMPLETED, TOPSOIL, SEEDING, FERTILIZER, STRAW MULCH BLANKETS AND SLOPE PROTECTION SHALL BE PLACED ON THE ADJACENT EMBANKMENT SLOPES.
4. THE CONTRIBUTING AREA TO THIS CROSSING IS 22.5 SQUARE MILES. THE 50%, 0.5% AND 0.2% CHANCE FLOODS ARE ESTIMATED TO BE 140 CUBIC FEET PER SECOND (CFS), 380 CFS, AND 430 CFS RESPECTIVELY, AS DETERMINED BY THE MICHIGAN EGLE.







N. LAKE SHORE DRIVE PROFILE
SCALE:
HORIZONTAL: 1"=30'
VERTICAL: 1"='10



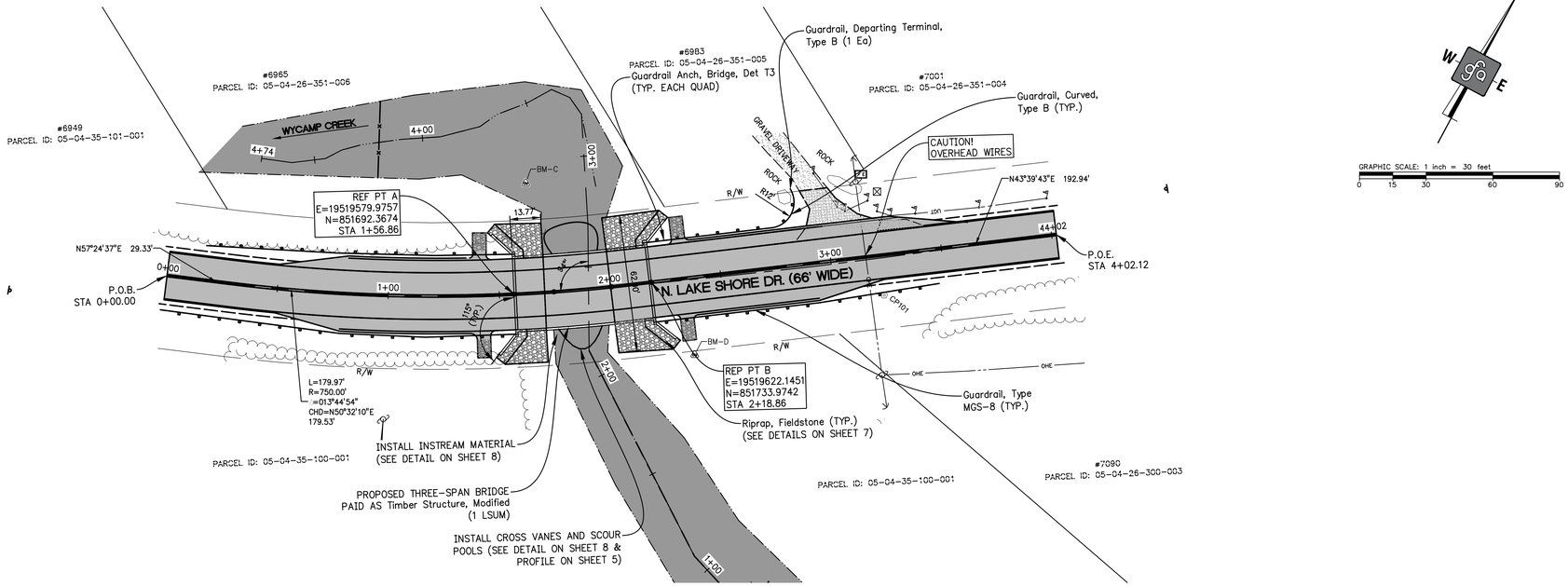
WYCAMP CREEK PROFILE
SCALE:
HORIZONTAL: 1"=20'
VERTICAL: 1"='10

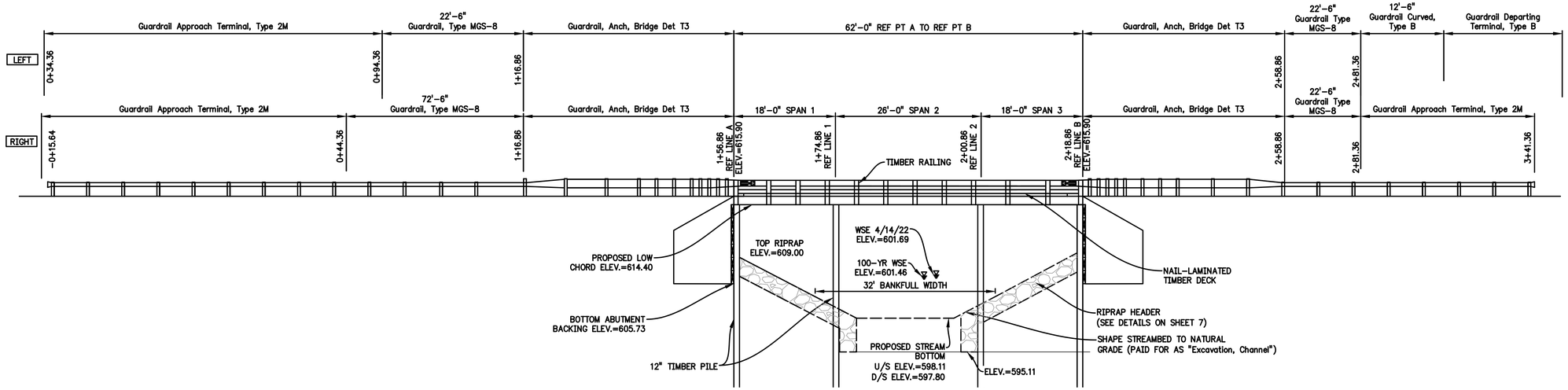
http://gta.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS
B	1-16-23	SJG	REVISED PER MDOS COMMENTS
C	7-21-23	JDW	MDOS FINAL REVIEW

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
GENERAL PLAN OF SITE
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
CK: SJG | CAD: JDW
JOB NO.: 22084
SHT 5 OF 10





ELEVATION
SCALE: 1"=10'

NOTES:
1. THE CONTRACTOR MUST PROPERTY CONTAIN THE EXISTING STRUCTURE DURING REMOVAL AND PROPOSED ABUTMENTS DURING CONSTRUCTION. PAYMENT WILL BE INCLUDED IN THE ITEM "Timber Structure, Modified".
2. THE DESIGN OF THIS STRUCTURE IS BASED ON 1.2 TIMES THE CURRENT AASHTO LRFD BRIDGE DESIGN, HL-93 LOADING. THE DESIGN TANDEM PORTION SHALL BE REPLACED BY A SINGLE 60 KIP AXLE BEFORE APPLICATION OF THE 1.2 FACTOR. THE RESULTING LOAD IS DESIGNED HL-93 MOD. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED L/425 OF THE SPAN LENGTH.
3. "Culv, Rem, Over 48 inch" SHALL INCLUDE THE REMOVAL OF THE EXISTING STRUCTURE, END TREATMENT(S), SURROUNDING STRUCTURE AND ANY EXCAVATION OR BACKFILL REQUIRED TO SHAPE THE STREAM BOTTOM TO A NATURAL CONDITION NOT ALREADY INCLUDED IN "Excavation, Channel".
4. PILE LAYOUT SHOWN IS APPROXIMATE. THE FABRICATOR SHALL DESIGN THE FOUNDATION PILING AND SHOW LAYOUT IN THE SHOP DRAWINGS, INCLUDED IN PAY ITEM "Timber Structure, Modified".
5. BURY A MINIMUM OF TWO BACKING PLANK AS SHOWN.
6. GEOTEXTILE LINER SHALL BE PLACED ON ALL SLOPES PRIOR TO PLACING RIPRAP. PAYMENT FOR GEOTEXTILE LINER SHALL BE INCLUDED IN PAYMENT FOR RIPRAP.
7. THE RIPRAP QUANTITY IS BASED ON THE LATERAL DIMENSIONS OF THE AREA TO BE PROTECTED, REGARDLESS OF THE NUMBER OF LAYERS REQUIRED.
8. RIPRAP SHALL BE NATURAL FIELD STONE.

Estimated Quantities This Sheet

Pay Item	Quantity	Unit
Excavation, Channel	1000	Cyd
Backfill, Structure, CIP	600	Cyd
Excavation, Fdn	600	Cyd
Pile Driving Equipment, Furn	1	LS
Pile, Treated Timber, Furn	1500	FT
Pile, Treated Timber, Driven	1500	Ft
Test Pile, Treated Timber	4	Ea
Guardrail, Type MGS-8	300	Ft
Guardrail, Curved, Type B	12.5	Ft
Guardrail Anch, Bridge, Det T3	4	Ea
Guardrail Approach Terminal, Type 2M	3	Ea
Guardrail Departing Terminal, Type B	1	Ea
Guardrail Reflector	15	Ea
Riprap, Fieldstone	450	Syd
Timber Structure, Modified	1	LS
Instream Material, Near Structures	125	Ton
Instream Material, Boulders	150	Ton

SUMMARY OF HYDRAULIC ANALYSIS

EXISTING				PROPOSED			
FLOOD DATA	DISCHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (FT)	VELOCITY IN D/S CHANNEL (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (CFS)	VELOCITY IN D/S CHANNEL (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN W/S ELEV. 10 FT U/S OF PROPOSED STRCUTURE (FT)
2-YEAR	140	603.70	11.79	600.36	4.72	29.69	-3.38
25-YEAR	280	606.41	9.55	601.14	5.08	55.30	-5.27
50-YEAR	310	607.16	9.98	601.28	5.18	60.31	-5.88
100-YEAR	350	608.42	10.39	601.46	5.30	66.84	-6.96

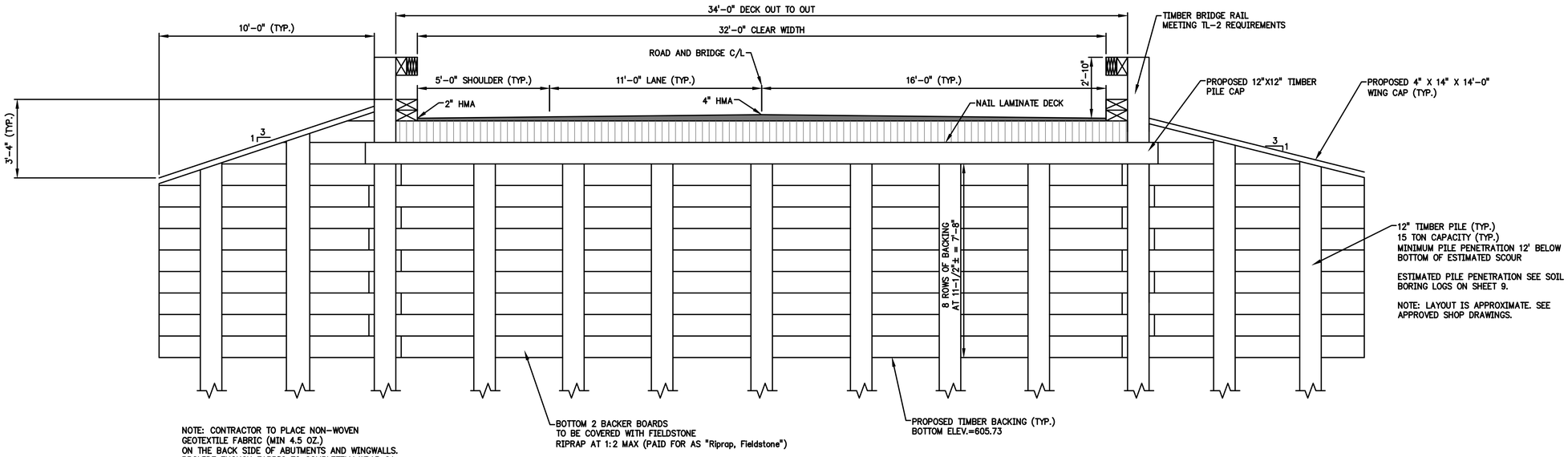
NOTES:
1. THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 22.5 SQUARE MILES.
2. THE WATER SURFACE AND/OR ENERGY GRADE LINE SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN.

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS
B	1-6-23	SJG	REVISED PER MCS COMMENTS
C	7-21-23	JDW	MCS FINAL REVIEW

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
GENERAL PLAN OF STRUCTURE
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG CKD.: JDW
JOB NO.: 22084
SHT 6 OF 10



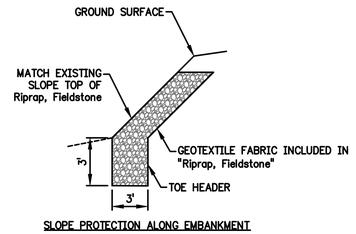
NOTE: CONTRACTOR TO PLACE NON-WOVEN GEOTEXTILE FABRIC (MIN 4.5 OZ.) ON THE BACK SIDE OF ABUTMENTS AND WINGWALLS. PROVIDE ENOUGH FABRIC TO COMPLETELY WRAP 6A STONE ALONG BOTTOM OF TIMBER BACKING. OVERLAP EDGE A MIN. OF 6". GEOTEXTILE FABRIC SHALL BE INCLUDED IN PAY ITEM "Timber Structure, Modified".

SECTION
NOT TO SCALE

TOP OF RIPRAP MUST BE AT OR BELOW EXISTING STREAMBED/SLOPE ELEVATION.

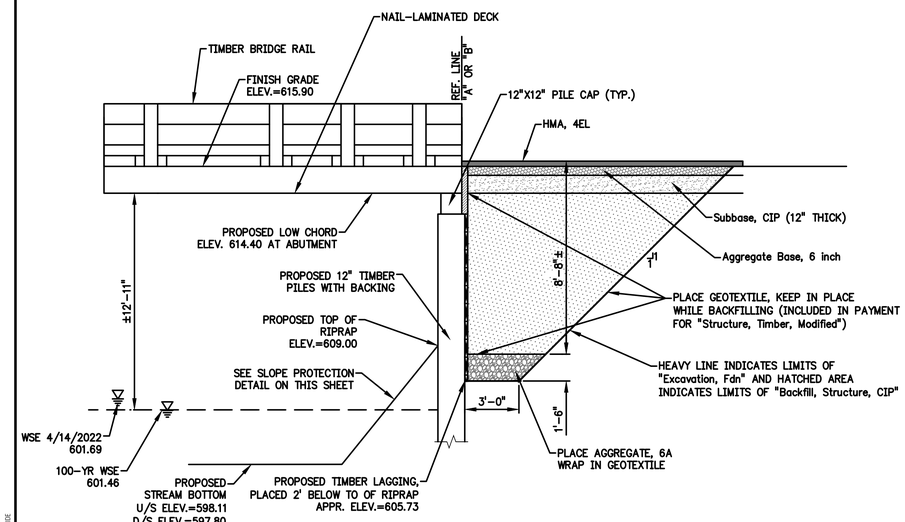
THE RIPRAP SCHEME SHOWN IS A MINIMUM REQUIREMENT FOR SCOUR.

HEAVY GEOTEXTILE LINER SHALL BE NON WOVEN AND MEET THE REQUIREMENTS LISTED IN TABLE 910-1 OF THE CURRENT MDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.

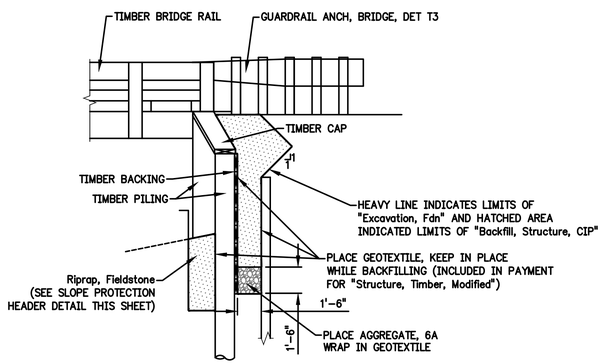


SLOPE PROTECTION ALONG EMBANKMENT

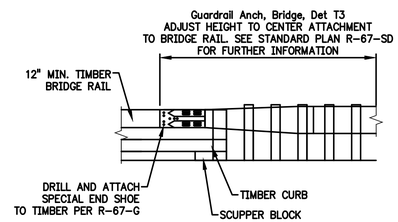
SLOPE PROTECTION HEADER DETAILS
NOT TO SCALE



SECTION
NOT TO SCALE



SECTION A-A WINGWALL
NOT TO SCALE



GUARDRAIL ATTACHMENT
NOT TO SCALE

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

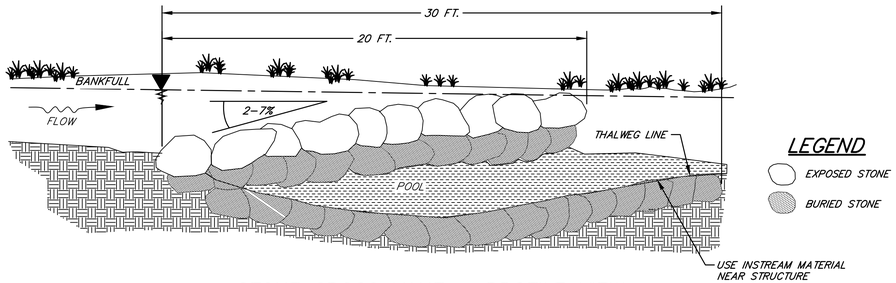
REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS
B	1-6-23	SJG	REVISED PER MDCS COMMENTS
C	7-21-23	JDW	MDCS FINAL REVIEW

EMMET COUNTY ROAD COMMISSION

N. LAKE SHORE DRIVE OVER WYCAMP CREEK

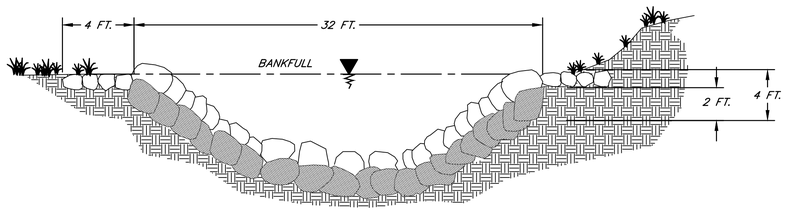
GENERAL PLAN OF STRUCTURE
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
CK'D: SJG | CK'D: JDW
JOB NO.: 22084
SHT 7 OF 10



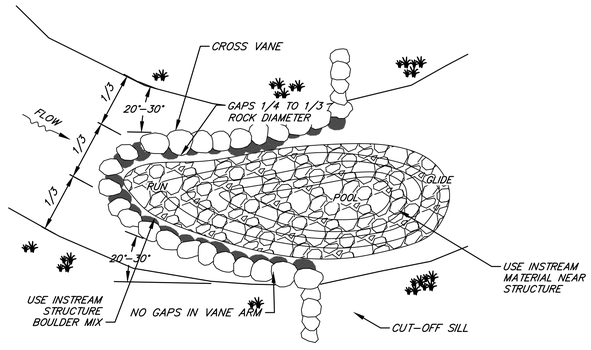
STONE CROSS VANE – PROFILE VIEW

TO APPLY: STA 2+40 TO 2+70 & 2+10 TO 2+40
NOT TO SCALE



STONE CROSS VANE – CROSS SECTION

NOT TO SCALE



STONE CROSS VANE – PLAN VIEW

NOT TO SCALE

INSTREAM STRUCTURE BOULDER GRADATION	
PERCENT GRADATION SMALLER THAN	PARTICLE DIAMETER (INCHES)
D100	24.0
D85	19.0
D50	16.0
D30	13.0
D10	6.0

INSTREAM MATERIAL NEAR STRUCTURE	
PERCENT GRADATION SMALLER THAN	PARTICLE DIAMETER (INCHES)
D100	13.0
D85	10.5
D50	9.0
D30	7.5
D10	3.5

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)

ENGINEERING
SURVEYING
TESTING & OPERATIONS

123 West Front Street
Traverse City, MI 49684

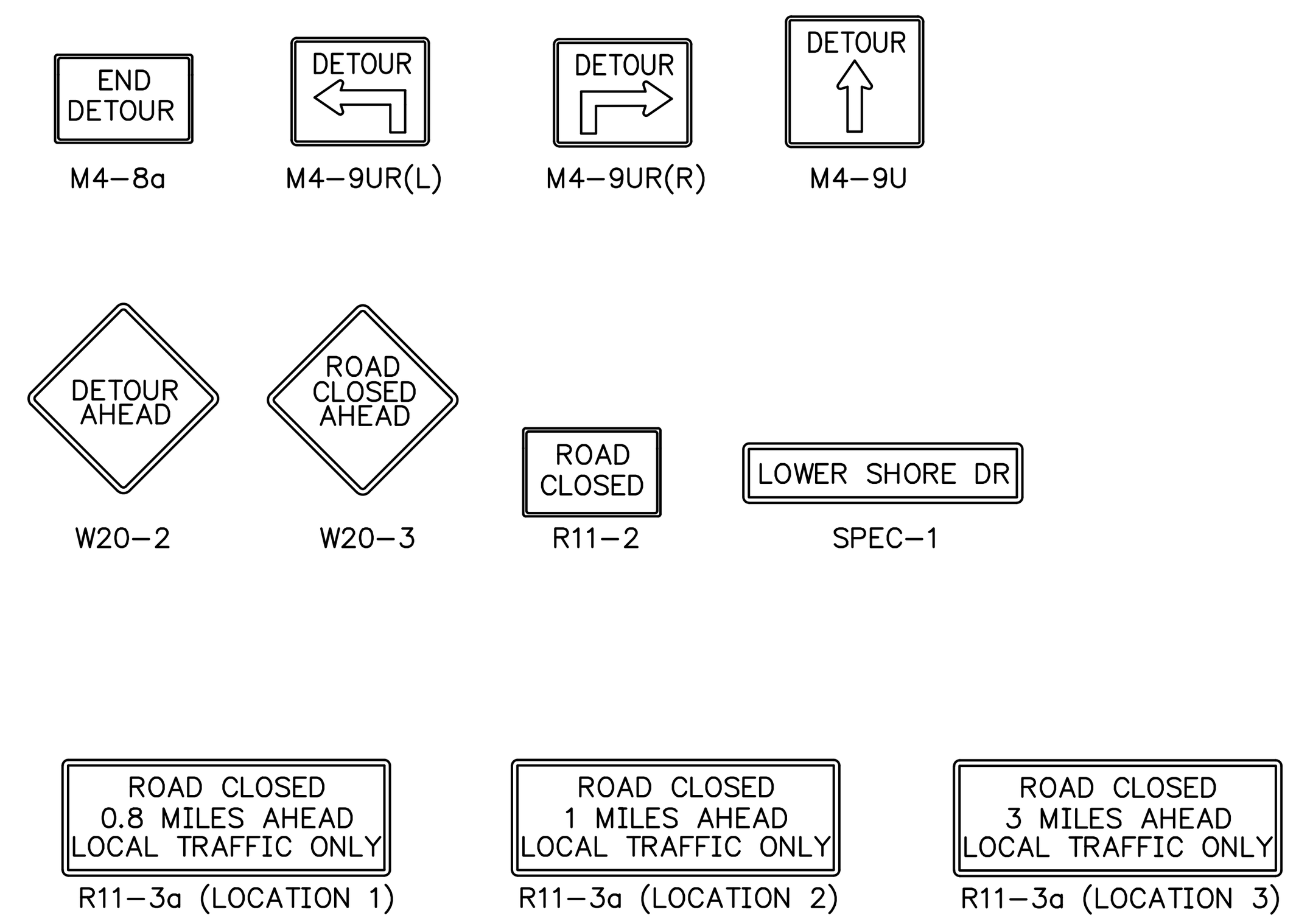
REV #	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS
B	1-6-23	SJG	REVISED PER MDOS COMMENTS

EMMET COUNTY ROAD COMMISSION

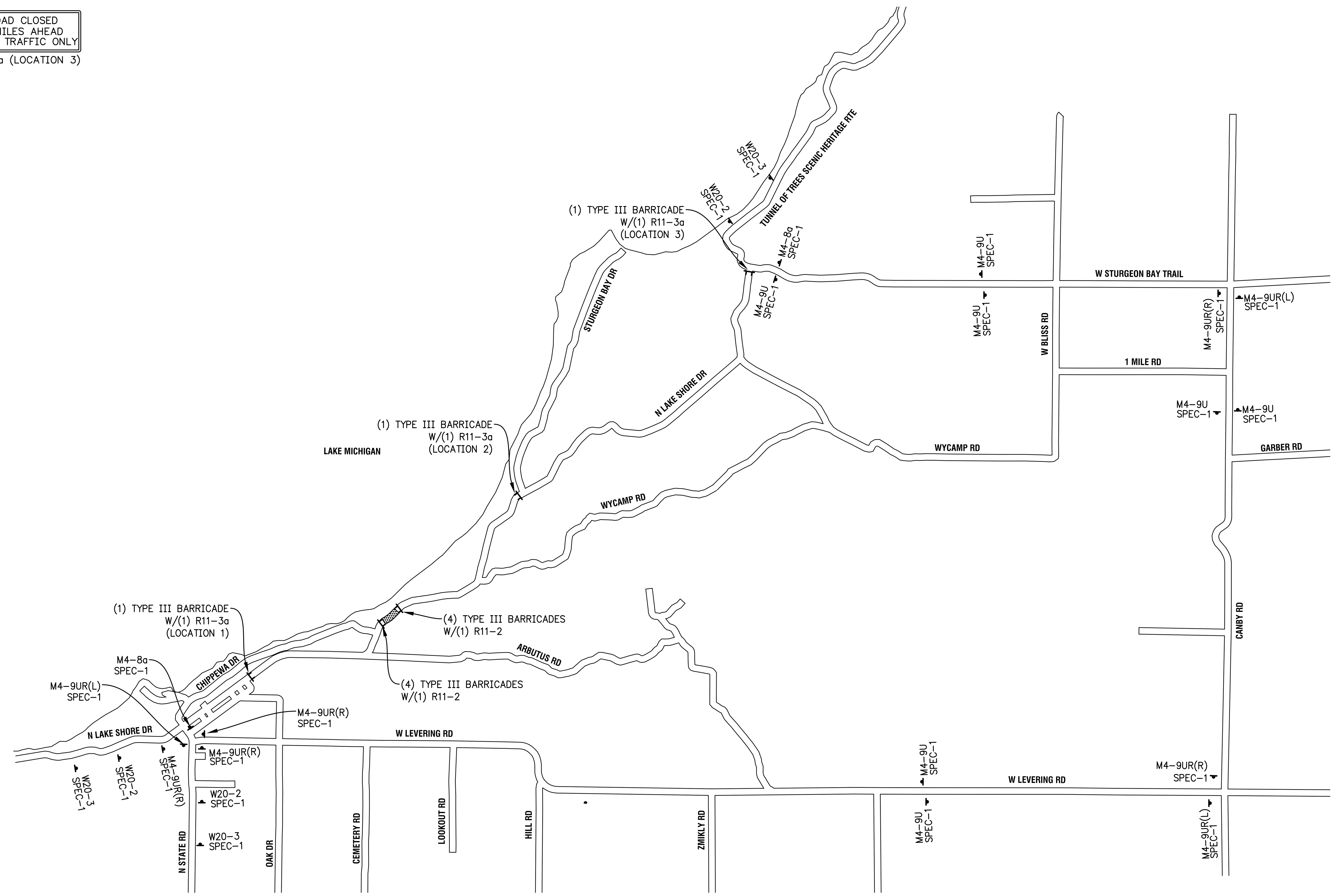
N. LAKE SHORE DRIVE OVER WYCAMP CREEK

STREAM RESTORATION DETAILS
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG
CKD.: JDW
JOB NO.: 22084
SHT 8 OF 10



N
W
E
GRAPHIC SCALE: 1 inch = 2000 feet
0 1000 2000 4000 6000



LEGEND

▲	TEMPORARY SIGN
⊥	TYPE III BARRICADE
▒	WORK ZONE

TEMPORARY SIGN DETAILS			
MMTUCD #	DESCRIPTION	SIZE	SFT/SIGN
W20-2	ROAD WORK AHEAD	48" X 48"	16
W20-3	DETOUR AHEAD	48" X 48"	16
SPEC-1	ROAD NAME	9" X 36"	2.25
R11-2	ROAD CLOSED	30" X 48"	30
R11-3a	ROAD CLOSED AHEAD	30" X 60"	30
M4-8a	END DETOUR	18" X 24"	3
M4-9	DETOUR	24" X 30"	5
M4-9UR(L)	DETOUR LEFT TURN	30" X 30"	6.25
M4-9UR(R)	DETOUR RIGHT TURN	30" X 30"	6.25

NOTES:
1. CONTRACTOR SHALL MAINTAIN ACCESS AT ALL TIMES FOR LOCAL TRAFFIC TO PROPERTIES AND DRIVEWAYS LOCATED WITHIN THE CONSTRUCTION INFLUENCE AREA UTILIZING "Maintenance Gravel", AS DIRECTED BY THE ENGINEER.
2. TEMPORARY SIGNS SHALL BE PAID FOR AS "Sign, Type B, Temp, Prismatic..." AND "Sign, Type B, Temp, Prismatic, Spec...". BARRICADES SHALL BE PAID FOR AS "Barricade, Type III, High Intensity, Double Sided, Lighted...".

Estimated Quantities This Sheet		
Pay Item	Quantity	Unit
Maintenace Gravel	5	Ton
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	11	Ea
Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	11	Ea
Minor Traf Devices	1	LS
Sign, Type B, Temp, Prismatic, Furn	332	Sft
Sign, Type B, Temp, Prismatic, Oper	332	Sft
Sign, Type B, Temp, Prismatic, Special, Furn	52	Sft
Sign, Type B, Temp, Prismatic, Special, Oper	52	Sft
Traf Regulator Control	1	LS

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS
B	1-6-23	SJG	REVISED PER NRCS COMMENTS
C	7-21-23	JDW	NRCS FINAL REVIEW

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
MAINTENANCE OF TRAFFIC
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG CKD.: JDW
JOB NO.: 22084
SHT 9 OF 10

SOILS & STRUCTURES

Borehole ID: Wycamp TB-03

Sheet 1 of 2

Project Name: Wycamp Creek and 5 Mile Creek Watershed Crossing
Project Number: 2022.0502
Project Location: Cross Village & Harbor Springs, Michigan
Logged By: H.Barton **Reviewed By:** H.Barton
Client: Gourdie-Fraser, Inc.
Survey Datum: NAD 1983 StatePlane Michigan Central **Hole Depth:** 50.00
Date Started: Apr 25 2022 **Completed:** Apr 25 2022
Northing: 851724.6 **Easting:** 19519621.7 **Elevation:** 610.49
Drilling Method: 4.25" Hollow Stem Auger
Ground Water Levels
Equipment: Acker Renegade — At Time of Drilling: 14.75 on Apr 25 2022 - Groundwater Encountered
Hammer Type: Automatic Hammer — End of Drilling: 12.00 on Apr 25 2022 - Static Water Level
Notes:

Depth	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Plastic Limit	Plasticity Index	USCS
1	ASPHALT - (4.0")												
1-2	GRAVEL - dark brown fine to coarse sandy with silt (6.0")	SPT	SPT-A	67	1-2-5	7			3.7				SP-SM
2-3	SAND - slightly compact dark brown to brown fine to coarse gravelly with silt												
3-5	SAND - slightly compact brown fine to medium clayey with lenses of gravel	SPT	SPT-B	87	3-2-2	4			12.0				SM
5-6	SAND - loose brown fine to medium with a seam of marl and a trace of gravel												
6-8	SAND - slightly compact to compact light brown fine to medium with a trace of silt	SPT	SPT-C	47	3-3-2	5							SP
8-10	SAND - slightly compact to compact dark brown to light brown fine to medium with a seam of peat and trace of cobbles	SPT	SPT-D	47	3-4-4	8							SP
10-14		SPT	SPT-E	87	2-2-3	5			17.4				SP
14-15	SAND - slightly compact light brown fine silty												
15-19	CLAY - soft light brown with sand and a trace of silt	SPT	SPT-F	150	0-1-1/0"	2			16.0				CL
19-24	SAND - very compact light brown fine silty with lenses of clay	SPT	SPT-G	67	4-2-22	24			11.3				SM
24-29	SAND - very compact light brown fine to medium with lenses of cobbles and a trace of silt	SPT	SPT-H	100	1-20-18	38							SP
29-30													

Ann Arbor • Muskegon • Traverse City
(800) 933-3959

SOILS & STRUCTURES

Borehole ID: Wycamp TB-03

Sheet 2 of 2

Project Name: Wycamp Creek and 5 Mile Creek Watershed Crossing
Project Number: 2022.0502
Project Location: Cross Village & Harbor Springs, Michigan
Logged By: H.Barton **Reviewed By:** H.Barton
Client: Gourdie-Fraser, Inc.
Survey Datum: NAD 1983 StatePlane Michigan Central **Hole Depth:** 50.00
Date Started: Apr 25 2022 **Completed:** Apr 25 2022
Northing: 851724.6 **Easting:** 19519621.7 **Elevation:** 610.49
Drilling Method: 4.25" Hollow Stem Auger
Ground Water Levels
Equipment: Acker Renegade — At Time of Drilling: 14.75 on Apr 25 2022 - Groundwater Encountered
Hammer Type: Automatic Hammer — End of Drilling: 12.00 on Apr 25 2022 - Static Water Level
Notes:

Depth	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Plastic Limit	Plasticity Index	USCS
31-34	SAND - very compact light brown fine to medium with lenses of cobbles and a trace of silt	SPT	SPT-I	67	4-8-18	26			13.0				SP
34-39	SAND - extremely compact light brown fine to medium with lenses of cobbles and a trace of silt	SPT	SPT-J	47	18-38-26	64							SP
39-44	SAND - extremely compact light brown fine to medium with a trace of silt	SPT	SPT-K	53	10-34-36	70							SP
44-49		SPT	SPT-L	100	8-30-34	64			14.5				SP
49-60													

Ann Arbor • Muskegon • Traverse City
(800) 933-3959

SOILS & STRUCTURES

Borehole ID: Wycamp TB-04

Sheet 2 of 2

Project Name: Wycamp Creek and 5 Mile Creek Watershed Crossing
Project Number: 2022.0502
Project Location: Cross Village & Harbor Springs, Michigan
Logged By: H.Barton **Reviewed By:** H.Barton
Client: Gourdie-Fraser, Inc.
Survey Datum: NAD 1983 StatePlane Michigan Central **Hole Depth:** 55.00
Date Started: Apr 25 2022 **Completed:** Apr 25 2022
Northing: 851700.1 **Easting:** 19519584.8 **Elevation:** 616.48
Drilling Method: 4.25" Hollow Stem Auger
Ground Water Levels
Equipment: Acker Renegade — At Time of Drilling: 12.00 on Apr 25 2022 - Groundwater Encountered
Hammer Type: Automatic Hammer — End of Drilling: 12.00 on Apr 25 2022 - Static Water Level
Notes:

Depth	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Plastic Limit	Plasticity Index	USCS
31-34	SAND - very compact light brown fine to medium with lenses of gravel and a trace of silt	SPT	SPT-I	73	13-24-30	54			19.8				SP
34-44	SAND - extremely compact to very compact light brown fine to medium with lenses of silt	SPT	SPT-J	87	8-20-28	48			17.7				SP
		SPT	SPT-K	53	6-19-19	38							SP
49-54		SPT	SPT-L	67	5-9-10	19							SP
54-60	SAND - compact to very compact light brown fine to medium	SPT	SPT-M	100	3-8-21	29			14.3				SP

Ann Arbor • Muskegon • Traverse City
(800) 933-3959

SOILS & STRUCTURES

Borehole ID: Wycamp TB-04

Sheet 1 of 2

Project Name: Wycamp Creek and 5 Mile Creek Watershed Crossing
Project Number: 2022.0502
Project Location: Cross Village & Harbor Springs, Michigan
Logged By: H.Barton **Reviewed By:** H.Barton
Client: Gourdie-Fraser, Inc.
Survey Datum: NAD 1983 StatePlane Michigan Central **Hole Depth:** 55.00
Date Started: Apr 25 2022 **Completed:** Apr 25 2022
Northing: 851700.1 **Easting:** 19519584.8 **Elevation:** 616.48
Drilling Method: 4.25" Hollow Stem Auger
Ground Water Levels
Equipment: Acker Renegade — At Time of Drilling: 12.00 on Apr 25 2022 - Groundwater Encountered
Hammer Type: Automatic Hammer — End of Drilling: 12.00 on Apr 25 2022 - Static Water Level
Notes:

Depth	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Plastic Limit	Plasticity Index	USCS
1	ASPHALT - (4.0")												
1-2	GRAVEL - dark brown fine to coarse sandy with silt (6.0")	SPT	SPT-A	53	5-4-3	7			3.7				SP
2-4	SAND - slightly compact to loose dark brown to brown fine to medium with a trace of silt	SPT	SPT-B	80	1-2-2	4							SP
4-6	SAND - loose to slightly compact light brown fine to coarse	SPT	SPT-C	53	2-1-1	2			4.7				SP
6-9													
9-12	SAND - slightly compact to compact light brown fine to medium with silt and lenses of gravel	SPT	SPT-D	67	4-3-3	6			8.6				SP
12-15		SPT	SPT-E	67	6-5-6	11							SP-SM
15-19													
19-24	CLAY - soft light brown sandy	SPT	SPT-F	100	3-1-1	2			20.3				CL
24-29	SAND - compact light brown fine to medium with a trace of silt	SPT	SPT-G	47	4-5-3	8							SP
29-30	SAND - very compact light brown fine to medium with lenses of gravel and a trace of silt	SPT	SPT-H	53	3-9-12	21							SP

Ann Arbor • Muskegon • Traverse City
(800) 933-3959

ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684
http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS
C	7-21-23	JDW	NRCS FINAL REVIEW

EMMET COUNTY ROAD COMMISSION

N. LAKE SHORE DRIVE OVER WYCAMP CREEK

CONSTRUCTION DETAILS
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG CKD.: JDW
JOB NO.: 22084
SHT 10 OF 10

NOTICE OF AUTHORIZATION

Permit Number: WRP035386 v. 1
Site Name: 24 - Lakeshore Drive at Wycamp Creek

Date Issued: October 13, 2022
Expiration Date: October 13, 2027

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; specifically:

- ☒ Part 31, Floodplain Regulatory Authority of the Water Resources Protection.
- ☒ Part 301, Inland Lakes and Streams.
- ☐ Part 303, Wetlands Protection.
- ☐ Part 315, Dam Safety.
- ☐ Part 323, Shorelands Protection and Management.
- ☐ Part 325, Great Lakes Submerged Lands.
- ☐ Part 353, Sand Dunes Protection and Management.

Authorized activity:

Remove the existing 57-foot long by 6-foot span by 6-foot rise corrugated metal pipe culvert and construct a 34-foot long by 62-foot span by 16-foot rise timber bridge (three span). Install 28-cubic yards of material for instream riffle construction, install 20-cubic yards of material for cross vane construction, install 22-cubic yards of riprap along abutments

To be conducted at property located in: Emmet County, Waterbody: Wycamp Creek
Section 35, Town 38N, Range 06W, Cross Village Township

Permittee:
Brent Shank
Emmet County Road Commission
2265 East Hathaway Road
Harbor Springs, Michigan 49740

Luke F Golden

Luke Golden
Cadillac District Office
Water Resources Division
989-370-1569

This notice must be displayed at the site of work.
Laminating this notice or utilizing sheet protectors is recommended.
Please refer to the above permit number with any questions or concerns.

MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY
WATER RESOURCES DIVISION PERMIT

Issued To:

Brent Shank,
Emmet County Road Commission
2265 East Hathaway Road
Harbor Springs, Michigan 49740

Permit No: **WRP035386 v.1**
Submission No.: **HPM-GXFY-3AAAJ**
Site Name: **24 - Lakeshore Drive at Wycamp Creek**
Issued: **October 13, 2022**
Revised:
Expires: **October 13, 2027**

This permit is being issued by the Michigan Department of Environment, Great Lakes, and Energy (EGLE), Water Resources Division (WRD), under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:

- ☒ Part 301, Inland Lakes and Streams
- ☐ Part 303, Wetlands Protection
- ☐ Part 315, Dam Safety
- ☒ Part 31, Water Resources Protection (Floodplain Regulatory Authority)
- ☐ Part 323, Shorelands Protection and Management
- ☐ Part 325, Great Lakes Submerged Lands
- ☐ Part 353, Sand Dunes Protection and Management

EGLE certifies that the activities authorized under this permit are in compliance with the State Coastal Zone Management Program and certifies without conditions under the Federal Clean Water Act, Section 401 that the discharge from the activities authorized under this permit will comply with Michigan's water quality requirements in Part 31, Water Resources Protection, of the NREPA and associated administrative rules, where applicable.

Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:

Authorized Activity:

Remove the existing 57-foot long by 6-foot span by 6-foot rise corrugated metal pipe culvert and construct a 34-foot long by 62-foot span by 16-foot rise timber bridge (three span). Install 28-cubic yards of material for instream riffle construction, install 20-cubic yards of material for cross vane construction, install 22-cubic yards of riprap along abutments.

Waterbody Affected: Wycamp Creek
Property Location: Emmet County, Cross Village Township, Town/Range/Section 38N06W35,
Property Tax No.

Authority granted by this permit is subject to the following limitations:

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.

B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.

C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.

D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.

E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.

F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.

G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.

H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.

I. Permittee shall notify EGLE within one week after the completion of the activity authorized by this permit.

J. This permit shall not be assigned or transferred without the written approval of EGLE.

K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.

L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).

M. In issuing this permit, EGLE has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, EGLE may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.

N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.

O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, EGLE may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.

P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from EGLE. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by EGLE prior to being implemented.

Q. This permit may be transferred to another person upon written approval of EGLE. The permittee must submit a written request to EGLE to transfer the permit to the new owner. The new owner must also submit a written request to EGLE to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all the above information may be provided to EGLE. EGLE will review the request and, if approved, will provide written notification to the new owner.

R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.

S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.

T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).

U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.

V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.

W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.

X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.

Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. All work shall be completed in accordance with plans attached; kept on file at EGLE's, WRD, Transportation Review Unit.

2. Authority granted by this permit does not waive compliance requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA. Any discharge of sediment into waters of the state and/or off the road right-of-way is a violation of this permit, Part 91, and Part 31, Water Resources Protection, of the NREPA. A violation of these parts subjects the permittee to potential fines and penalties.

3. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.

4. The permittee is responsible for acquiring all necessary easements or rights-of-way before commencing any work authorized by this permit. All construction operations relating to, or part of this project shall be confined to the existing right-of-way limits or other acquired easements.

5. Temporary soil erosion and sedimentation control measures shall be installed before or upon commencement of the earth change and shall be maintained daily. Temporary soil erosion and sedimentation control measures shall be maintained until permanent soil erosion and sedimentation control measures are in place and the area is stabilized. Permanent soil erosion and sedimentation control measures for all slopes, channels, ditches, or any disturbed area shall be installed within five (5) calendar days after final grading, or the final earth change has been completed.

6. All raw areas in uplands resulting from the permitted construction activity shall be effectively stabilized with sod and/or seed and mulch (or other technology specified by this permit or project plans) in a sufficient quantity and manner to prevent erosion and any potential siltation to surface waters or wetlands. Temporary stabilization measures shall be installed before or upon commencement of the permitted activity, and shall be maintained until permanent measures are in place. Permanent measures shall be in place within five (5) days of achieving final grade.

7. All raw earth within 100 feet of a lake, stream, or wetland that is not brought to final stabilization by the end of the active growing season shall be temporarily stabilized with mulch blankets in accordance with the following dates: September 20th for the Upper Peninsula, October 1st for the Lower Peninsula north of US-10, and October 10th for the Lower Peninsula south of US-10.

8. This permit placard shall be kept posted at the work site, in a prominent location at all times for the duration of the project, or until permit expiration.

9. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by EGLE, will be for a five-year period beginning at the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

10. All dredge/excavated spoils including organic and inorganic soils, vegetation, and other material removed shall be placed on upland (non-wetland, non-floodplain or non-bottomland), prepared for stabilization, revegetated and reseeded with native Michigan species appropriate to the site, and mulched in such a manner so as to prevent and ensure against erosion of any material into any waterbody, wetland, or floodplain.

11. During removal or repair of the existing structure, every precaution shall be taken to prevent debris from entering any watercourse. Any debris reaching the watercourse during the removal and/or reconstruction of the structure shall be immediately retrieved from the water. All material shall be disposed of in an acceptable manner consistent with local, state, and federal regulations.

12. Prior to the removal of the existing structures, cofferdams of steel sheet piling, gravel bags, clean stone, coarse aggregate, concrete or other acceptable barriers shall be installed to isolate all construction activity from the water. The barriers shall be maintained in good working order throughout the duration of the project. Upon project completion, the accumulated materials shall be removed and disposed of at an upland site.

13. All cofferdam and temporary steel sheet pile shall then be removed in its entirety, unless specifically shown to be left in plan on the accepted plans. Cofferdam and sheet pile that is left in place shall be cut off at the elevation shown on the plans and shall be a minimum of one foot below the stream bottom.

14. The existing structure shall be kept open to pass the stream flow during removal of the existing road fill.

15. The placement of the new culvert and the initial placement of fill in the stream shall be done immediately after removal of the existing culvert. The placement shall be conducted in such a manner that all flow is immediately passed through the new culverts, allowing the major placement of fill to be done in the dry or in still water where erosion and sedimentation will be minimized. The fill material used in this initial placement shall be washed gravel, coarse aggregate, or rock and shall be placed at both ends of the culvert to a level above normal water level before backfill material is placed.

16. The culvert shall be installed to align with the center line of the existing stream at both the inlet and outlet ends, and must be **recessed into the stream bed** to provide a natural channel substrate throughout the structure, as shown on the approved plans.

17. Road fill side slopes shall not be steeper than 1-on-2 (1 vertical to 2 horizontal) except where headwalls of reinforced concrete, mortar masonry, dry masonry, or other acceptable methods are used.

18. Areas to be protected by riprap shall be cleared of brush and debris. All grades shall be shaped and compacted to the required cross section. Geotextile liner shall be placed on the prepared grades. The riprap installation shall not damage the geotextile liner.

19. Any fill shall consist of clean inert material.

20. Any alterations to the existing road grade elevations other than that shown on the plans will require prior approval from the WRD.

21. Road fill side slopes terminating in the stream and any raw streambanks resulting from the construction shall be stabilized with temporary measures in accordance with appropriate Best Management Practices based on site conditions, and if necessary, may be riprapped extending above the ordinary high water mark, before or upon commencement of the permitted activity. Temporary stabilization measures shall be maintained until permanent measures are in place.

22. All other road fill slopes, ditches, and other raw areas draining directly to the stream may be protected with riprap, sod and/or seed and mulch as may be necessary to provide effective erosion protection. The placement of riprap shall be limited to the minimum necessary to ensure proper stabilization of the side slopes and fill in the immediate vicinity of the structure.

23. All ripraps shall be properly sized and graded based on wave action and velocity, and shall consist of natural field stone or rock (free of paint, soil or other fines, asphalt, soluble chemicals, or organic material). Broken concrete is allowed.

24. If the project, or any portion of the project, is stopped and lies incomplete for any length of time other than that encountered in a normal work week, every precaution shall be taken to protect the incomplete work from erosion, including the placement of temporary gravel bag riprap, temporary seed and mulch, or other acceptable temporary protection.

25. No work shall be done in the stream during periods of above-normal flows except as necessary to prevent erosion.

26. No work or dredging within the water authorized by this permit is allowed from October 1 through March 31st due to critical spawning, migration, and/or recreational use periods.

27. Stormwater shall not directly outlet to the stream.

Issued By: Luke F Golden

Luke Golden
Cadillac District Office
Water Resources Division
989-370-1569

THIS PERMIT MUST BE SIGNED BY THE PERMITTEE TO BE VALID.

I hereby assure that I have read, am familiar with, and agree to adhere to the terms and conditions of this permit.

_____ _____

Permittee Signature Date

cc: Cross Village Township Clerk
Emmet County Drain Commissioner – SENT VIA USPS
Emmet County CEA
USACE

EMMET COUNTY ROAD COMMISSION

IN COOPERATION WITH THE

Little Traverse Bay Bands of Odawa Indians

&

USDA Natural Resources Conservation Services

PLANS OF PROPOSED CROSSING IMPROVEMENTS

N LAKE SHORE DRIVE OVER WYCAMP CREEK

SECTION 35, TOWN 38 NORTH, RANGE 6 WEST

CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

SHEET INDEX

NRCS STANDARDS

AQUATIC ORGANISM PASSAGE	(396)

MDOT STANDARD PLANS

GUARDRAIL AT BRIDGES AND EMBANKMENTS	R-59-E
GUARDRAIL TYPES A, B, BD, T, TD, MGS-8, & MGS-8D	R-59-J
GUARDRAIL APPROACH TERMINALS TYPE 2M	R-62-H
GUARDRAIL DEPARTING TERMINAL TYPES B, T & MGS	R-66-E
GUARDRAIL ANCHORAGE, BRIDGE DETAILS	R-67-SD
SOIL EROSION & SEDIMENTATION CONTROL MEASURES	R-96-E
SEEDING AND TREE PLANTING	R-100-H
GRADING CROSS-SECTIONS	R-105-D

WORK ZONE DEVICES / SPECIAL DETAILS

GROUND DRIVEN SIGN SUPPORTS FOR TEMP SIGNS	WZD-100-A
TEMPORARY TRAFFIC CONTROL DEVICES	WZD-125-E

GENERAL NOTES

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED HEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE MICHIGAN DEPARTMENT OF TRANSPORTATION 2020 STANDARD SPECIFICATIONS FOR CONSTRUCTION.

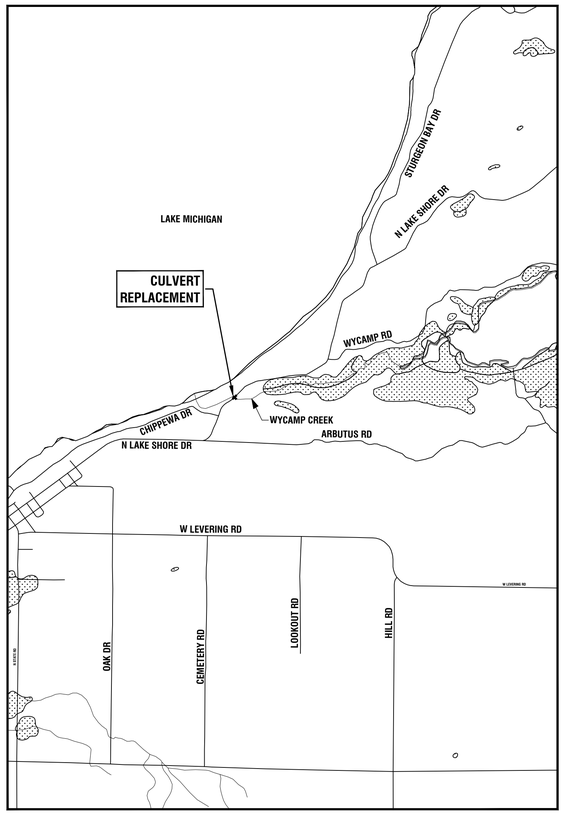
FOR PROTECTION OF UNDERGROUND UTILITIES AND IN CONFORMATION WITH PUBLIC ACT 174, 2013, THE CONTRACTOR SHALL DIAL 811 A MINIMUM OF THREE FULL WORKING DAYS, EXCLUDING SATURDAYS, SUNDAYS, AND HOLIDAYS PRIOR TO BEGINNING EACH EXCAVATION IN AREAS WHERE PUBLIC UTILITIES HAVE NOT BEEN PREVIOUSLY LOCATED. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

PLACE TOPSOIL, SEED, FERTILIZER, AND MULCH AS SOON AS POSSIBLE. CRITICAL GRADES SHOULD BE PROTECTED WITH MULCH BLANKETS OR TURF REINFORCEMENT MATS AS DIRECTED BY THE ENGINEER.

CONTRACTOR SHALL PRESERVE AND/OR REPLACE ANY EXISTING PARCEL CORNERS ENCOUNTERED DURING THE WORK.

THE SOIL BORINGS REPRESENT POINT INFORMATION, NO INFERENCE SHOULD BE MADE THAT SUBSURFACE CONDITIONS ARE THE SAME AT OTHER LOCATIONS.

PAVEMENT MARKINGS AND THE PLACING OF TRAFFIC CONTROL SIGNS SHALL BE DONE IN ACCORDANCE WITH THE 2011 MICHIGAN MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. PAVEMENT MARKINGS ARE TO BE PERFORMED AS A PART OF THIS CONTRACT.



SCALE: 1" = 2000'

N

W E

ISSUED DATE: 8-26-2022

FOR PERMITS

Know what's **below.** **Call** before you dig.

Traffic Information:

	N LAKE SHORE DR
Present ADT	496 (2021)
Future ADT	737 (2041)
% Commercial	5.0%
Design Speed	55 mi/hr (40 mi/hr VC)
Posted Speed	Prima Fascia

Contract For:

CULVERT REMOVAL, VERTICAL CURVE IMPROVEMENTS, PRE-FABRICATED TIMBER BRIDGE, GUARDRAIL INSTALLATION, AGGREGATE BASE, HMA SURFACING, AND SLOPE RESTORATION.

Prepared under Supervision of:

Joseph Williams, P.E.
GOURDIE FRASER
REGISTERED PROFESSIONAL ENGINEER No. 69873

Gourdie-Fraser
Municipal | Development | Transportation

PH 231.946.5874
FAX 231.946.3703
WWW.gourdiefraser.com
123 W Front Street
Traverse City, MI 49684

Link ENGINEERING SERVICES

NRCS IS ACCEPTING THESE CONSTRUCTION DRAWINGS AND SPECIFICATIONS ON THE BASIS THAT THEY HAVE BEEN SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER. BASED ON THE INFORMATION PROVIDED BY THE PROFESSIONAL ENGINEER, THE CONSTRUCTION DRAWINGS AND SPECIFICATIONS APPEAR TO MEET APPLICABLE NRCS STANDARDS AND SPECIFICATIONS. ANY DEFICIENCIES IN THE DESIGN, CONSTRUCTION DRAWINGS OR SPECIFICATIONS ARE THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER WHOSE SEAL APPEARS ON THE CONSTRUCTION DRAWINGS.

NRCS REPRESENTATIVE. DATE

TO THE BEST OF MY KNOWLEDGE, JUDGEMENT AND BELIEF, THE DESIGN, CONSTRUCTION DRAWINGS AND SPECIFICATIONS MEET APPLICABLE NRCS STANDARDS AND SPECIFICATIONS.

JOSEPH D. WILLIAMS, P.E. DATE

Emmet County Road Commission

FRANK ZULSKI, CHAIRMAN — DATE

WADE WILLIAMS, VICE PRESIDENT — DATE

BRENT SHANK, PE, MANAGER — DATE

LISA KLEEMAN, CLERK — DATE

MARK W. HOFFMAN, MEMBER — DATE

JOB NO.	GPF NO.	SHEET NO.
22084		1

C:\USERS\SGAMRAT\APPDATA\LOCAL\TEMP\ACPUBLISH_14280\22084_EG_WYCAMP.DWG (09-08-22 9:27 AM) SGAMRAT

LEGEND

Survey Legend

Existing	Proposed	
		Lot Line
		Property Line
		Right-Of-Way Line
		Right-Of-Way Centerline
		Physical Centerline
		Easement
BM		Benchmark
		Set GPS Point
		Found Iron
		Set Iron
		Found Monument
		Monument Box
		Section Corner
		Quarter Corner
		Top of Water

Paving Legend

Existing	Proposed	
		Concrete
		Asphalt
		Gravel
		Brick
		Wood
		Railroad
		Pavement Markings
		Curb
		Sidewalk
		Two-track / Trail
		Concrete
		Asphalt
		Gravel
		Brick

Sanitary Legend

Existing	Proposed	
		Sanitary Sewer
		Sanitary Sewer Lead
		Cleanout
S		Sanitary Manhole

Storm Water and Grading Legend

Existing	Proposed	
		Storm Sewer / Culvert
100	100	Major Contour
100	100	Minor Contour
		Silt Fence
		Round Catch Basin
		Square Catch Basin
		Storm Manhole
		End Section
		Soil Boring
		Clearing & Grubbing Limits

Watermain Legend

Existing	Proposed	
		Watermain
		Water Service
WM		Water Meter
		Curb Stop
		Gate Well
		Hydrant
		Well
		Spigot
		Blowoff

Miscellaneous Legend

Existing	Proposed	
		Building
		Minor Building Structure
		Fence
		Rip-Rap
		Guardrail
		Sign
		Sheet Pile
		Trees / Brush
		Landscaping
		Edge of Water
		Ditch
		Wetlands
		Building
		Sign
		Parking Meter
MB	MB	Stump
P	P	Mailbox
TC	TC	Post
		Tank Cover
		Trees (As Noted)

Grading Legend

XXX.XX	Existing Grade
XXX.XX BC XXX.XX G	Proposed Back of Curb Elev. Proposed Gutter Elev.
XXX.XX TA	Proposed Top of Asphalt Elev.
XXX.XX TW	Proposed Top of Concrete Elev.
XXX.XX FF	Proposed Finish Floor Elev.
XXX.XX TG	Proposed Top of Gravel Elev.
XXX.XX I.E.	Proposed Culvert Invert
XXX.XX D.I.	Proposed Ditch Invert
XXX.XX	Proposed Ground Elev.
XXX.XX HP	Proposed High Point
XXX.XX LP	Proposed Low Point
	Proposed Drainage Arrow
H.P.	Proposed High Point Breakline

Electric & Gas Legend

Existing	Proposed	
GAS	GAS	Gas Main
		Pipeline
OHE	OHE	Overhead Electric
UGE	UGE	Underground Electric
OHT	OHT	Overhead Telephone
UGT	UGT	Underground Telephone
CATV	CATV	Cable Television
FOPT	FOPT	Fiber Optic
GM		Gas Meter
EM		Electric Meter
		Utility Pole
		Guy Wire
		Satellite Dish
		Light
		Fiber Optic Marker
		Light Pole
		Guy Pole
E	E	Electric Manhole
T	T	Telephone Manhole
		Monitor Well
		Miss Dig Flag

GENERAL NOTES

1. CONTRACTOR SHALL CALL MISS DIG (1-800-482-7171) A MINIMUM OF 3 WORKING DAYS PRIOR TO CONSTRUCTION.
2. CONTRACTOR SHALL CONFORM TO SOIL EROSION AND SEDIMENTATION CONTROL ACT, PART 91 OF ACT 451 OF 1994.
3. DEBRIS CONSIDERED TO BE WASTE SHALL BE DISPOSED OF BY THE CONTRACTOR.
4. THE CONTRACTOR SHALL REMOVE, REPLACE, AND MAINTAIN ALL EXISTING MAIL BOXES, FENCES AND SIGNS. MAILBOX POSTS SHALL BE REPLACED AS DIRECTED BY THE ENGINEER. ALL COSTS SHALL BE INCLUDED IN THE UNIT PRICE BID LUMP SUMP PRICE FOR THE TIMBER BRIDGE CONSTRUCTION.
5. THE CONTRACTOR SHALL MAINTAIN LOCAL TRAFFIC AT ALL TIMES ON THE PROJECT.
6. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY EXISTING CONDITIONS PRIOR TO PERFORMING ANY WORK.
7. CONSTRUCT CENTERLINE OF PROPOSED CREEK AT CENTERLINE OF EXISTING CREEK UNLESS OTHERWISE INDICATED.
8. CONTRACTOR SHALL SEED, FERTILIZE, AND MULCH ALL DISTURBED AREAS DAILY. LAWN AREAS SHALL RECEIVE 4" OF TOPSOIL AND BE RESTORED AS STATED IN THE SPECIFICATIONS AND SHOWN ON THE PLANS.
9. COORDINATE RIPRAP INSTALLATIONS WITH THE ENGINEER PRIOR TO CONSTRUCTION.
10. INSTALL EROSION CONTROL BLANKETS AND FABRICS ACCORDING TO MANUFACTURERS SPECIFICATIONS.
11. ALL ELEVATIONS ARE BASED ON NAVD88 DATUM.
12. SPECIAL CARE SHALL BE TAKEN IN EXCAVATING IN THE PROXIMITY OF ALL UNDERGROUND UTILITIES. THE CONTRACTOR SHALL SECURE ASSISTANCE FROM THE APPROPRIATE UTILITY COMPANY IN LOCATING ITS LINES. THE CONTRACTOR SHALL ALSO: PROVIDE SUPPORT FOR ANY UTILITY WITHIN THE EXCAVATION, PROVIDE PROPER COMPACTION UNDER ANY UNDERMINED UTILITY STRUCTURE AND, IF NECESSARY, INSTALL TEMPORARY SHEETING OR USE A TRENCH BOX TO MINIMIZE THE EXCAVATION. THE CONTRACTOR SHALL PROTECT AND SAVE HARMLESS FROM DAMAGE ALL UTILITIES, WHETHER PRIVATELY OR PUBLICLY OWNED, ABOVE OR BELOW GROUND SURFACE, WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION, AT NO ADDITIONAL COST TO THE OWNER.
13. THE LOCATION OF EXISTING PUBLIC UTILITIES AND UNDERGROUND STRUCTURES SUCH AS PIPE LINES, ELECTRIC CONDUITS, SEWERS AND WATER LINES, OF RECORD ARE SHOWN ON THE PLANS. THE INFORMATION SHOWN IS BELIEVED TO BE REASONABLY CORRECT AND COMPLETE. HOWEVER, NEITHER THE CORRECTNESS NOR THE COMPLETENESS OF SUCH INFORMATION IS GUARANTEED. PRIOR TO THE START OF ANY OPERATIONS IN THE VICINITY OF ANY UTILITIES, THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES AND MISS DIG AND REQUEST THAT THEY STAKE OUT THE LOCATIONS OF THE UTILITIES IN QUESTION. THE CONTRACTOR SHALL COORDINATE THE RELOCATION OF ANY UTILITIES WITH THE UTILITY PROVIDER. COST OF REPAIR FOR ANY DAMAGED UTILITY LINES THAT IS PROPERLY STAKED SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
14. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE LAWS AND REGULATIONS GOVERNING THE FURNISHING AND USE OF SAFEGUARDS, SAFETY DEVICES AND PROTECTION EQUIPMENT. THE CONTRACTOR SHALL TAKE ANY NECESSARY PRECAUTIONS TO PROTECT THE LIFE AND HEALTH OF EMPLOYEES AND THE PUBLIC IN THE PERFORMANCE OF THE WORK

SOIL EROSION & SEDIMENTATION CONTROL NOTES

1. TEMPORARY SEEDING SHALL BE CONDUCTED ON ALL DISTURBED AREAS THAT WILL BE FINISH GRADED AT A LATER DATE. TEMPORARY SEEDING SHALL BE LIMITED TO DATES BETWEEN APRIL 1ST AND NOVEMBER 1ST.
2. FINAL SEEDING SHALL BE COMPLETED WITHIN 24 HOURS OF FINAL GRADING. WEEKLY INSPECTIONS OF SEEDED AREAS SHALL BE COMPLETED TO VERIFY GRASS GROWTH. ANY AREAS NOT ESTABLISHED SHALL BE FERTILIZED, SOILS AMENDED AND RE-SEEDED AS NECESSARY.
3. CONTRACTOR TO INSTALL AND MAINTAIN ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES IN ACCORDANCE WITH THE APPROVED PLANS PRIOR TO COMMENCEMENT OF CONSTRUCTION OR MASS GRADING.
4. ALL MUD, DIRT, AND DEBRIS TRACKED ONTO EXISTING ROADWAYS SHALL BE PROMPTLY REMOVED BY THE CONTRACTOR NO LESS THAN ON A DAILY BASIS BY SCRAPING AND SWEEPING.
5. ALL PERMANENT SOIL EROSION CONTROL MEASURES SHALL BE IN PLACE WITHIN 24 HOURS OF FINAL GRADE (GRADE LISTED ON PLANS), THIS INCLUDES ALL VEGETATIVE STABILIZATION. REMOVAL OF TEMPORARY MEASURES, FOLLOWING ACCEPTANCE OF THE PROJECT, IS THE RESPONSIBILITY OF THE CONTRACTOR.
6. SHOULD ADDITIONAL SOIL EROSION CONTROL MEASURES BE DETERMINED TO BE NECESSARY BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER THEY SHALL BE IN PLACE NO LATER THAN 24 HOURS FROM THE TIME OF NOTIFICATION TO THE GENERAL CONTRACTOR FOR THE PROJECT. IF NOT PLACED IN 24 HOURS OR LESS ALL ON SITE CONSTRUCTION WILL BE HALTED UNTIL SUCH MEASURES ARE INSTALLED AND APPROVED BY EITHER THE SOIL EROSION CONTROL OFFICER OR THE OWNER'S ENGINEER.
7. ALL SOIL EROSION CONTROL MEASURES SHALL BE INSPECTED DAILY BY THE CONTRACTOR, AND INSPECTED AFTER EACH RAIN EVENT TO ENSURE PROPER MAINTENANCE OF THE SOIL EROSION CONTROL MEASURES. ANY DEFICIENCIES OR REPAIRS TO SOIL EROSION CONTROL MEASURES ARE TO BE CORRECTED IMMEDIATELY.
8. INSTALL TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES BEFORE OR UPON COMMENCEMENT OF THE EARTH CHANGE ACTIVITY AND MAINTAIN MEASURES ON A DAILY BASIS. REMOVE TEMPORARY SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AFTER PERMANENT SOIL EROSION MEASURES ARE IN PLACE AND THE AREA IS STABILIZED ("STABILIZED" MEANS THE ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING, OR COVERING OF SOIL TO ENSURE ITS RESISTANCE TO SOIL EROSION, SLIDING, OR OTHER EARTH MOVEMENT).
9. CONTRACTOR IS RESPONSIBLE TO ENSURE THAT MEASURES ARE INSTALLED IN COMPLIANCE WITH THE APA MANUAL AND THAT THE SESC MEASURES ARE MONITORED AND MAINTAINED UNTIL ALL DISTURBED AREAS ARE STABILIZED ("STABILIZED" MEANS THE ESTABLISHMENT OF VEGETATION OR THE PROPER PLACEMENT, GRADING, OR COVERING OF SOIL TO ENSURE ITS RESISTANCE TO SOIL EROSION, SLIDING, OR OTHER EARTH MOVEMENT) AND TEMPORARY MEASURES ARE REMOVED. CONTRACTOR ACKNOWLEDGES THAT SESC MEASURES MAY NEED TO BE ADAPTED, ADJUSTED, OR ADDED BASED ON SITE CONDITIONS IN ORDER TO REMAIN IN COMPLIANCE WITH PART 91 REQUIREMENTS.
10. RESTORE DISTURBED AREAS WITH 4" TOPSOIL SURFACE, MDOT CLASS A SEED MIXTURE, 300#/ACRE CHEMICAL FERTILIZER NUTRIENTS AND 2 TONS/ACRE MULCH. PLACE TOPSOIL/SEED/FERTILIZER PRIOR TO PLACING MULCH BLANKET. WORK TO BE INCLUDED IN PAYMENT FOR "SLOPE RESTORATION, NON-FREEWAY".
11. CONTRACTOR IS RESPONSIBLE FOR CLEANUP & RESTORATION INCLUDING PROGRESS CLEANING. PROGRESS CLEANING INCLUDES BUT IS NOT LIMITED TO REMOVAL OF WASTE MATERIALS, DEBRIS, RUBBISH, AND EXCESS SPOILS, COMPLETE LEVELING AND RESTORE DAMAGE NOT MORE THAN 1000 FEET BEHIND CONSTRUCTION. ALSO INCLUDES DAILY CLEANING OF ALL ROAD SURFACES.
12. CONTRACTOR SHALL OBTAIN AND PAY ALL FEES FOR SOIL EROSION CONTROL PERMIT.

PUBLIC UTILITIES

THE EXISTING UTILITIES LISTED BELOW AND SHOWN ON THESE PLANS REPRESENT THE BEST INFORMATION AVAILABLE AS OBTAINED ON OUR SURVEYS. THIS INFORMATION DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO BE SATISFIED AS TO ITS ACCURACY AND THE LOCATION OF EXISTING UTILITIES.

Charter Communications
Attention: Rick Rousseau
231-463-1941
rick.rousseau@charter.com

AT&T
Attention: Jeffrey Collard
586-764-8260
jc7632@att.com

DTE Energy
Larry Bourke
231-592-3244

Emmet County Road Commission
Brent Shank
231-347-8142
bshank@emmetcrc.org

811 Know what's **below.** **Call** before you dig.

GENERAL MAINTENANCE PROCEDURES

1. PERFORM MAINTENANCE ACTIVITIES DURING LOW FLOW PERIODS.
2. START MAINTENANCE AT DOWNSTREAM END OF PROJECT.
3. REMOVE SEDIMENT WITH LIMITED DISTURBED BANK AREA.
4. APPLY SEED AND MULCH DAILY TO DISTURBED AREAS.
5. MAINTAIN VEGETATIVE BUFFER BY PLACING SEDIMENT SPOILS AS CLOSE TO EASEMENT BOUNDARY AS POSSIBLE.
6. APPLY SEED AND MULCH IMMEDIATELY AFTER LEVELING SPOILS.

CONSTRUCTION NOTES

1. REMOVE AND PROPERLY DISPOSE OF EXISTING TILE & STRUCTURES LOCATED WITHIN PROPOSED CULVERT TRENCH. REMOVED STRUCTURES & TILE OR DEBRIS SHALL BECOME PROPERTY OF THE CONTRACTOR. REMOVAL TO BE INCLUDED IN THE COST PER LINEAR FOOT OF BOX CULVERT. EXISTING TILE LOCATED OUTSIDE THE INFLUENCE OF THE PROPOSED TRENCH SHALL BE TIED INTO THE PROPOSED STORM SEWER AT THE DOWNSTREAM END WITH ENGINEER APPROVED FITTINGS.
2. DURING REMOVAL OF THE EXISTING OF THE EXISTING STRUCTURE, EVERY PRECAUTION SHALL BE TAKEN TO PREVENT DEBRIS FROM ENTERING WATERCOURSE,. ANY DEBRIS REACHING WATERCOURSE DURING THE REMOVAL OF THE STRUCTURE SHALL BE IMMEDIATELY REMOVED FROM WATER. ALL MATERIAL SHALL BE DISPOSED OF IN AN ACCEPTABLE MANNER CONSISTENT WITH LOCAL, STATE, AND FEDERAL REGULATIONS.
3. ALL SPRINKLER SYSTEMS DAMAGED SHALL BE REPAIRED BY CONTRACTOR. COST TO BE INCLUDED IN THE LUMP SUM BID PRICE FOR Slope Restoration, Non-Freeway, Type B.
4. ANY UTILITIES ENCOUNTERED DURING CONSTRUCTION SHALL BE SUPPORTED, PER THE SPECIFICATIONS OF THE INDIVIDUAL UTILITY COMPANY CLAIMING OWNERSHIP OF THE UTILITY. COST TO BE INCLUDED WITH THE PAY ITEM BEING INSTALLED. ANY UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
5. CONTRACTOR SHALL MAINTAIN ACCESS FOR MAIL DELIVERY AND GARBAGE PICKUP AT ALL PARCEL AFFECTED BY CONSTRUCTION. IF THESE SERVICES CANNOT BE PERFORMED CONTRACTOR IS RESPONSIBLE FOR TAKING THE NECESSARY MEASURES TO CARRY THEM OUT.
6. ALL WORK SHALL BE WITHIN ROAD RIGHT-OF-WAY. WORK OUTSIDE RIGHT-OF-WAY MUST BE AGREED UPON BY LANDOWNER AND ENGINEER WITH A SIGNED LANDOWNER AGREEMENT PRIOR TO WORK ON THAT PROPERTY.
7. GROUNDWATER SEEPAGE IS ANTICIPATED TO BE A FACTOR DURING CONSTRUCTION. DEWATERING METHODS MAY BE NECESSARY. ALL DEWATERING REQUIRED IS THE CONTRACTOR'S RESPONSIBILITY AND COST SHALL BE INCLUDED IN THE PAY ITEM BEING INSTALLED. THE METHOD FOR DEWATERING SHALL BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
8. ALL PAVEMENT JOINTS BETWEEN EXISTING AND NEW PAVEMENT SHALL BE SAW CUT WITH BUTT-JOINTS.
9. STRIP AND SALVAGE TOPSOIL PRIOR TO INSTALLING BOX CULVERT. REPLACE TOPSOIL TO AFTER INSTALLATION.
10. CONTRACTOR SHALL PROVIDE ALL TRAFFIC CONTROL DEVICES AS REQUIRED BY THE COUNTY ROAD COMMISSION AND THE TRAFFIC CONTROL PLAN.
11. CONTRACTOR IS RESPONSIBLE TO FIELD LOCATE AND USE CARE WHEN WORKING AROUND UTILITIES AND TO NOT DISRUPT SERVICE. ANY DAMAGE TO UTILITIES SHALL BE REPAIRED AND/ OR REPLACED AT NO ADDITIONAL COST.
12. THE ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO BITUMINOUS PAVING.
13. THE PREPARED SUBBASE MUST BE TESTED AND APPROVED PRIOR TO PLACEMENT OF BASE.
14. Embankment, CIP, Backfill, Structure, CIP, Excavation, Fdn, Excavation, Channel AND Subbase, CIP ARE TO BE PAID AT PLAN QUANTITY UNLESS OTHERWISE KNOWN CHANGES. EARTHWORK FOR DRIVES, APPROACHES, AND INTERSECTIONS ARE INCLUDED IN PLAN QUANTITIES. ALL NECESSARY EMBANKMENT FOR ROADWAY, APPROACHES, AND DRIVEWAYS SHALL MEET GRANULAR MATERIAL CLASS II REQUIREMENTS UNLESS OTHERWISE NOTED.
15. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT THE GRAVEL TO BE USED ON THIS PROJECT IS APPROVED PRIOR TO PLACEMENT.
16. THE PREPARED GRAVEL WIDTH, DEPTH, AND COMPACTION MUST BE REVIEWED AND APPROVED BY THE OWNERS ENGINEER PRIOR TO BITUMINOUS PAVING.
17. ALL CONSTRUCTION SIGNING SHALL MEET MMUTCD STANDARDS.
18. ALL PAVEMENT CUTS ARE TO BE MADE WITH SAW, IMMEDIATELY PRIOR TO PAVING.
19. THE CONTRACTOR SHALL NOTIFY RESIDENTS 24 HOURS (EXCLUDING SATURDAYS AND SUNDAYS) IN ADVANCE OF DISRUPTION TO SERVICE, SUCH AS DRIVEWAY CLOSING.
20. PAVEMENT MARKINGS SHALL MEET MDOT SPECIFICATIONS AND STANDARDS.

MISCELLANEOUS QUANTITIES

THE FOLLOWING ITEMS OF WORK SHALL BE DONE AS THEY APPLY THROUGHOUT THE PROJECT. THESE ITEMS ARE NOT DETAILED OR INCLUDED ON THE PLAN AND PROFILE SHEETS:

1	LSUM	Mobilization, Max
2	Ea	Erosion Control, Filter Bag
10	Cyd	Erosion Control, Maintenance, Sediment Removal

http://gfa.ic
231.946.5874 (p)
231.946.3703 (f)

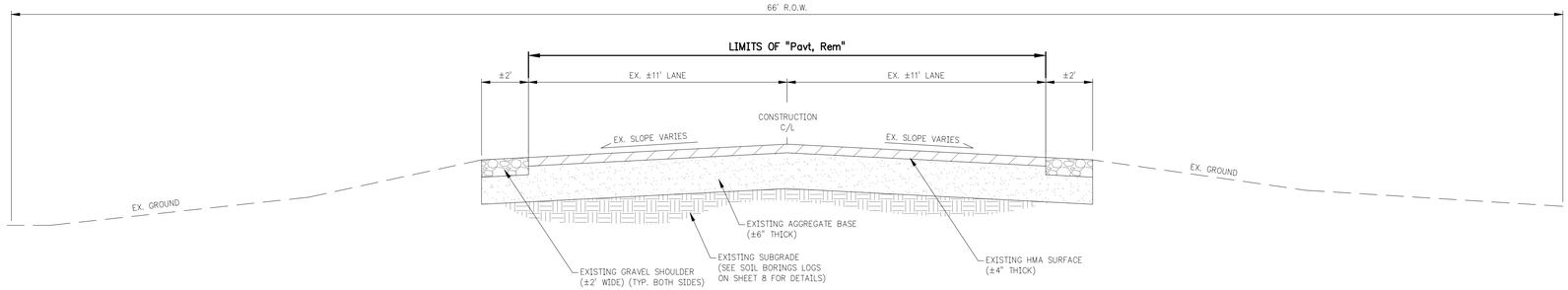
gfa
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
LEGEND & NOTES
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

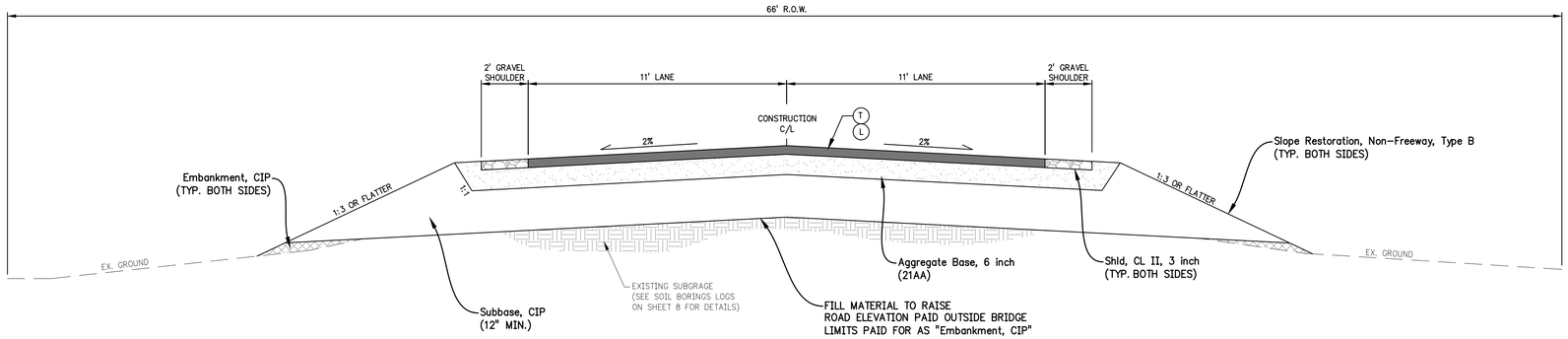
These documents are prepared in accordance with the contractual terms and conditions for this project.

P.M.: JOE WILLIAMS, PE
DR.: SJG | CHD.: JDW
JOB NO.: 22084
SHT 2 OF 10



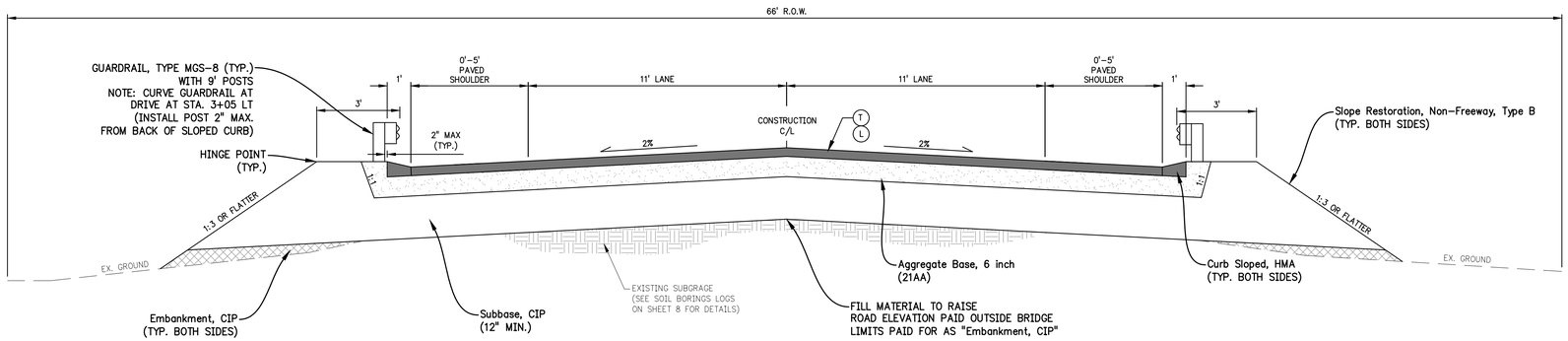
N. LAKE SHORE DRIVE EXISTING TYPICAL CROSS SECTION

TO APPLY: P.O.B. TO P.O.E.
SCALE: 1" = 3'



N. LAKE SHORE DRIVE PROPOSED TYPICAL CROSS SECTION

TO APPLY: P.O.B. TO STA 0+81.43 & STA 2+92.86 TO P.O.E.
SCALE: 1" = 3'



N. LAKE SHORE DRIVE PROPOSED TYPICAL CROSS SECTION

TO APPLY: STA 0+81.43 TO STA 2+92.86
SCALE: 1" = 3'

HMA APPLICATION ESTIMATE					
IDENT.	ITEM	RATE LBS/SYD	PERFORMANCE GRADE	AGGREGATE WEAR INDEX	REMARKS
T	HMA, 4EL	220	58-28	220 MIN	TOP COURSE
L	HMA, 4EL	220	58-28	–	LEVELING COURSE
	*BITUMINUOUS BOND COAT	0.05 TO 0.15 GAL/SYD			

*FOR INFORMATION ONLY

Estimated Quantities This Sheet		
Pay Item	Quantity	Unit
Maintenance Gravel	5	Ton
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	11	Ea
Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	11	Ea
Minor Traf Devices	1	LS
Sign, Type B, Temp, Prismatic, Furn	332	Sft
Sign, Type B, Temp, Prismatic, Oper	332	Sft
Sign, Type B, Temp, Prismatic, Special, Furn	52	Sft
Sign, Type B, Temp, Prismatic, Special, Oper	52	Sft
Traf Regulator Control	1	LS

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS

These documents are prepared in accordance with the contractual terms and conditions for this project.

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
TYPICAL CROSS SECTIONS
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

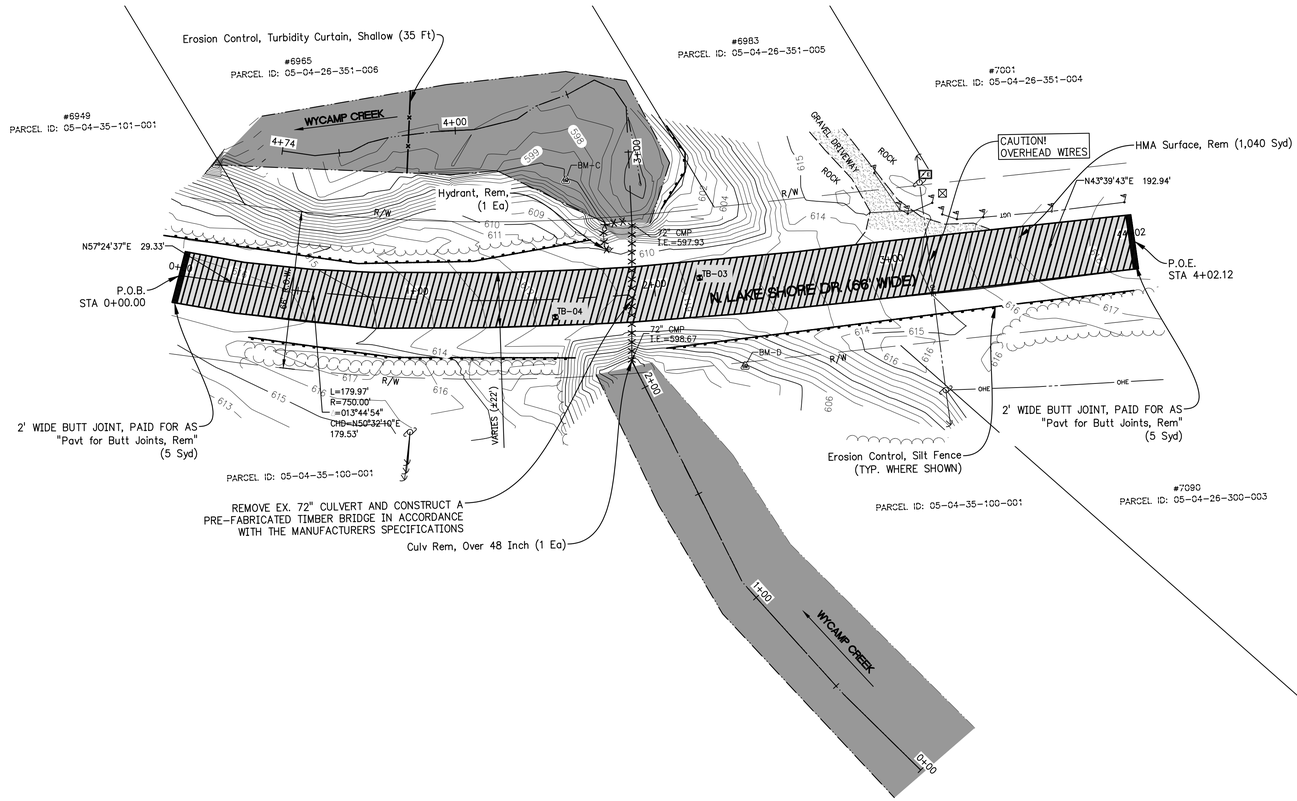
P.M.: JOE WILLIAMS, PE
DR.: SJG CKD.: JDW
JOB NO.: 22084
SHT 3 OF 10

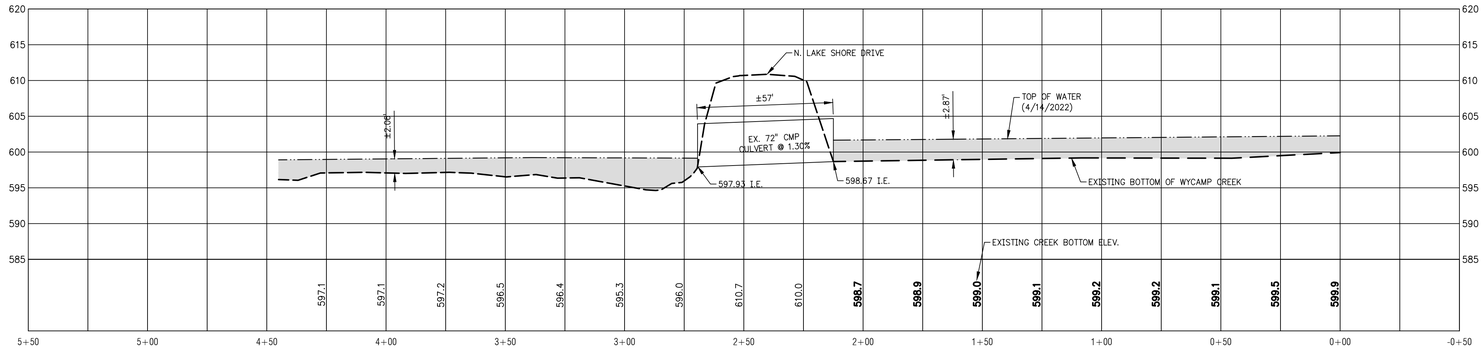
RECORD
Version: v1.0
Approved
Issued On:10/13/2022
Expires On:10/13/2027

BENCHMARKS

BM–C
BENCH TIE IN N. SIDE OF 10" SPRUCE TREE
ELEV. = 602.28 (NAVD88)

BM–D
BENCH TIE IN S.W. SIDE OF 18" CEDAR TREE
ELEV. = 605.66 (NAVD88)





WYCAMP CREEK EXISTING PROFILE
SCALE:
HORIZONTAL: 1"=30'
VERTICAL: 1"='10

GENERAL REMOVAL NOTES:
1. THE WORK COVERED BY THESE PLANS INCLUDES THE REMOVAL OF AN EXISTING UNDERSIZED CULVERT, HMA REMOVAL, VERTICAL CURVE IMPROVEMENTS, MAINTAINING TRAFFIC, CONSTRUCTION OF THE PROPOSED TIMBER BRIDGE AND PLACE SLOPE PROTECTION/RESTORATION.
2. ALL REMOVED CULVERT MATERIALS AND DEBRIS, UNLESS OTHERWISE NOTED, SHALL BE REMOVED FROM SITE AND ARE THE RESPONSIBILITY OF THE CONTRACTOR.
3. NO DEBRIS SHALL ENTER WYCAMP CREEK DURING THE REMOVAL OF THE EXISTING CULVERT AND ASSOCIATED EXCAVATION.
4. WATER LEVEL IS SUBJECT TO CHANGE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING A DETERMINATION OF WATER LEVELS THAT MAY EXISTING DURING CONSTRUCTION.
5. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK.
6. CONTRACTOR SHALL SUBMIT SCHEDULE TO ENGINEER FOR REVIEW AND APPROVAL.

Estimated Quantities This Sheet		
Pay Item	**Quantity**	**Unit**
Clearing	0.5	Acre
Culv, Rem, Over 48 Inch	1	Ea
Erosion Control, Filter Bag	2	Ea
Erosion Control, Maintenance, Sediment Removal	10	Cyd
Erosion Control, Silt Fence	600	Ft
Erosion Control, Turbidity Curtain, Shallow	35	Ft
HMA Surface, Rem	1,040	Syd
Pavt for Butt Joints, Rem	10	Syd
Hydrant, Rem	1	Ea

GRAPHIC SCALE: 1 inch = 30 feet
0 15 30 60 90

http://gta.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN

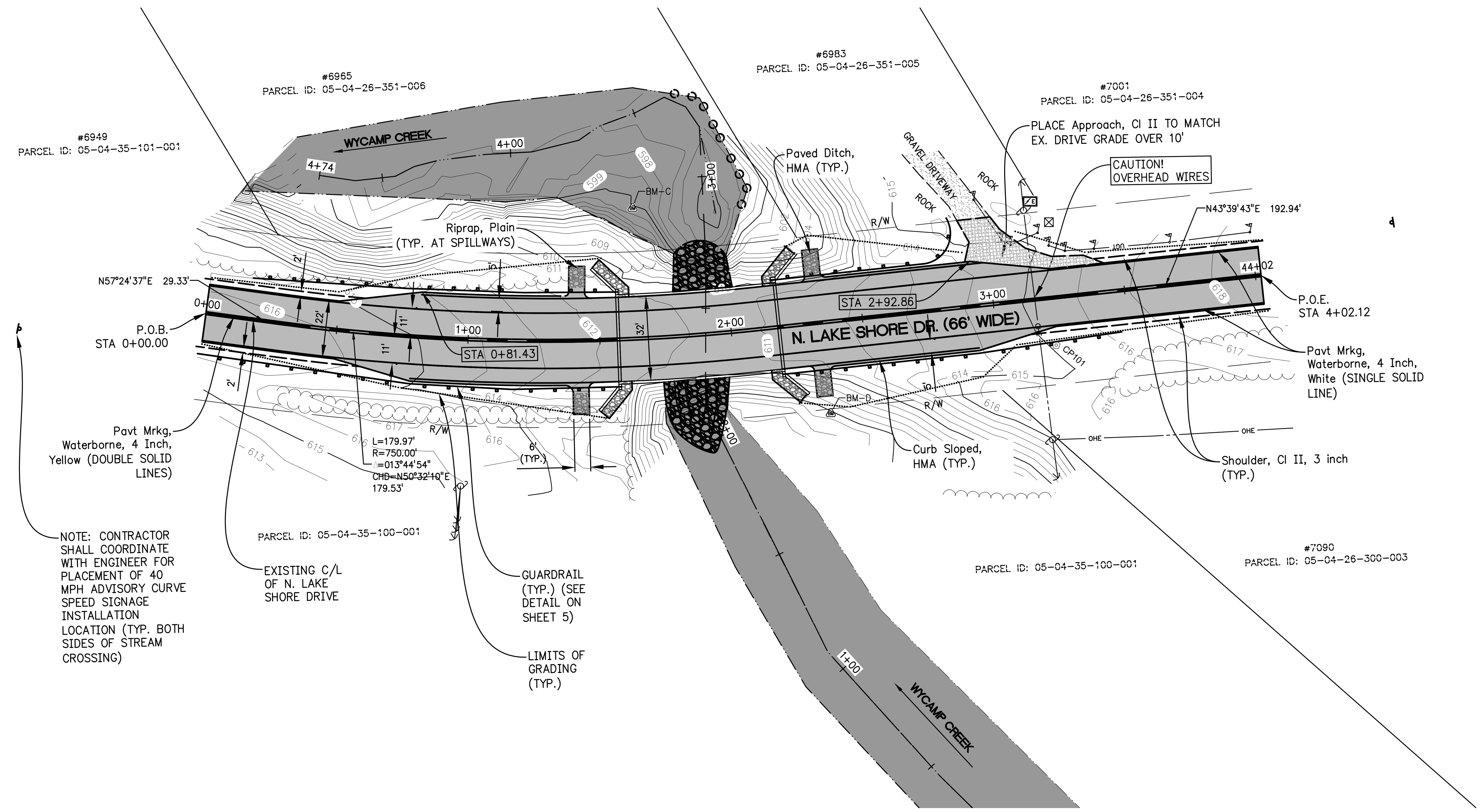
EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
REMOVAL & SESC PLAN
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG CHD.: JDW
JOB NO.: 22084
SHT 4 OF 10

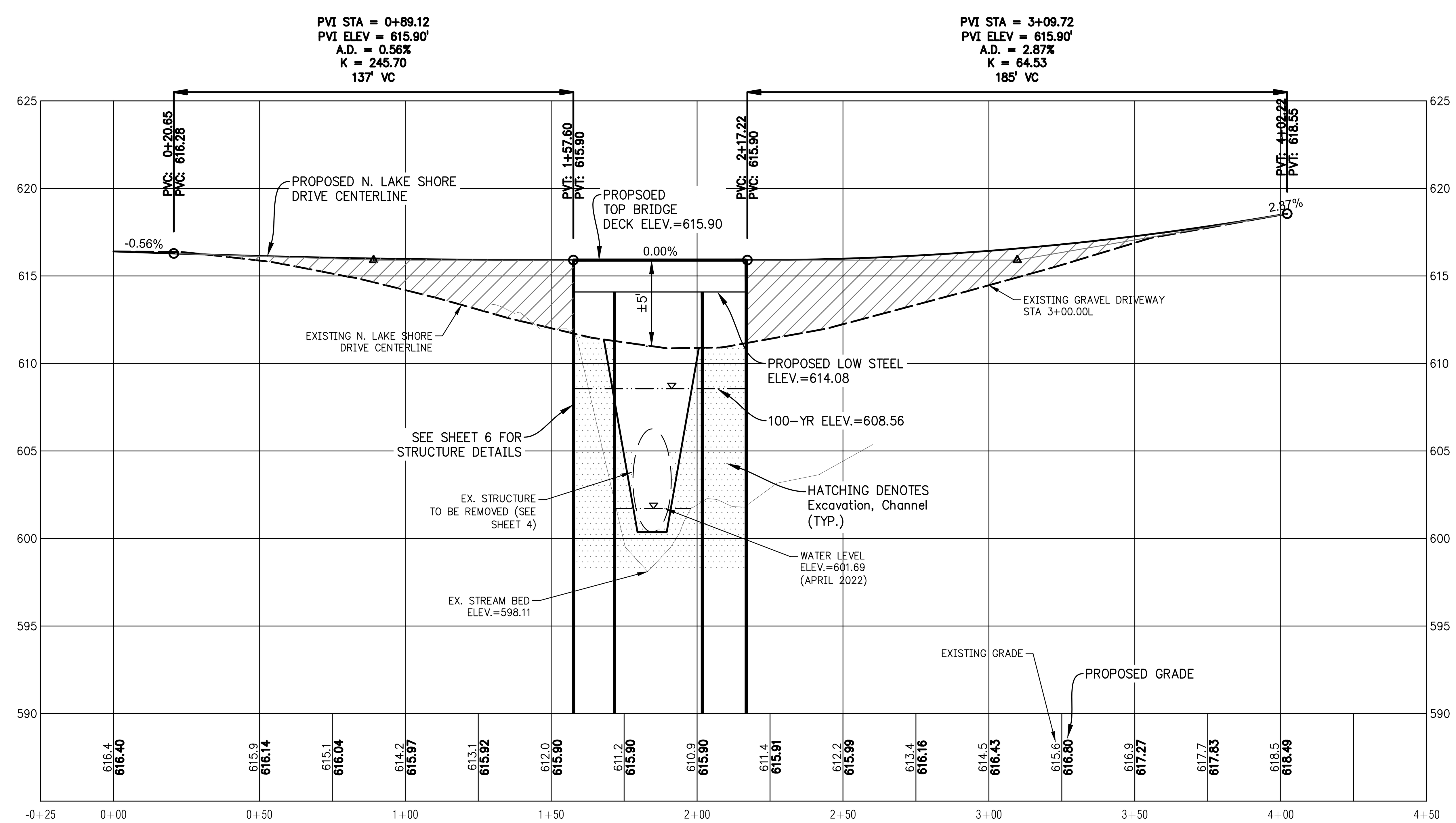
BENCHMARKS

BM-C
BENCH TIE IN N. SIDE OF 10" SPRUCE TREE
ELEV. = 602.28 (NAVD88)

BM-D
BENCH TIE IN S.W. SIDE OF 18" CEDAR TREE
ELEV. = 605.66 (NAVD88)



GRAPHIC SCALE: 1 inch = 30 feet



N. LAKE SHORE DRIVE PROFILE
SCALE:
HORIZONTAL: 1"=30'
VERTICAL: 1"='10

NOTES:

1. TEMPORARY STORED MATERIAL SHALL NOT BE ALLOWED TO ERODE INTO THE WATERCOURSE.
2. THE DESIGN OF THE STRUCTURE IS BASED ON 1.2 TIMES THE CURRENT AASHTO LRFD BRIDGE DESIGN, HL-93 LOADING. THE DESIGN TANDEM PORTION SHALL BE REPLACED BY A SINGLE KIP AXLE LOAD PER APPLICATION OF THE 1.2 FACTOR. THE RESULTING LOAD IS DESIGNATED HL-93 MOD. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED L/425 OF THE SPAN LENGTH.
3. IMMEDIATELY AFTER THE CONSTRUCTION OF AN ABUTMENT IS COMPLETED, TOPSOIL, SEEDING, FERTILIZER, STRAW MULCH BLANKETS AND SLOPE PROTECTION SHALL BE PLACED ON THE ADJACENT EMBANKMENT SLOPES.
4. THE CONTRIBUTING AREA TO THIS CROSSING IS 22.5 SQUARE MILES. THE 50%, 0.5% AND 0.2% CHANCE FLOODS ARE ESTIMATED TO BE 140 CUBIC FEET PER SECOND (CFS), 380 CFS, AND 430 CFS RESPECTIVELY, AS DETERMINED BY THE MICHIGAN EGLE.

Estimated Quantities This Sheet

Pay Item	Quantity	Unit
Aggregate Base, 6 Inch	1400	Syd
Approach, Cl II, 6 inch	50	Syd
Curb Sloped, HMA	260	Ft
Embankment, CIP	1000	Cyd
HMA, 4EL	350	Ton
Paved Ditch, HMA	25	Syd
Pavt Mrkg, Waterborne, 4 Inch, White	850	Ft
Pavt Mrkg, Waterborne, 4 Inch, Yellow	850	Ft
Post, Steel, 3 pound	16	Ft
Shld, Cl II, 3 Inch	50	25
Sign, Type IIIB	16	Sft
Slope Restoration, Non-Freeway, Type B	700	Syd
Subbase, CIP	400	Cyd

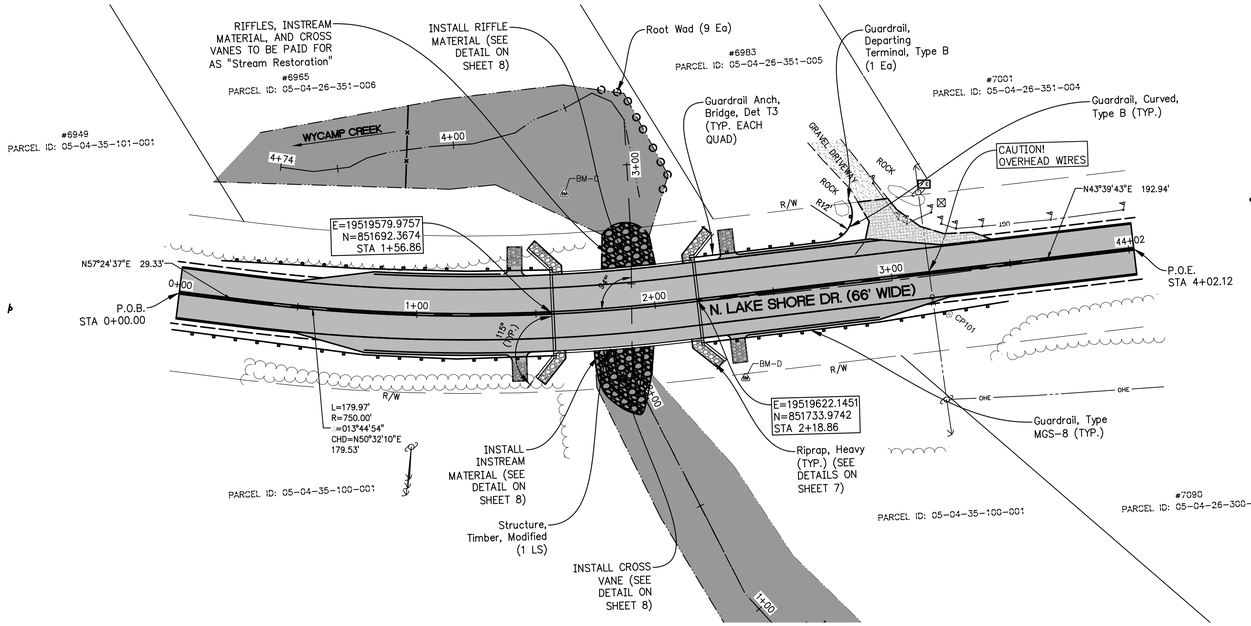
C:\USERS\SGAMRAT\APPDATA\LOCAL\TEMP\ACPUBLISH_14288\22084_EG_WYCAMP.DWG (09/08/2

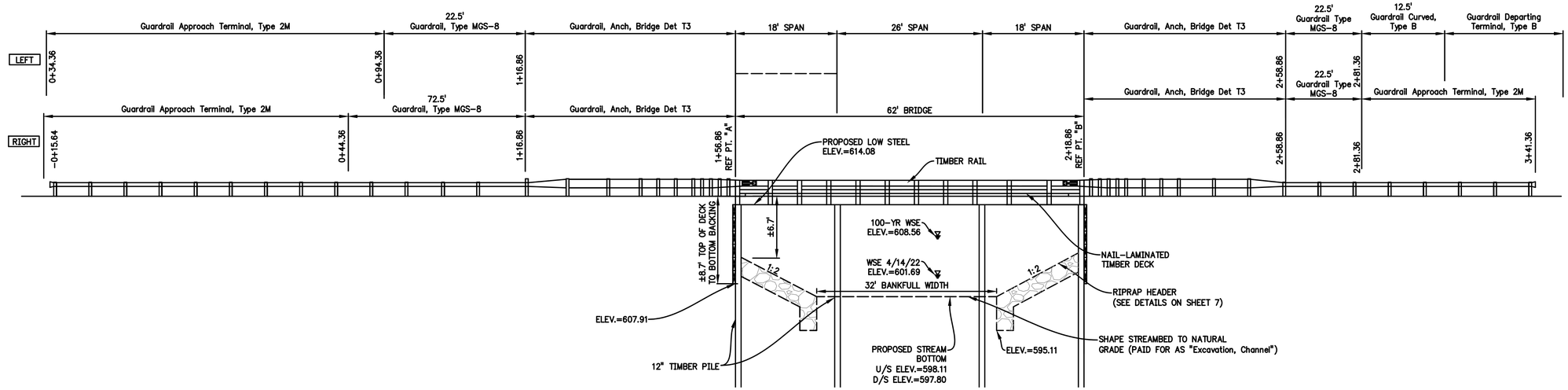
http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
GENERAL PLAN OF SITE
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG
CKD.: JDW
JOB NO.: 22084
SHT 5 OF 10





ELEVATION

SCALE: 1"=10'

NOTES:
1. THE CONTRACTOR MUST PROPERTY CONTAIN THE EXISTING STRUCTURE DURING REMOVAL AND PROPOSED ABUTMENTS DURING CONSTRUCTION. PAYMENT WILL BE INCLUDED IN THE ITEM "Structure, Timber, Modified".
2. THE DESIGN OF THIS STRUCTURE IS BASED ON 1.2 TIMES THE CURRENT AASHTO LRFD BRIDGE DESIGN, HL-93 LOADING. THE DESIGN TANDEM PORTION SHALL BE REPLACED BY A SINGLE 60 KIP AXLE BEFORE APPLICATION OF THE 1.2 FACTOR. THE RESULTING LOAD IS DESIGNED HL-93 MOD. LIVE LOAD PLUS DYNAMIC LOAD ALLOWANCE DEFLECTION DOES NOT EXCEED L/425 OF THE SPAN LENGTH.
3. "Structures, Rem" INCLUDE THE REMOVAL OF THE EXISTING STRUCTURE AND ANY EXCAVATION OR BACKFILL REQUIRED TO SHAPE THE STREAM BOTTOM TO A NATURAL CONDITION.
4. PILE LAYOUT SHOWN IS APPROXIMATE. THE FABRICATOR SHALL DESIGN THE FOUNDATION PILING AND SHOW LAYOUT IN THE SHOP DRAWINGS, INCLUDED IN PAY ITEM "Structure, Timber, Modified".
5. "False Decking" SHALL BE PLACED IN THE AREA BONDED BY REFERENCE LINES A AND B AND THE OUTSIDE OF THE FACIE BEAMS.

Estimated Quantities This Sheet		
Pay Item	Quantity	Unit
Excavation, Channel	200	Cyd
Backfill, Structure, CIP	600	Cyd
Excavation, Fdn	600	Cyd
Pile Driving Equipment, Furn	1	LS
Pile, Treated Timber, Furn	2000	FT
Pile, Treated Timber, Driven	2000	Ft
Test Pile, Treated Timber	2	Ea
False Decking	2000	Sft
Guardrail, Type MGS-8	300	Ft
Guardrail, Curved, Type B	12.5	Ft
Guardrail Anch, Bridge, Det T3	4	Ea
Guardrail Approach Terminal, Type 2M	3	Ea
Guardrail Departing Terminal, Type B	1	Ea
Guardrail Reflector	15	Ea
Riprap, Heavy	450	Syd
Riprap, Plain	25	Syd
Stream Restoration	150	Ton
Root Wad	9	Ea
Structure, Timber, Modified	1	LS

SUMMARY OF HYDRAULIC ANALYSIS							
EXISTING				PROPOSED			
FLOOD DATA	DISCHARGE (CFS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (FT)	VELOCITY IN D/S CHANNEL (FPS)	WATER SURFACE ELEV. AT U/S FACE OF STRUCTURE (CFS)	VELOCITY IN D/S CHANNEL (FPS)	WATERWAY AREA (SFT) AT D/S FACE	CHANGE IN W/S ELEV. 10 FT U/S OF PROPOSED STRCUTURE (FT)
50-YEAR	310	607.16	10.01	601.33	5.18	59.88	5.83
100-YEAR	350	608.42	10.38	601.52	5.15	67.63	6.90

NOTES:
1. THE DRAINAGE AREA CONTRIBUTORY TO THIS CROSSING IS 22.5 SQUARE MILES.
2. THE WATER SURFACE AND/OR ENERGY GRADE LINE SHOWN ON THE ABOVE HYDRAULIC TABLE ARE TO BE USED FOR COMPARISON PURPOSES ONLY AND ARE NOT TO BE USED FOR ESTABLISHING A REGULATORY FLOODPLAIN.

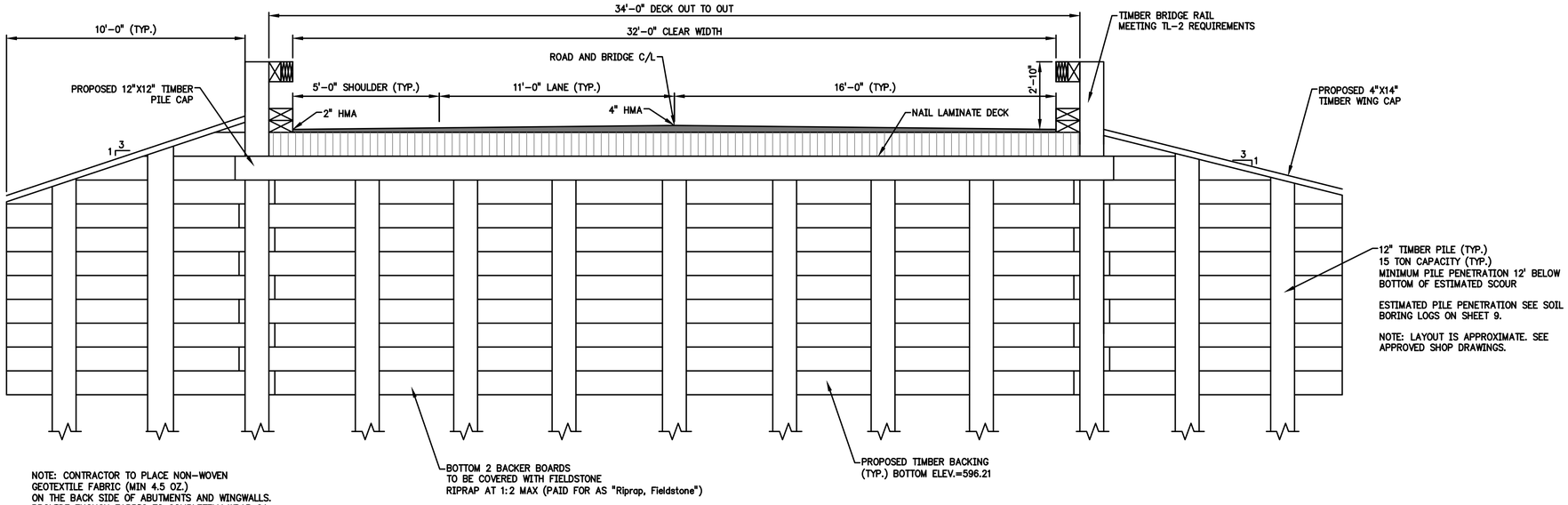
http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	
A	7-25-22	SJG	FOR PERMITS

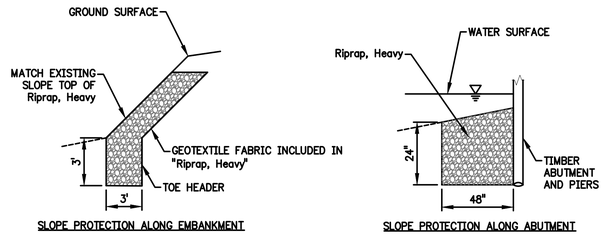
DESC

EMMET COUNTY ROAD COMMISSION
N. LAKE SHORE DRIVE OVER WYCAMP CREEK
GENERAL PLAN OF STRUCTURE
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

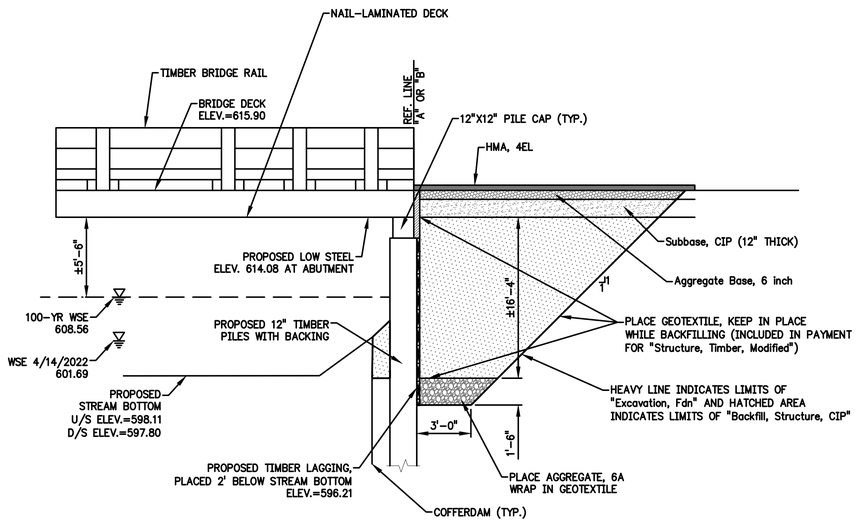
P.M.: JOE WILLIAMS, PE
DR.: SJG
CHD.: JDW
JOB NO.: 22084
SHT 6 OF 10 SHTS



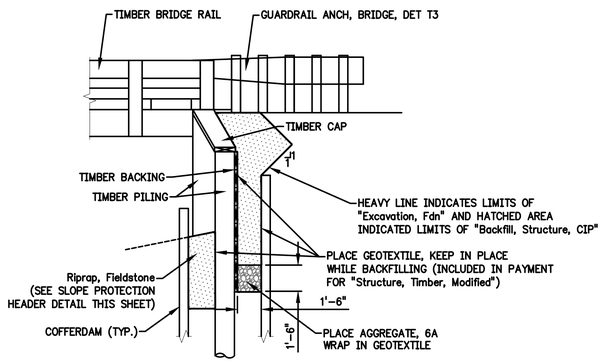
SECTION
NOT TO SCALE



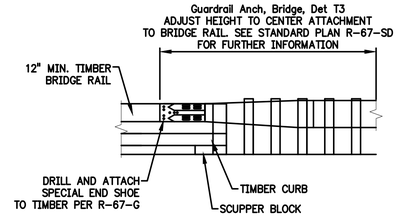
SLOPE PROTECTION HEADER DETAILS
NOT TO SCALE



SECTION
NOT TO SCALE



SECTION A-A WINGWALL
NOT TO SCALE



GUARDRAIL ATTACHMENT
NOT TO SCALE

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
gfa
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

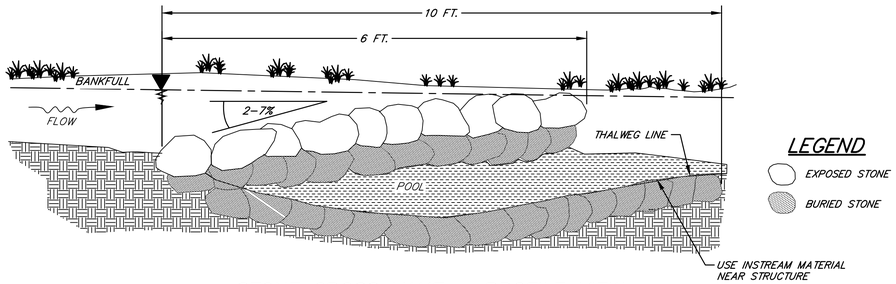
REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS

EMMET COUNTY ROAD COMMISSION

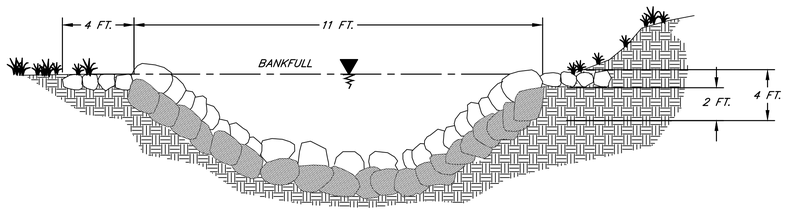
N. LAKE SHORE DRIVE OVER WYCAMP CREEK

GENERAL PLAN OF STRUCTURE
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

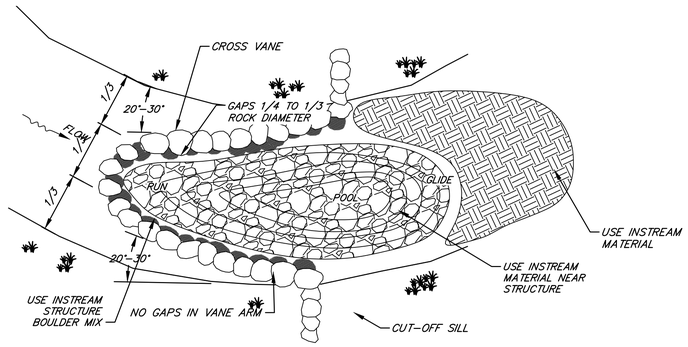
P.M.: JOE WILLIAMS, PE
DR.: SJG CKD.: JDW
JOB NO.: 22084
SHT 7 OF 10



STONE CROSS VANE – PROFILE VIEW
NOT TO SCALE



STONE CROSS VANE – CROSS SECTION
NOT TO SCALE



STONE CROSS VANE – PLAN VIEW
NOT TO SCALE

INSTREAM STRUCTURE BOULDER GRADATION	
PERCENT GRADATION SMALLER THAN	PARTICLE DIAMETER (INCHES)
D100	24.0
D85	19.0
D50	16.0
D30	13.0
D10	6.0

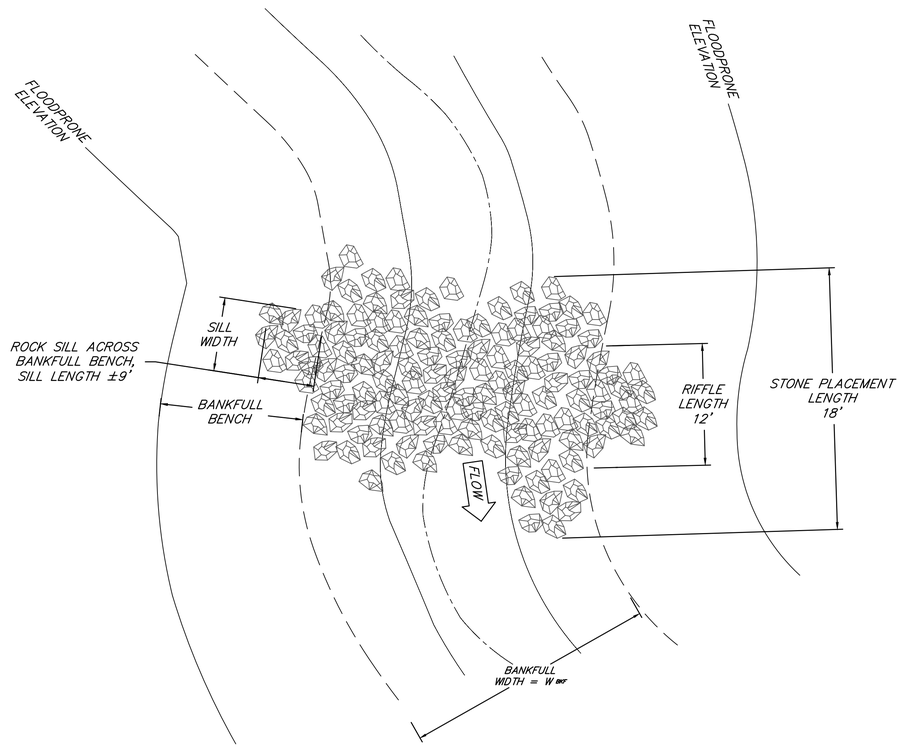
INSTREAM MATERIAL NEAR STRUCTURE & IN RAILROAD CULVERT MATERIAL	
PERCENT GRADATION SMALLER THAN	PARTICLE DIAMETER (INCHES)
D100	13.0
D85	10.5
D50	9.0
D30	7.5
D10	3.5

INSTREAM MATERIAL	
PERCENT GRADATION SMALLER THAN	PARTICLE DIAMETER (INCHES)
D100	4.0
D85	3.0
D50	2.5
D30	2.0
D10	1.0

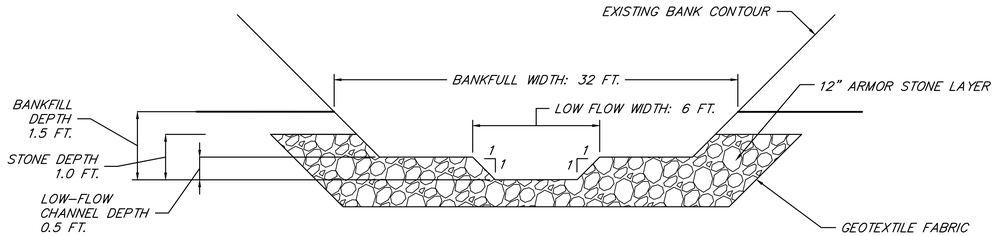
DOWNSTREAM RIFFLE MATERIAL	
PERCENT GRADATION SMALLER THAN	PARTICLE DIAMETER (INCHES)
D100	10.7
D85	8.5
D50	7.1
D30	6.0
D10	2.8

NOTES:

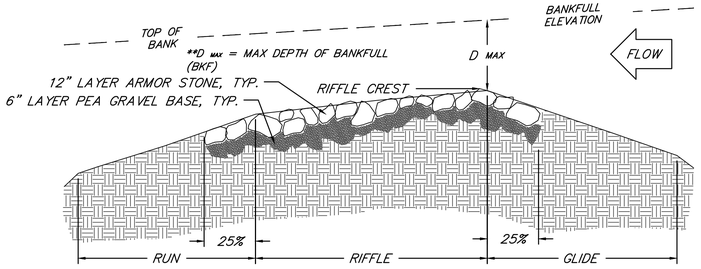
1. TOP OF SILL STONE SET AT GRADE ACROSS SILL LENGTH.
2. FINAL PLACEMENT & DIMENSIONS OF RIFFLES SHALL BE DETERMINED BY ENGINEER IN THE FIELD AND SHALL MATCH EXISTING GRADES AS MUCH AS POSSIBLE.



TYPICAL RIFFLE PLAN
NOT TO SCALE



TYPICAL RIFFLE CROSS SECTION
NOT TO SCALE



NOTE: ARMOR STONE AND PEA GRAVEL EXTEND 25% INTO ADJACENT GLIDE AND RUN BEYOND RIFFLE FOOTPRINT.

TYPICAL RIFFLE PROFILE
NOT TO SCALE

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)

ENGINEERING
SURVEYING
TESTING & OPERATIONS

123 West Front Street
Traverse City, MI 49684

REV #	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS

EMMET COUNTY ROAD COMMISSION

N. LAKE SHORE DRIVE OVER WYCAMP CREEK

STREAM RESTORATION DETAILS

SECTION 35, TOWN 38 NORTH, RANGE 6 WEST

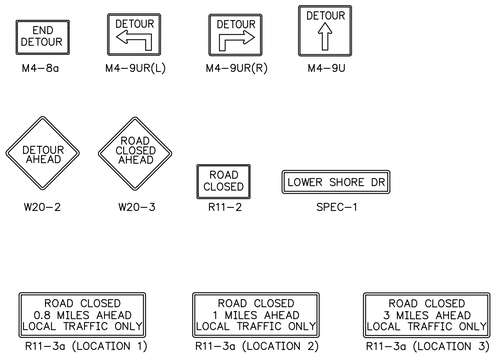
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

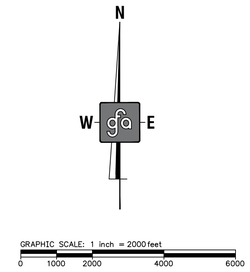
P.M.: JOE WILLIAMS, PE

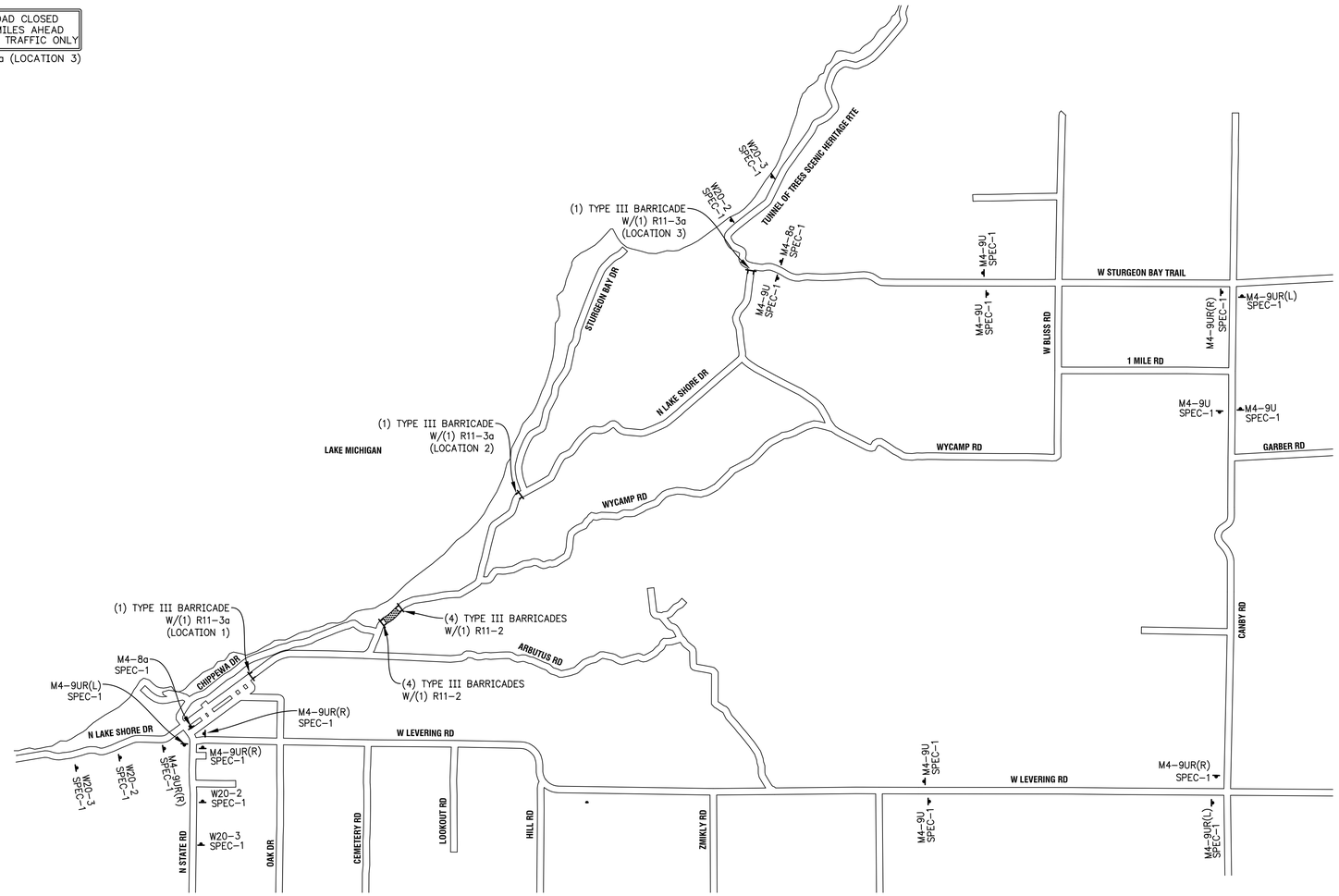
DR.: SJG | CKD.: JDW

JOB NO.: 22084

SHT 8 OF 10







LEGEND

TEMPORARY SIGN

TYPE III BARRICADE

WORK ZONE

TEMPORARY SIGN DETAILS			
MMTUCD #	DESCRIPTION	SIZE	SFT/SIGN
W20-2	ROAD WORK AHEAD	48" X 48"	16
W20-3	DETOUR AHEAD	48" X 48"	16
SPEC-1	ROAD NAME	9" X 36"	2.25
R11-2	ROAD CLOSED	30" X 48"	30
R11-3a	ROAD CLOSED AHEAD	30" X 60"	30
M4-8a	END DETOUR	18" X 24"	3
M4-9	DETOUR	24" X 30"	5
M4-9UR(L)	DETOUR LEFT TURN	30" X 30"	6.25
M4-9UR(R)	DETOUR RIGHT TURN	30" X 30"	6.25

NOTES:
1. CONTRACTOR SHALL MAINTAIN ACCESS AT ALL TIMES FOR LOCAL TRAFFIC TO PROPERTIES AND DRIVEWAYS LOCATED WITHIN THE CONSTRUCTION INFLUENCE AREA UTILIZING "Maintenance Gravel", AS DIRECTED BY THE ENGINEER.
2. TEMPORARY SIGNS SHALL BE PAID FOR AS "Sign, Type B, Temp, Prismatic..." AND "Sign, Type B, Temp, Prismatic, Spec...". BARRICADES SHALL BE PAID FOR AS "Barricade, Type III, High Intensity, Double Sided, Lighted...".

Estimated Quantities This Sheet		
Pay Item	Quantity	Unit
Maintenace Gravel	5	Ton
Barricade, Type III, High Intensity, Double Sided, Lighted, Furn	11	Ea
Barricade, Type III, High Intensity, Double Sided, Lighted, Oper	11	Ea
Minor Traf Devices	1	LS
Sign, Type B, Temp, Prismatic, Furn	332	Sft
Sign, Type B, Temp, Prismatic, Oper	332	Sft
Sign, Type B, Temp, Prismatic, Special, Furn	52	Sft
Sign, Type B, Temp, Prismatic, Special, Oper	52	Sft
Traf Regulator Control	1	LS

http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)
ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS

EMMET COUNTY ROAD COMMISSION

N. LAKE SHORE DRIVE OVER WYCAMP CREEK

MAINTENANCE OF TRAFFIC

SECTION 35, TOWN 38 NORTH, RANGE 6 WEST

CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG CHD.: JDW
JOB NO.: 22084
SHT 9 OF 10 SHTS

Borehole ID: Wycamp TB-03

Sheet 1 of 2

SOILS & STRUCTURES

Project Name:	Wycamp Creek and 5 Mile Creek Watershed Crossing	**Project Number:**	2022.0502
Project Location:	Cross Village & Harbor Springs, Michigan	**Logged By:** H.Barton	**Reviewed By:** H.Barton
Client:	Gourdie-Fraser, Inc.	**Survey Datum:**	NAD 1983 StatePlane Michigan Central **Hole Depth:** 50.00
Date Started:	Apr 25 2022 **Completed:** Apr 25 2022	**Northing:** 851724.6 **Easting:** 19519621.7	**Elevation:** 610.49
Drilling Method:	4.25" Hollow Stem Auger	**Ground Water Levels**	
Equipment:	Acker Renegade	At Time of Drilling	14.75 on Apr 25 2022 - Groundwater Encountered
Hammer Type:	Automatic Hammer	End of Drilling	12.00 on Apr 25 2022 - Static Water Level
Notes:			

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	USCS
1		ASPHALT - (4.0")												
1		GRAVEL - dark brown fine to coarse sandy with silt (6.0")												
2		SAND - slightly compact dark brown to brown fine to coarse gravelly with silt		SPT-A	67	1-2-5	7			3.7				SP-SM
3														
4		SAND - slightly compact brown fine to medium clayey with lenses of gravel		SPT-B	87	3-2-2	4			12.0				SM
5		SAND - loose brown fine to medium with a seam of marl and a trace of gravel												
6														
7		SAND - slightly compact to compact light brown fine to medium with a trace of silt		SPT-C	47	3-3-2	5							SP
8														
9				SPT-D	47	3-4-4	8							SP
10		SAND - slightly compact to compact dark brown to light brown fine to medium with a seam of peat and trace of cobbles												
11														
12														
13														
14				SPT-E	87	2-2-3	5			17.4				SP
15		SAND - slightly compact light brown fine silty												
16														
17														
18		CLAY - soft light brown with sand and a trace of silt												
19				SPT-F	150	0-1-1/0"	2			16.0				CL
20														
21														
22														
23														
24														
25		SAND - very compact light brown fine silty with lenses of clay		SPT-G	67	4-2-22	24			11.3				SM
26														
27														
28														
29		SAND - very compact light brown fine to medium with lenses of cobbles and a trace of silt		SPT-H	100	1-20-18	38							SP
30														

Ann Arbor • Muskegon • Traversе City
(800) 933-3959

Borehole ID: Wycamp TB-03

Sheet 2 of 2

SOILS & STRUCTURES

Project Name:	Wycamp Creek and 5 Mile Creek Watershed Crossing	**Project Number:**	2022.0502
Project Location:	Cross Village & Harbor Springs, Michigan	**Logged By:** H.Barton	**Reviewed By:** H.Barton
Client:	Gourdie-Fraser, Inc.	**Survey Datum:**	NAD 1983 StatePlane Michigan Central **Hole Depth:** 50.00
Date Started:	Apr 25 2022 **Completed:** Apr 25 2022	**Northing:** 851724.6 **Easting:** 19519621.7	**Elevation:** 610.49
Drilling Method:	4.25" Hollow Stem Auger	**Ground Water Levels**	
Equipment:	Acker Renegade	At Time of Drilling	14.75 on Apr 25 2022 - Groundwater Encountered
Hammer Type:	Automatic Hammer	End of Drilling	12.00 on Apr 25 2022 - Static Water Level
Notes:			

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	USCS
31		SAND - very compact light brown fine to medium with lenses of cobbles and a trace of silt												
32														
33														
34				SPT-I	67	4-8-18	26			13.0				SP
35														
36														
37														
38														
39		SAND - extremely compact light brown fine to medium with lenses of cobbles and a trace of silt		SPT-J	47	18-38-26	64							SP
40														
41														
42														
43		SAND - extremely compact light brown fine to medium with a trace of silt												
44				SPT-K	53	10-34-36	70							SP
45														
46														
47														
48														
49				SPT-L	100	8-30-34	64			14.5				SP
50														
51														
52														
53														
54														
55														
56														
57														
58														
59														
60														

Ann Arbor • Muskegon • Traversе City
(800) 933-3959

Borehole ID: Wycamp TB-04

Sheet 2 of 2

SOILS & STRUCTURES

Project Name:	Wycamp Creek and 5 Mile Creek Watershed Crossing	**Project Number:**	2022.0502
Project Location:	Cross Village & Harbor Springs, Michigan	**Logged By:** H.Barton	**Reviewed By:** H.Barton
Client:	Gourdie-Fraser, Inc.	**Survey Datum:**	NAD 1983 StatePlane Michigan Central **Hole Depth:** 55.00
Date Started:	Apr 25 2022 **Completed:** Apr 25 2022	**Northing:** 851700.1 **Easting:** 19519584.8	**Elevation:** 616.48
Drilling Method:	4.25" Hollow Stem Auger	**Ground Water Levels**	
Equipment:	Acker Renegade	At Time of Drilling	12.00 on Apr 25 2022 - Groundwater Encountered
Hammer Type:	Automatic Hammer	End of Drilling	12.00 on Apr 25 2022 - Static Water Level
Notes:			

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	USCS
31		SAND - very compact light brown fine to medium with lenses of gravel and a trace of silt												
32														
33														
34				SPT-I	73	13-24-30	54			19.8				SP
35		SAND - extremely compact to very compact light brown fine to medium with lenses of silt												
36														
37														
38														
39				SPT-J	87	8-20-28	48			17.7				SP
40														
41														
42														
43														
44				SPT-K	53	6-19-19	38							SP
45														
46														
47														
48														
49				SPT-L	67	5-9-10	19							SP
50		SAND - compact to very compact light brown fine to medium												
51														
52														
53														
54				SPT-M	100	3-8-21	29			14.3				SP
55														
56														
57														
58														
59														
60														

Ann Arbor • Muskegon • Traversе City
(800) 933-3959

Borehole ID: Wycamp TB-04

Sheet 1 of 2

SOILS & STRUCTURES

Project Name:	Wycamp Creek and 5 Mile Creek Watershed Crossing	**Project Number:**	2022.0502
Project Location:	Cross Village & Harbor Springs, Michigan	**Logged By:** H.Barton	**Reviewed By:** H.Barton
Client:	Gourdie-Fraser, Inc.	**Survey Datum:**	NAD 1983 StatePlane Michigan Central **Hole Depth:** 55.00
Date Started:	Apr 25 2022 **Completed:** Apr 25 2022	**Northing:** 851700.1 **Easting:** 19519584.8	**Elevation:** 616.48
Drilling Method:	4.25" Hollow Stem Auger	**Ground Water Levels**	
Equipment:	Acker Renegade	At Time of Drilling	12.00 on Apr 25 2022 - Groundwater Encountered
Hammer Type:	Automatic Hammer	End of Drilling	12.00 on Apr 25 2022 - Static Water Level
Notes:			

Depth	Graphic	Material Description	Sample Type	Number	Recovery % RQD	Blow Counts	N-Value	Pocket Pen (tsf)	Shear Strength (tsf)	Moisture Content (%)	Atterberg Limits: Liquid Limit	Atterberg Limits: Plastic Limit	Atterberg Limits: Plasticity Index	USCS
1		ASPHALT - (4.0")												
1		GRAVEL - dark brown fine to coarse sandy with silt (6.0")												
2		SAND - slightly compact to loose dark brown to brown fine to medium with a trace of silt		SPT-A	53	5-4-3	7			3.7				SP
3														
4				SPT-B	80	1-2-2	4							SP
5		SAND - loose to slightly compact light brown fine to coarse												
6														
7				SPT-C	53	2-1-1	2			4.7				SP
8														
9				SPT-D	67	4-3-3	6			8.6				SP
10		SAND - slightly compact to compact light brown fine to medium with silt and lenses of gravel												
11														
12														
13														
14				SPT-E	67	6-5-6	11							SP-SM
15														
16														
17														
18														
19		CLAY - soft light brown sandy		SPT-F	100	3-1-1	2			20.3				CL
20														
21														
22														
23														
24		SAND - compact light brown fine to medium with a trace of silt		SPT-G	47	4-5-3	8							SP
25														
26														
27														
28														
29		SAND - very compact light brown fine to medium with lenses of gravel and a trace of silt		SPT-H	53	3-9-12	21							SP
30														

Ann Arbor • Muskegon • Traversе City
(800) 933-3959

ENGINEERING
SURVEYING
TESTING & OPERATIONS
123 West Front Street
Traverse City, MI 49684
http://gfa.tc
231.946.5874 (p)
231.946.3703 (f)

REV#	DATE	DRN	DESC
A	7-25-22	SJG	FOR PERMITS

EMMET COUNTY ROAD COMMISSION

N. LAKE SHORE DRIVE OVER WYCAMP CREEK

CONSTRUCTION DETAILS
SECTION 35, TOWN 38 NORTH, RANGE 6 WEST
CROSS VILLAGE TOWNSHIP, EMMET COUNTY, MICHIGAN

P.M.: JOE WILLIAMS, PE
DR.: SJG
CHD.: JDW
JOB NO.: 22084
SHT 10 OF 10