PORT BRUCE BRIDGE REPLACEMENT

SCHEDULE B MUNICIPAL CLASS ENVIRONMENTAL ASSESSMENT

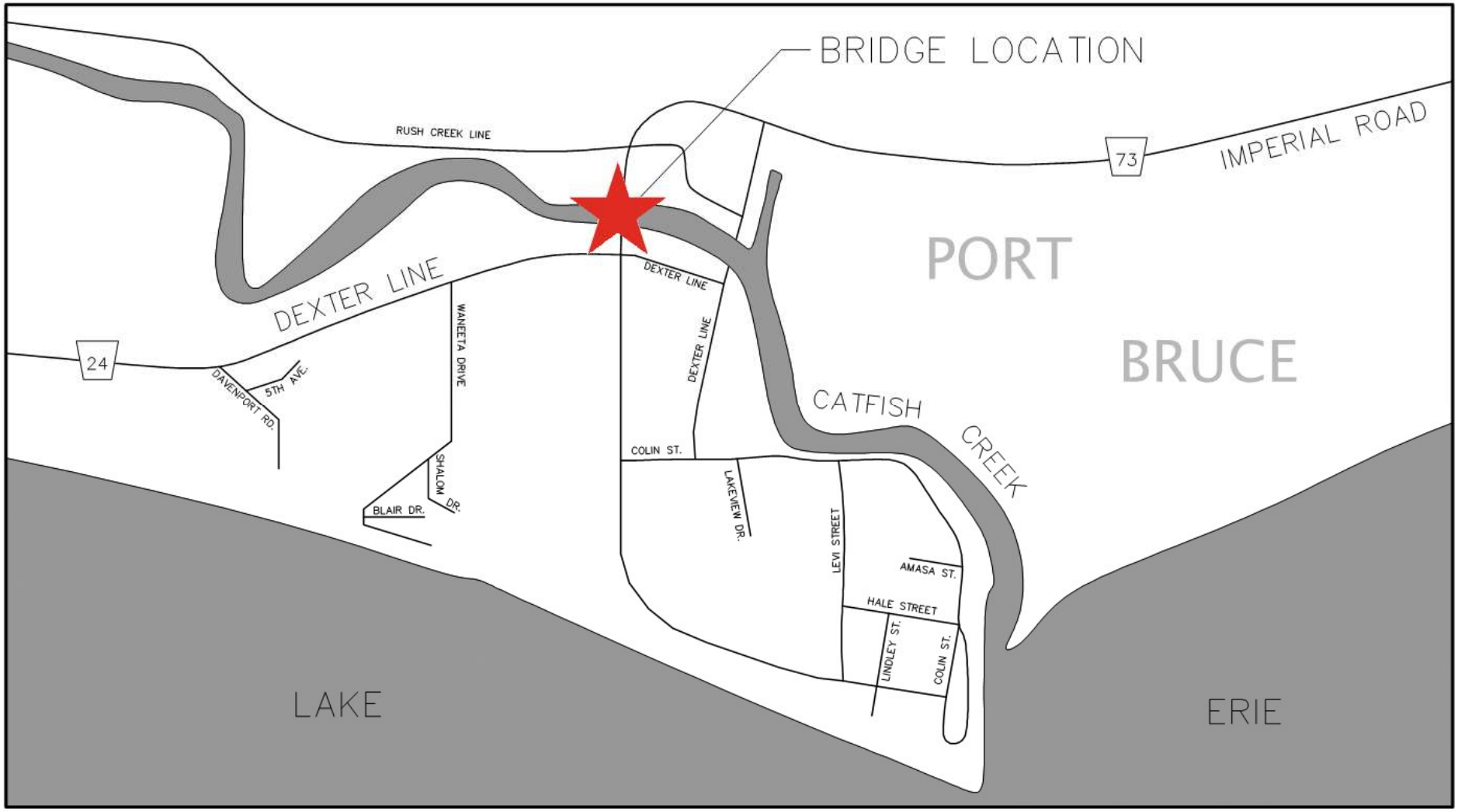
PUBLIC INFORMATION CENTRE

East Elgin Community Complex
531 Talbot Street West, Aylmer

5:00 - 7:00pm
Tuesday, July 16, 2019

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

Project Location



WELCOME

Study Background

- The Port Bruce Bridge which spans Catfish Creek on Imperial Road (Elgin County Road 73) collapsed on February 23, 2018.
- The structure has been removed entirely with the exception of the south abutment, pier footings, and north abutment footing.
- A single lane modular panel bridge has been installed approximately 150m downstream to provide vehicular and pedestrian access across Catfish Creek until a new, permanent bridge is constructed.
- The study is being completed as a Schedule 'B' project, following the Municipal Class Environmental Assessment process.
- The Municipal Class EA provides a decision-making process to ensure that all relevant engineering and environmental features are considered in the planning and design of municipal infrastructure. The process requires public and agency involvement.

Municipal Class Environmental Assessment Process

Phase 1: Identify the Problem

- Identify the current problem or deficiencies

Key principles of the MCEA process include:
- **Consultation with the affected parties**
- **Consideration of reasonable alternatives**
- **Identification of the effects of each alternative**
- **Evaluation of the advantages and disadvantages of each alternative**
- **Documentation of the decision-making process**

Phase 2: Alternative Solutions

- Identify reasonable alternative solutions to the problem(s)
- Inventory natural, social and economic environments
- Evaluate the alternative solutions and identify the recommended solutions
- Consult review agencies and the public
- Select the preferred solution

We are here!

Phase 5: Implementation

- Complete contract drawings
- Proceed to design/ construction of the project
- Monitor for environmental provisions and commitments

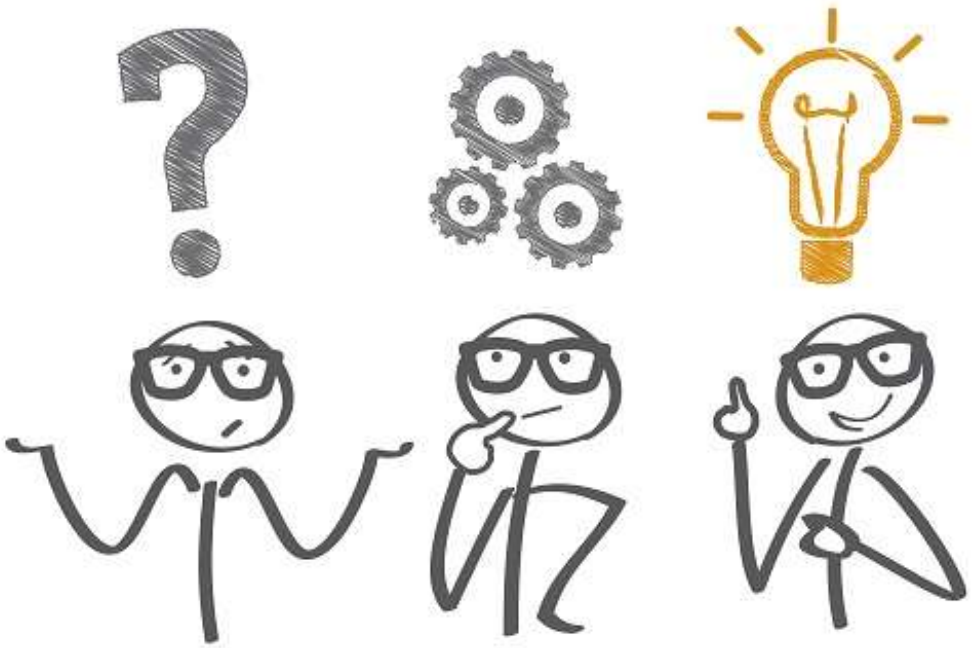
This study will follow the Schedule 'B' Class MCEA requirements

Note: Phase 3, *Alternative Design Concepts*, & Phase 4, *Environmental Study Report,* Do Not Apply to Schedule B Projects

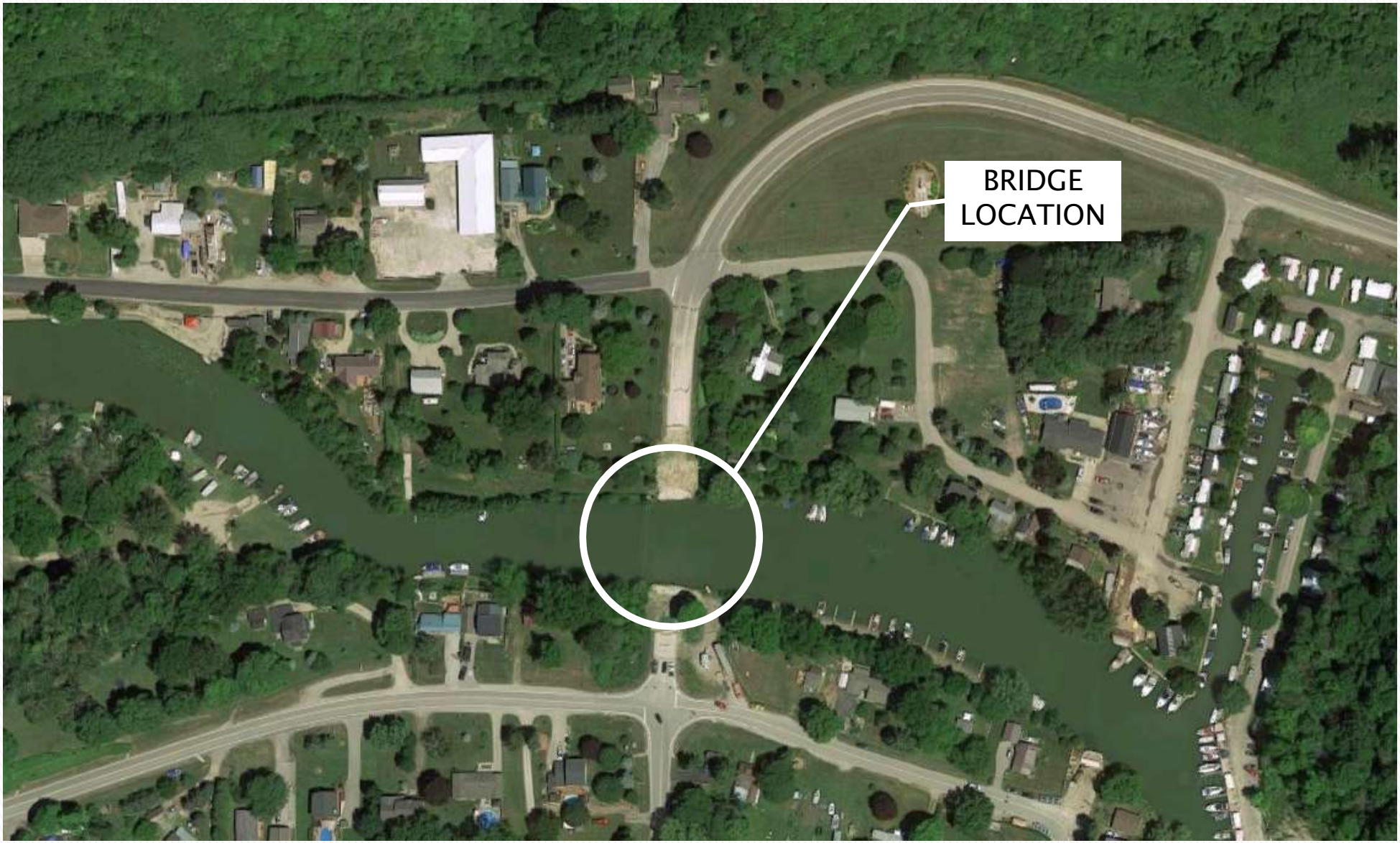
Study Objective

Problem/Opportunity Statement:

To investigate replacement alternatives of the Port Bruce Bridge to re-establish a permanent, two lane crossing of Catfish Creek.



The goal of this public information centre is to display background information, present the evaluation of considered alternatives to address the problem identified, and receive input on the preferred alternative.



https://www.google.com/maps/@42.6620659,-81.0147296,472m/data=!3m1!1e3

North Approach (looking south)

South Approach (looking north)

North Approach (looking north)

South Approach (looking south)

Far South Approach (looking north)

Looking west (upstream)

Existing South Abutment

Single Lane Modular Bridge 150m Downstream (looking east)

Evaluation of Alternatives (page 1 of 2)

Alternative 2 is chosen because it has the lowest overall score and addressess the problem statement.

Notes: Alternatives are ranked 1-4 with 1 having the least impact with 4 having the most impact except where noted.
Each row equals 10 points to ensure each criterion is weighted the same.

Criteria	Alternative 1 (Do Nothing)	Alternative 2 (Three-Span Steel Girder Bridge)	Alternative 3 (Single Span Steel Truss Bridge)	Alternative 4 (Single or Multi-Span Bailey Bridge)	Comment
Impacts to fish and fish habitat	1	3.5	2	3.5	Considers disruption to fish and potential loss of fish habitat
Impacts to vegetation and flora	1	3	3	3	Considers overall loss of vegetation 1 does not result in loss of vegetation 3 results in loss of vegetation
Impact to wildlife and wildlife habitat	2	1	3	4	1 will result in an overall improvement 4 will result in an overall loss
Changes to groundwater and surface water quantity and quality	4	2	2	2	2 can result in an overall improvement 4 will not result in an improvements
Impact on stream flow	1	3.5	2	3.5	1 has the least impact 2 has some impact 3.5 has the most impact
Potential for ice jams	1	3.5	2	3.5	1 has no potential for ice jams 2 has some potential for ice jams 3.5 has potential for ice jams
Impact to community	4	2	2	2	Considers impact to the community by not having a permanent crossing 2 if a new bridge is built 4 if no bridge is built
Impact to residential areas	4	2	2	2	Considers loss of value of residential property by not having a permanent crossing 2 if a new bridge is built 4 if no bridge is built
Impact to local business	4	2	2	2	Considers negative impact to local business by not having a permanent crossing 2 if a new bridge is built 4 if no bridge is built
Impact to recreation	1.5	3.5	1.5	3.5	Considers potential changes to navigation
Impact to future development	4	2	2	2	Considers loss of future development by not having a permanent crossing 2 if a new bridge is built 4 if no bridge is built
Need for property acquisition	1	2	3	4	1 requires no property to be purchased 4 requries the most amount of property to be purchased
Length of construction	1	4	3	2	1 is the shortest to construct 4 is the longest to construct
Improvement to traffic movment	4	2	2	2	2 will provide improvement 4 will not provide improvement
Changes to noise and vibration	3	1	2	4	1 will result in a reduction in noise and vibration 4 will result in changes to noise and vibration

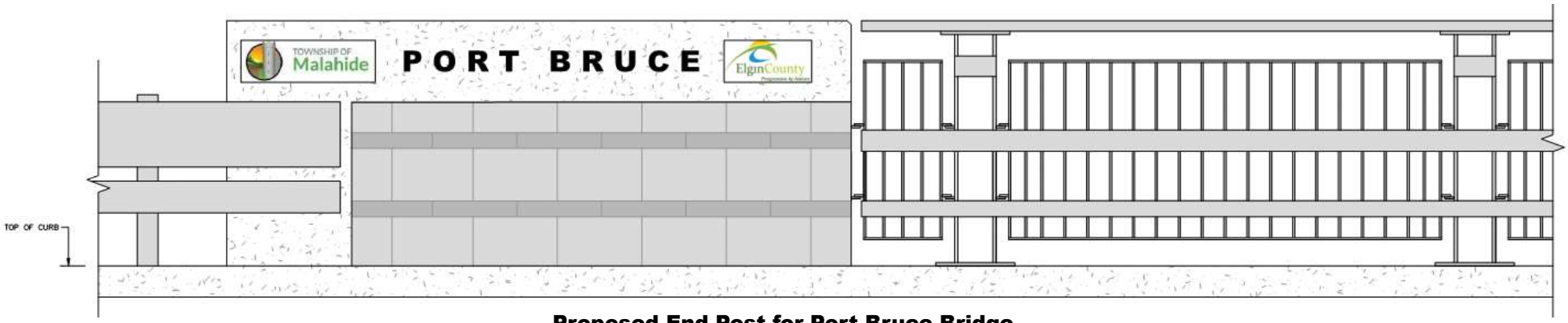
Evaluation of Alternatives (page 2 of 2)

Alternative 2 is chosen because it has the lowest overall score and addressess the problem statement.

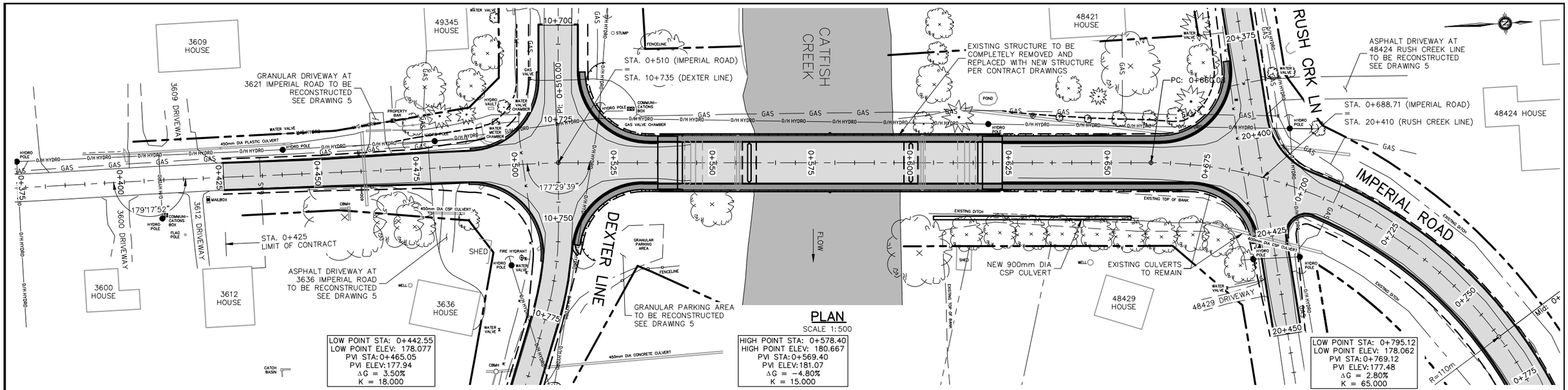
Notes: Alternatives are ranked 1-4 with 1 having the least impact with 4 having the most impact except where noted.
Each row equals 10 points to ensure each criterion is weighted the same.

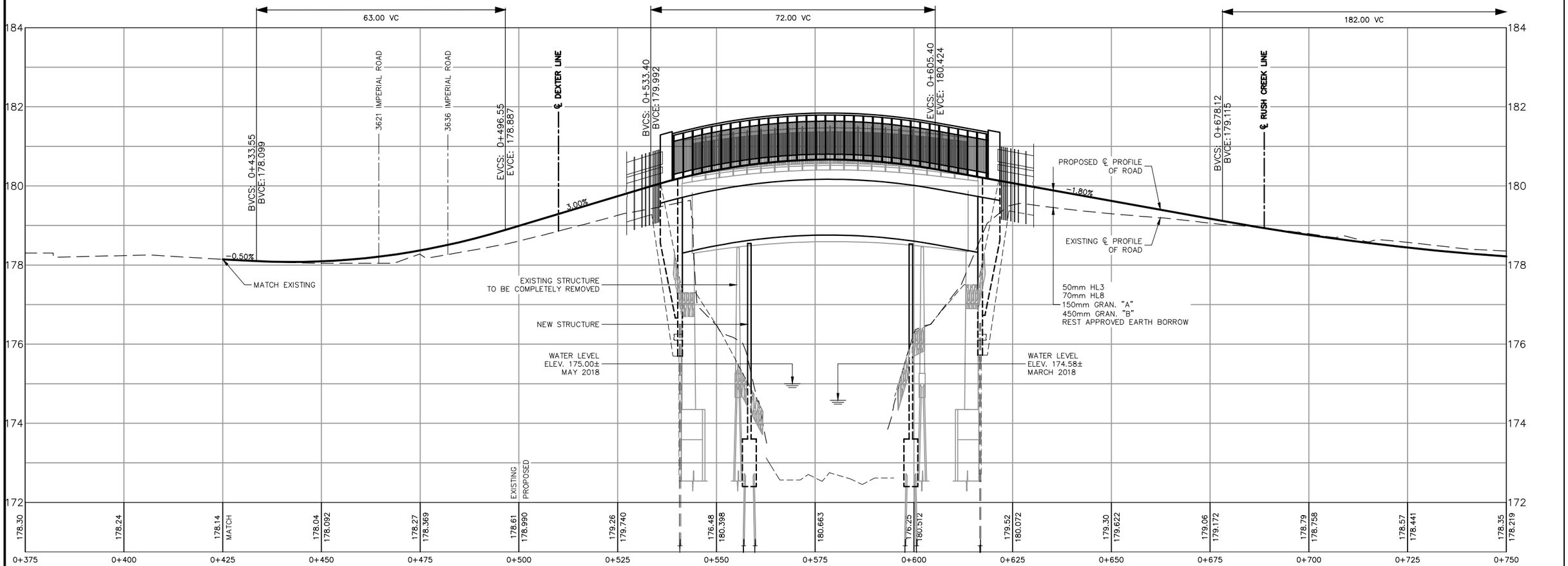
Criteria	Alternative 1 (Do Nothing)	Alternative 2 (Three-Span Steel Girder Bridge)	Alternative 3 (Single Span Steel Truss Bridge)	Alternative 4 (Single or Multi-Span Bailey Bridge)	Comment
Changes to air quality	4	2	2	2	Considers positive change to air quality as a result of quicker travel times 2 if a new bridge is built 4 if no bridge is built
Access to emergency services	4	2	2	2	Considers response times 2 if a new bridge is built 4 if no bridge is built
Aesthetics	4	1	2	3	1 would restore the aesthetics of Port Bruce to a pre-collapse state 4 does not address any aesthetics
Extent the alternative addresses the problem statement	4	2	2	2	2 meets the problem statement 4 does not meet the problem statement
Height restrictions	2	2	4	2	4 if there is a height limit across the bridge 2 if not
Width restrictions	1.5	1.5	3.5	3.5	3.5 if the structure is limited in width 1.5 if there is no limit
Provision of sidewalks	4	1	2	3	Considers ease and relative cost to provide sidewalks
Provision of cycling lanes	4	1	2	3	Considers ease and relative cost to provide cycling lanes
Ability to improve hydrology/hydraulic conditions	4	2	2	2	2 allows for improvement 4 does not allow improvement
Constructability	1	3	4	2	1 is the easiest to construct 4 is the hardest to construct
Construction timeline	1	4	3	2	1 is the shortest to construct 4 is the longest to construct
Lifespan	4	1	2	3	1 is the longest period prior to reconstruction of the bridge 4 is the shortest period prior to reconstruction of the bridge
Need for ongoing maintenance	2	1	3	4	Assumes doing nothing requries no maintenance while checking transom clamps periodically results in the highest maintenance costs
Overall construction cost	1	3	4	2	1 is the lowest overall construction cost 4 is the highest overall construction cost
Maintenance costs	1	2	3	4	Assumes doing nothing requries no maintenance while checking transom clamps periodically results in the highest maintenance costs
Totals	**78**	**65.5**	**74**	**82.5**	

Proposed End Post



Proposed End Post for Port Bruce Bridge





No.	REVISION	DATE
1.	ISSUED FOR PIC	JULY 16/19

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DRAWN BY: D.S.
CHECKED BY: A.G.
FIELD BOOK:

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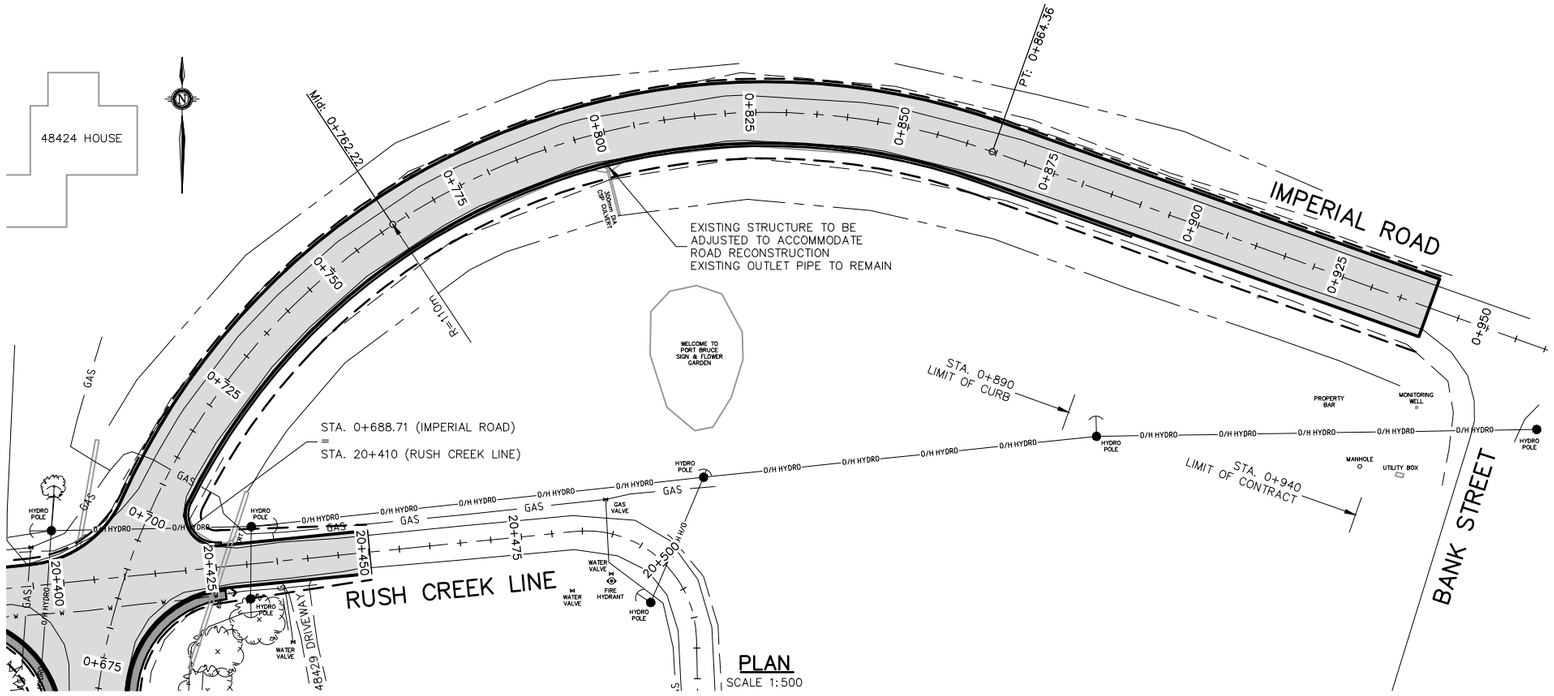
PORT BRUCE BRIDGE REPLACEMENT

TOWNSHIP OF MALAHIDE — COUNTY OF ELGIN

PLAN & PROFILE - IMPERIAL ROAD

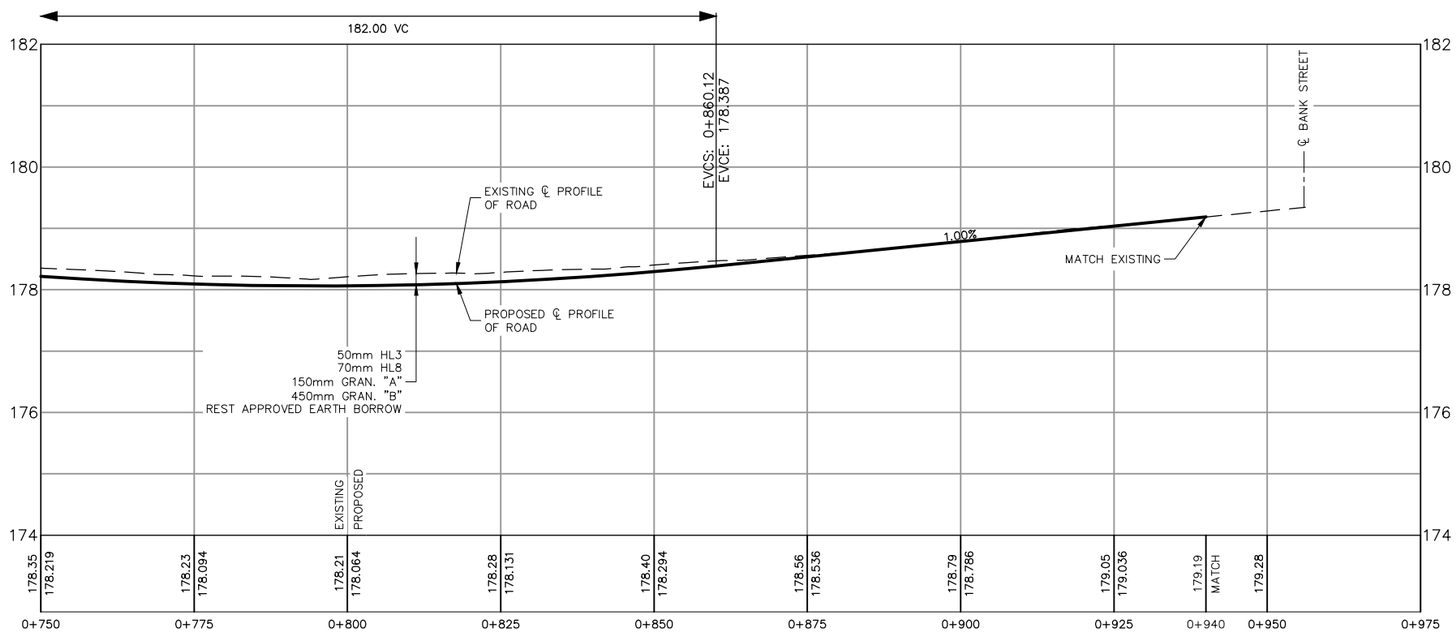
K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER 18-283
DATE JULY 2019
DRAWING NUMBER 1



PLAN
SCALE 1:500

LOW POINT STA: 0+795.12
LOW POINT ELEV: 178.062
PVI STA: 0+769.12
PVI ELEV: 177.48
ΔG = 2.80%
K = 65.000



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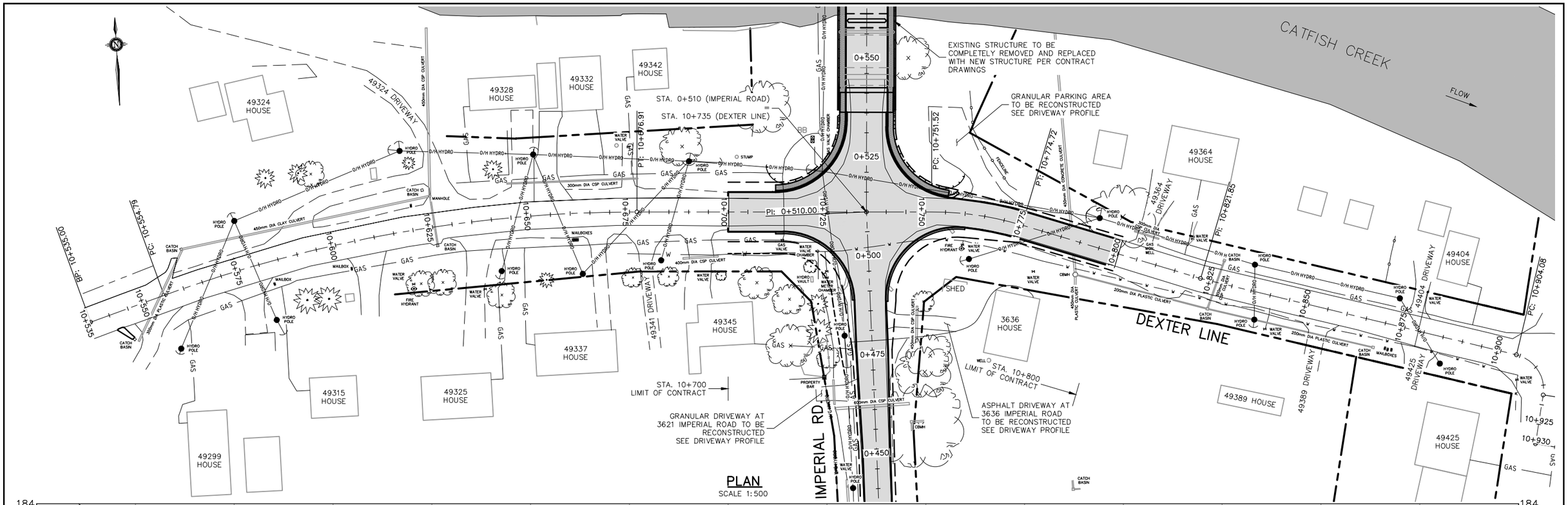
PORT BRUCE BRIDGE REPLACEMENT

TOWNSHIP OF MALAHIDE — COUNTY OF ELGIN

PLAN & PROFILE - IMPERIAL ROAD CONTINUED

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER 18-283
DATE JULY 2019
DRAWING NUMBER 2



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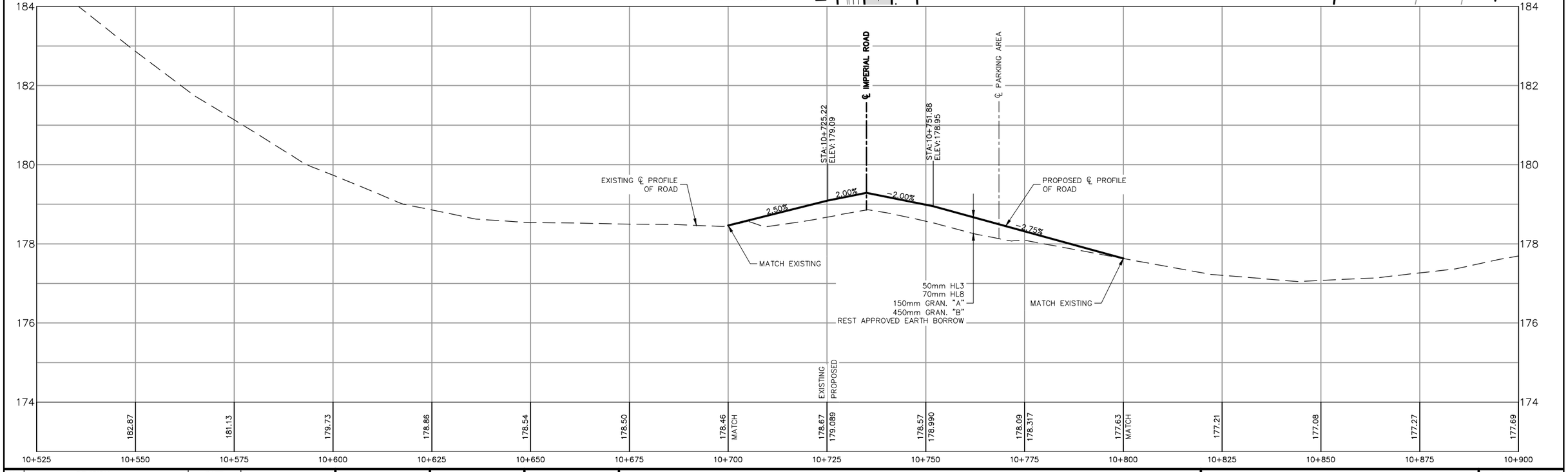

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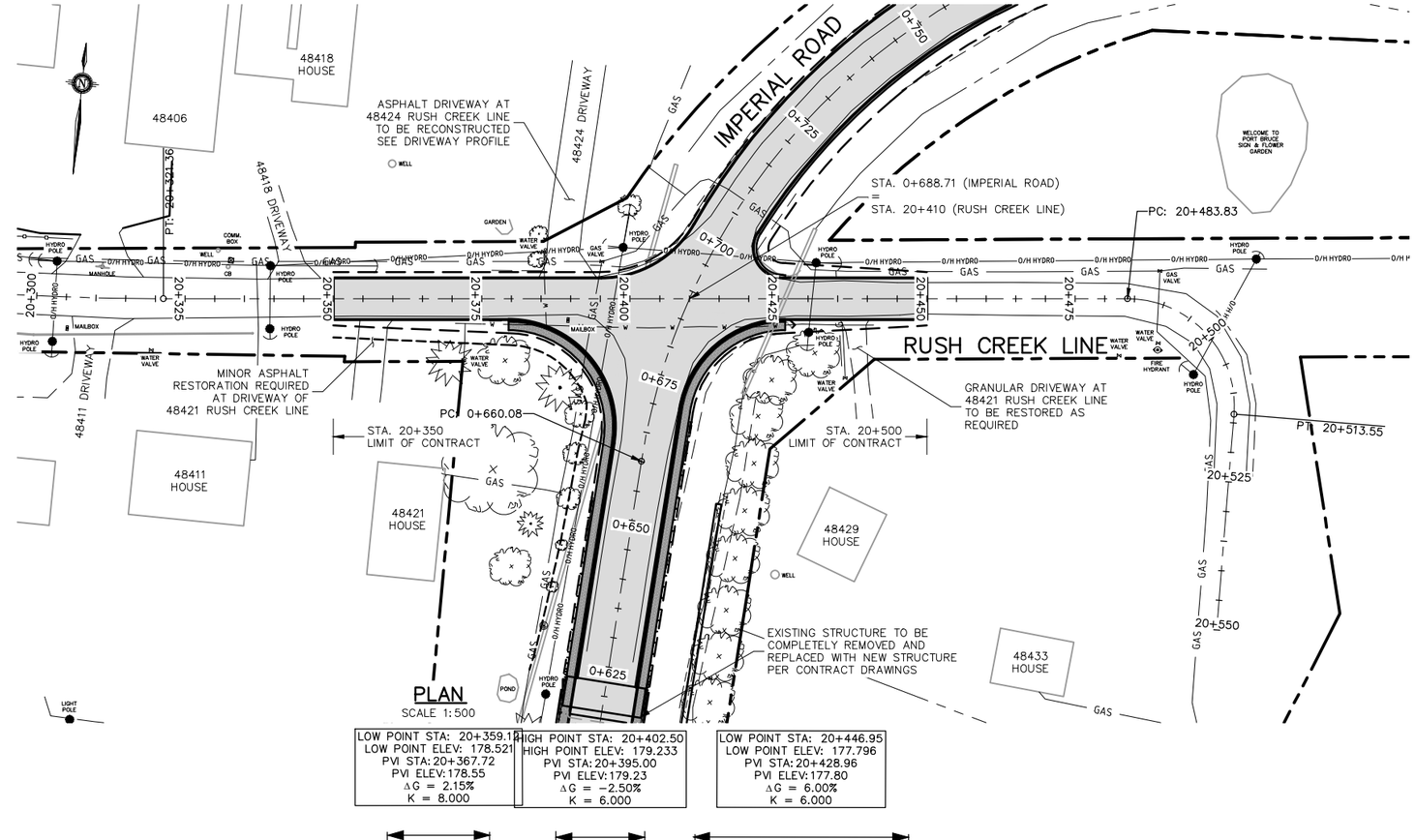
PORT BRUCE BRIDGE REPLACEMENT

TOWNSHIP OF MALAHIDE — COUNTY OF ELGIN

PLAN & PROFILE - DEXTER LINE

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER 18-283
DATE JULY 2019
DRAWING NUMBER 3



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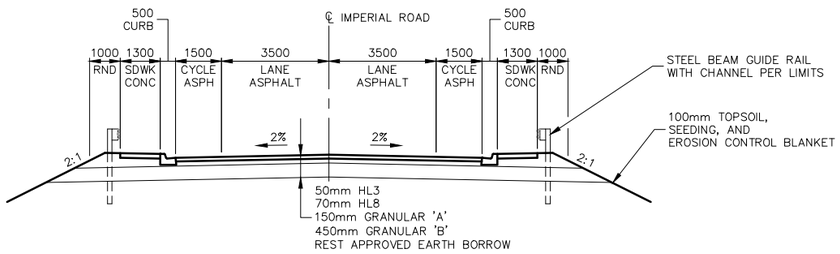
PORT BRUCE BRIDGE REPLACEMENT

TOWNSHIP OF MALAHIDE — COUNTY OF ELGIN

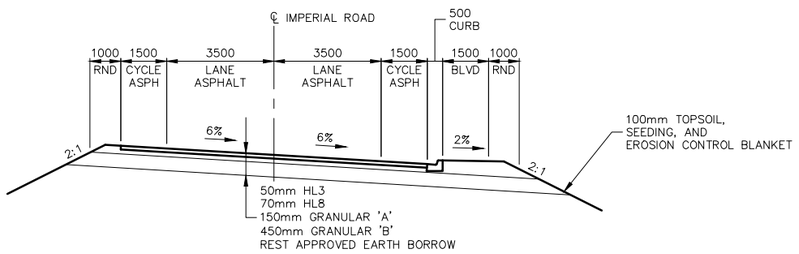
PLAN & PROFILE - RUSH CREEK LINE

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

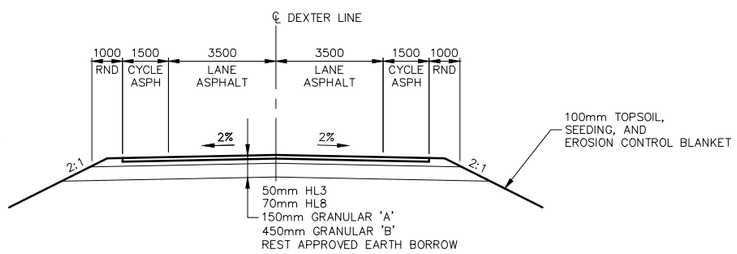
JOB NUMBER 18-283
DATE JULY 2019
DRAWING NUMBER 4



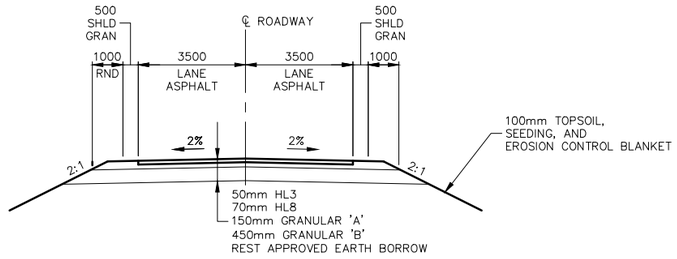
IMPERIAL ROAD
END OF BRIDGE BARRIER TO INTERSECTIONS
SCALE 1:100



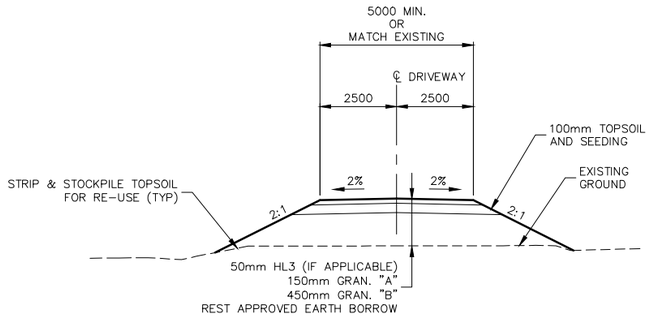
IMPERIAL ROAD
RUSH CREEK LINE TO BANK STREET (SUPERELEVATED)
SCALE 1:100



DEXTER LINE
WEST CONSTRUCTION LIMIT TO IMPERIAL ROAD
SCALE 1:100



RUSH CREEK LINE (FULL LENGTH)
IMPERIAL ROAD (SOUTH CONST. LIMIT TO DEXTER LINE)
DEXTER LINE (IMPERIAL ROAD TO EAST CONST. LIMIT)
SCALE 1:100



TYPICAL DRIVEWAY SECTION
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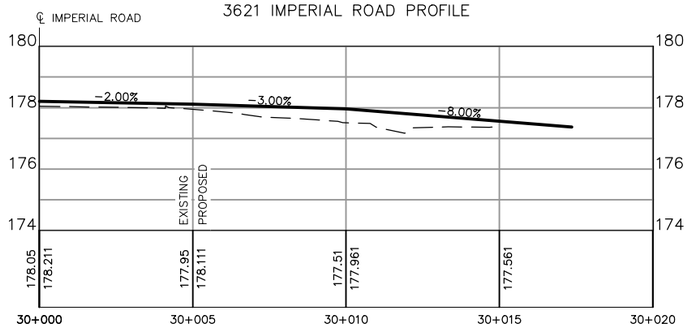

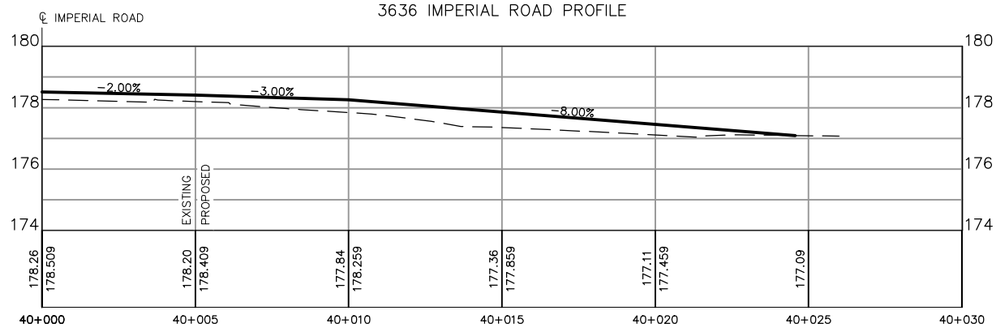

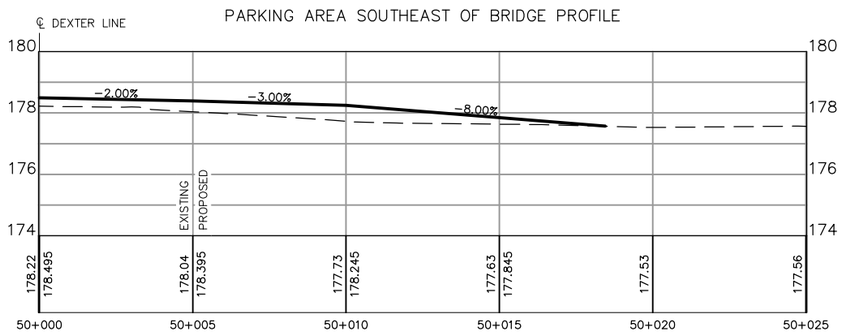

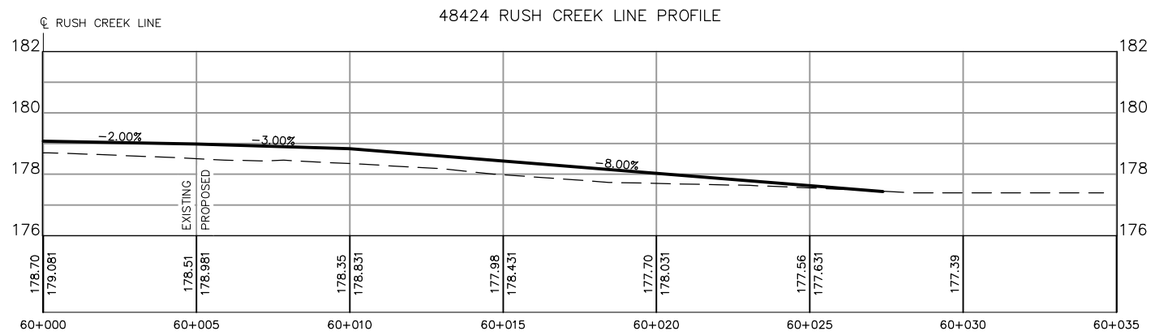

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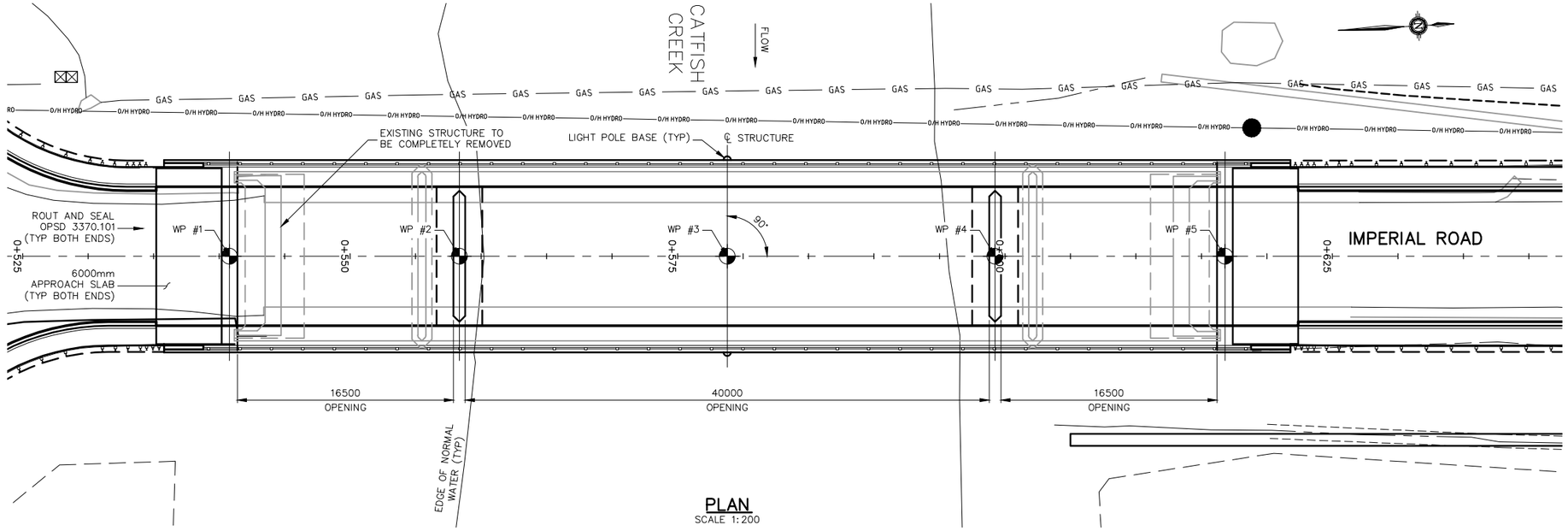
PORT BRUCE BRIDGE REPLACEMENT

TOWNSHIP OF MALAHIDE — COUNTY OF ELGIN

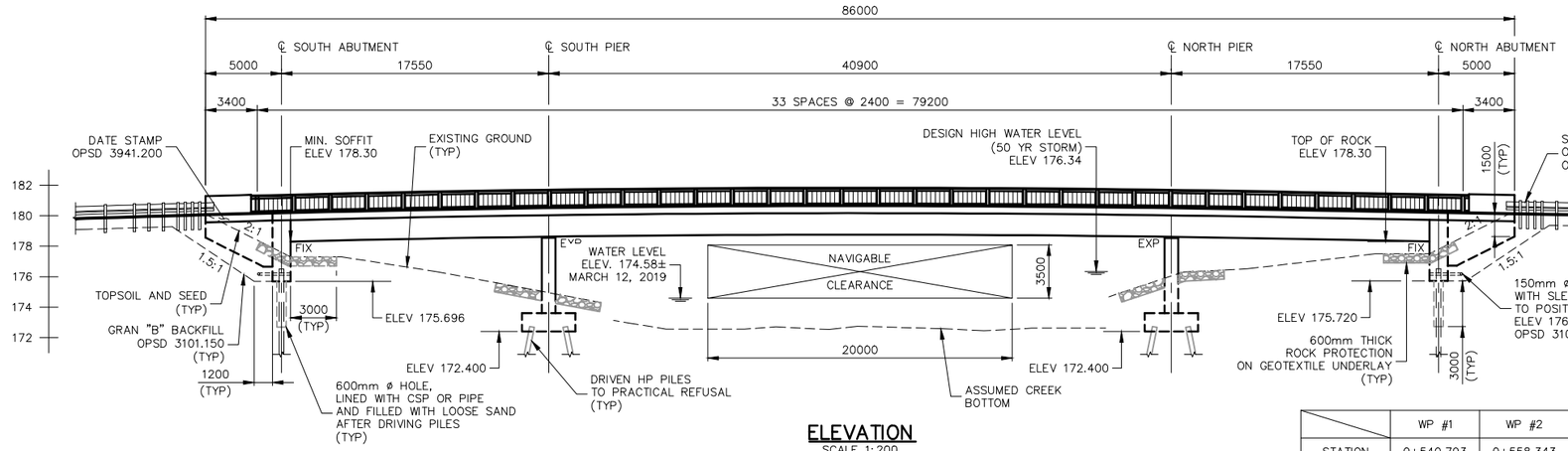
ROADWAY CROSS SECTIONS & DRIVEWAY PROFILES

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER — SUDBURY

JOB NUMBER 18-283
DATE JULY 2019
DRAWING NUMBER 5



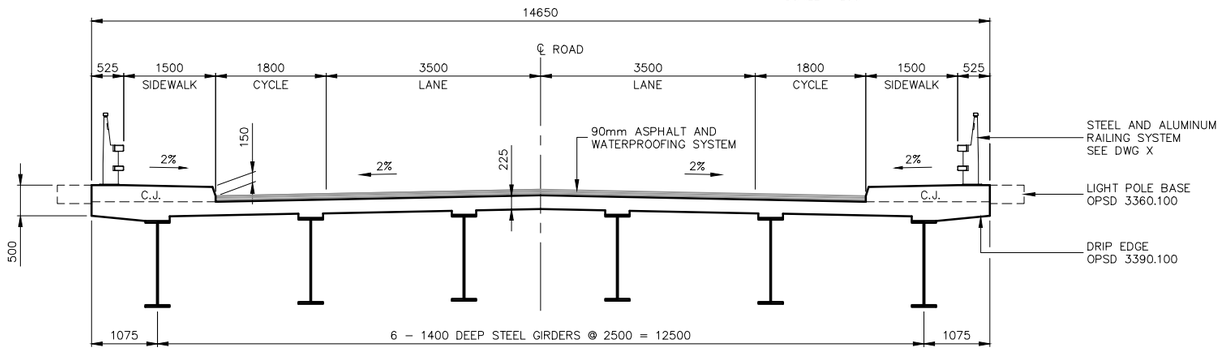
PLAN
SCALE 1:200



ELEVATION
SCALE 1:200

	WP #1	WP #2	WP #3	WP #4	WP #5
STATION	0+540.793	0+558.343	0+578.793	0+599.243	0+616.793
ELEVATION	180.196	180.533	180.667	180.523	180.219

NOTE: WORKING POINT ELEVATIONS GIVEN TO TOP OF ASPHALT



DECK CROSS SECTION
SCALE 1:50

APPLICABLE STANDARD DRAWINGS

OPSD – 3101.150	WALLS, ABUTMENT, BACKFILL MINIMUM GRANULAR REQUIREMENT
OPSD – 3102.100	WALLS, ABUTMENT, BACKFILL DRAIN
OPSD – 3360.100	DECK, LIGHT POLE BASES, STRUCTURES WITH BARRIER WALLS
OPSD – 3419.100	BARRIERS AND RAILINGS STEEL GUIDE RAIL AND CHANNEL ANCHORAGE
OPSD – 3941.200	FIGURES IN CONCRETE SITE NUMBER AND DATE LAYOUT
OPSD – 3370.100	DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE WITH PROTECTION BOARD
OPSD – 3370.101	DECK, WATERPROOFING HOT APPLIED ASPHALT MEMBRANE AT ACTIVE CRACKS GREATER THAN 2mm WIDE AND CONSTRUCTION JOINTS

GENERAL NOTES

1. STRUCTURE DESIGNED FOR CL–625 (ONT) LOADING PLUS 90mm ASPHALT AND WATERPROOFING SYSTEM IN ACCORDANCE WITH THE CANADIAN HIGHWAY BRIDGE DESIGN CODE 2014.
2. WORK ON THE STRUCTURE MUST NOT BE COMMENCED UNTIL MONUMENTS TO FIX CONTROL POINTS HAVE BEEN ERECTED AND CHECKED BY THE CONTRACT ADMINISTRATOR
3. STRUCTURE TO BE BUILT IN ACCORDANCE WITH THE MOST CURRENT OPS SPECIFICATIONS AND DRAWINGS AS WELL AS THE CONTRACT ADMINISTRATORS SPECIFICATIONS.
4. THE COMPLETE SOIL INVESTIGATION REPORT BY CHUNG & VANDER DOELEN ENGINEERING LTD. FORM PART OF THE CONTRACT DOCUMENTS. THE ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS REPORT. THE CONTRACTOR SHALL REVIEW THE REPORT AND DETERMINE HIS OWN METHOD TO CONTROL GROUND WATER DURING THE CONSTRUCTION.
5. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS ON THE JOB AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK
6. CLASS OF CONCRETE:

   CAST–IN–PLACE CONCRETE 35 MPA C–1 MIX

   ALL CONCRETE SHALL INCLUDE AN APPROVED AIR ENTRAINING ADMIXTURE
7. CLEAR COVER TO REINFORCING STEEL

FOOTINGS	100 ± 25mm
BOTTOM OF ABUTMENTS	100 ± 25mm
BOTTOM OF DECK	40 ± 10mm
REMAINDER (UNLESS NOTED OTHERWISE)	70 ± 20mm

8. REINFORCING STEEL SHALL BE GRADE 400. BARS MARKED WITH A POSTFIX "S" DENOTE STAINLESS STEEL BARS. UNLESS OTHERWISE SHOWN, TENSION LENGTH LAPS NOT INDICATED ON THE CONTRACT DRAWINGS SHALL BE CLASS "B". BAR HOOKS SHALL BE MINIMUM LENGTH AND STIRRUPS SHALL HAVE MINIMUM HOOKS, UNLESS INDICATED OTHERWISE.
9. STAINLESS STEEL BARS SHALL BE TYPE 316 LN OR DUPLEX 2205 WITH A MINIMUM YIELD STRENGTH OF 500 MPA.
10. MINIMUM LAP OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH THE CHBDC (2014)
11. ALL CONCRETE SHALL BE PLACED IN THE DRY.
12. NO CONCRETE SHALL BE PLACED BEFORE MATERIALS, FORMWORK AND REINFORCING STEEL HAVE BEEN CHECKED BY THE CONTRACT ADMINISTRATOR
13. ALL EXPOSED EDGES TO BE CHAMFERED 19mm UNLESS OTHERWISE NOTED. ALL ACUTE ANGLES SHALL BE FILLETED AS NOTED.
14. CONSTRUCTION JOINTS NOT SHOWN ON THE PLANS MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR.
15. BEARING SEATS SHALL BE FINISHED DEAD LEVEL TO THE SPECIFIED ELEVATIONS TO A TOLERANCE OF ±3mm.
16. THE BRIDGE DECK SHALL BE FINISHED USING AN APPROVED FINISHING MACHINE IN ACCORDANCE WITH OPS.MUNI 904.
17. ANY EXCAVATED OR IMPORTED MATERIAL SHALL BE STOCKPILED WELL AWAY FROM THE EDGE OF THE EXCAVATION AND AT APPROVED LOCATIONS.
18. NO BACKFILL SHALL BE PLACED UNLESS APPROVED BEFOREHAND BY THE CONTRACT ADMINISTRATOR. NATIVE MATERIAL SHALL NOT BE REMOVED FROM THE CONSTRUCTION SITE WITHOUT WRITTEN APPROVAL FROM THE CONTRACT ADMINISTRATOR.
19. ROCK PROTECTION SHALL BE 300mm NOMINAL SIZE WITH 50% LARGER THAN 300mm AND 50% SMALLER THAN 300mm. ROCK PROTECTION SHALL BE PLACED ON GEOTEXTILE UNDERLAY.

SEQUENCE OF CONSTRUCTION

1. THE ABUTMENTS, WINGWALLS, AND PIERS SHALL BE CONSTRUCTED FIRST TO BEARING SEAT ELEVATIONS.
2. THE GIRDERS SHALL BE PLACED ON A SUPPORT THAT ALLOWS ROTATION AND DEFLECTION OF THE GIRDERS DUE TO SELF WEIGHT AND DEAD WEIGHT OF THE DECK.
3. THE DECK AND THE PORTION OF THE ABUTMENTS AND WINGWALLS ABOVE THE BEARING SEAT ELEVATIONS SHALL BE CAST INTEGRALLY WITH THE GIRDERS.
4. THE DECK AND THE PORTION OF THE ABUTMENTS AND WINGWALLS ABOVE THE BEARING SEAT ELEVATIONS SHALL BE POURED IN SEQUENCE SO THAT THE STRUCTURE BECOMES INTEGRAL WITH NO RESIDUAL STRESSES. THE ENDS OF THE DECK SHALL BE PLACED LAST UNLESS CONCRETE CAN BE SUFFICIENTLY RETARDED TO ALLOW THE PLACEMENT FROM ONE END TO THE OTHER IN A SINGLE POUR, SUBJECT TO THE APPROVAL OF THE CONTRACT ADMINISTRATOR
5. THE STABILITY AND INTEGRITY OF THE STRUCTURE SHALL BE MAINTAINED AT ALL STAGES OF CONSTRUCTION INCLUDING BREAKS IN THE CONSTRUCTION TIMELINE.
6. BACKFILL SHALL NOT BE PLACED BEHIND THE ABUTMENTS UNTIL THE DECK HAS REACHED 75% OF ITS SPECIFIED STRENGTH AND PERMISSION FROM THE CONTRACT ADMINISTRATOR IS GRANTED.
7. BACKFILL SHALL BE PLACED SIMULTANEOUSLY BEHIND BOTH ABUTMENTS KEEPING THE HEIGHT OF THE BACKFILL APPROXIMATELY THE SAME. AT NO TIME SHALL THE DIFFERENCE IN HEIGHTS OF BACKFILL BE GREATER THAN 500mm.

No.	REVISION	DATE
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DESIGNED BY: A.G.
CHECKED BY: --
DRAWN BY: D.S.
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FIELD BOOK:

SCALE
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(ON 24 x 36 PAPER)

PORT BRUCE BRIDGE REPLACEMENT

TOWNSHIP OF MALAHIDE — COUNTY OF ELGIN

GENERAL ARRANGEMENT

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER 18–283
DATE JULY 2019
DRAWING NUMBER 6

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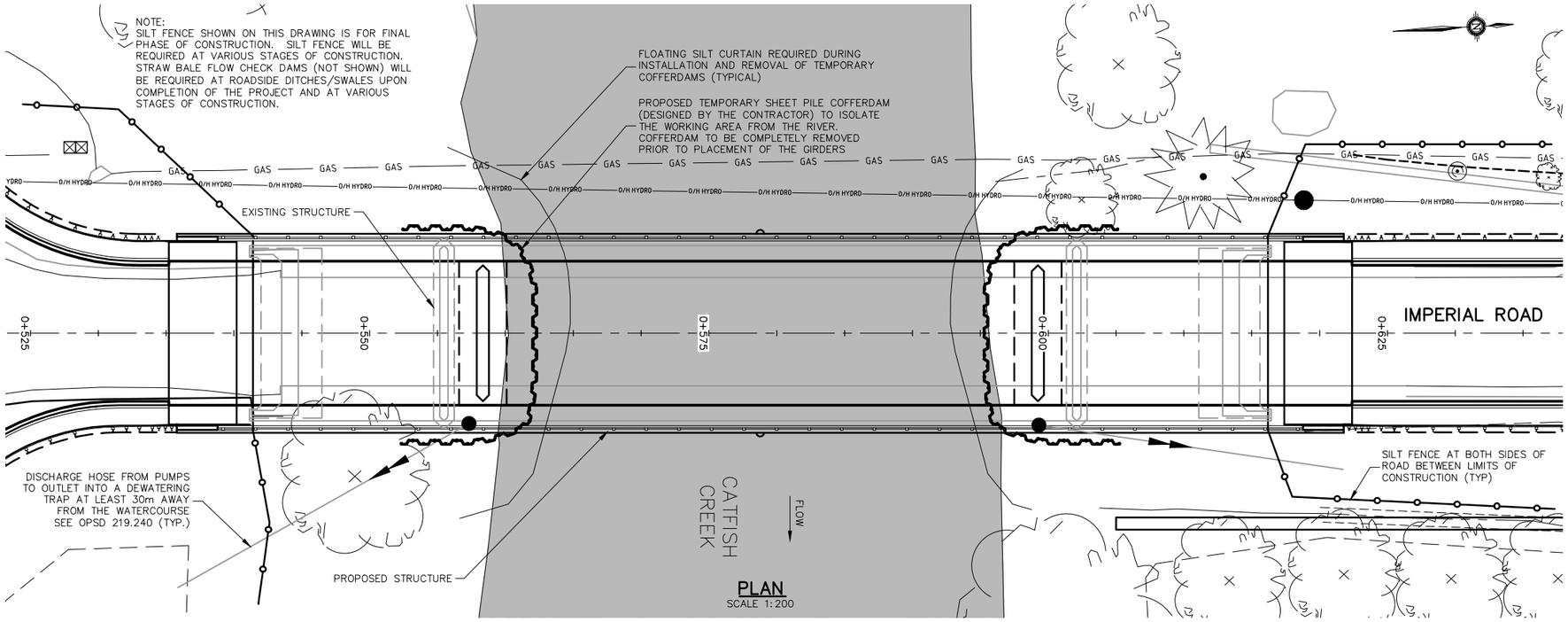
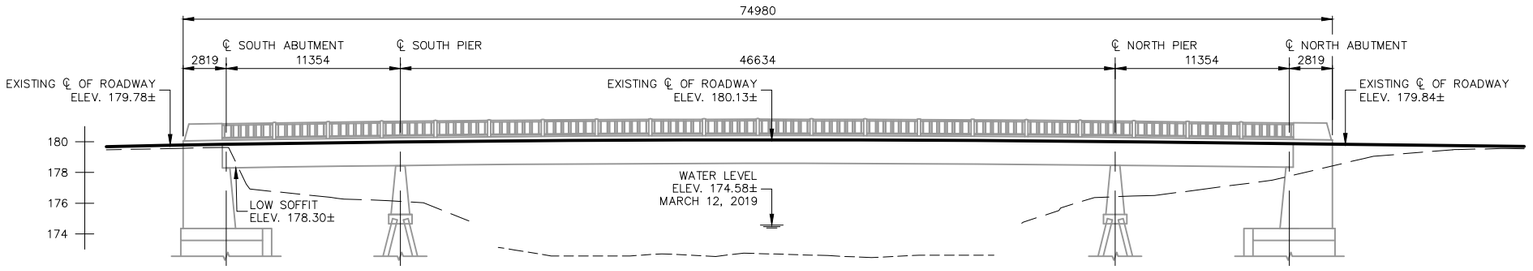


PLAN
SCALE 1:200



NOTE:
THE ORIGINAL STRUCTURE COLLAPSED IN FEBRUARY 2018 AND HAS SINCE BEEN REMOVED; ONLY THE SOUTH ABUTMENT AND PIER PILES REMAIN

ORIGINAL 1962± STRUCTURE
SCALE 1:200

NAVIGATION

1. SIGNS TO BE PLACED 50m UPSTREAM AND DOWNSTREAM WARNING BOATERS OF THE CONSTRUCTION WORK AHEAD.
2. SILT CURTAINS OR DEWATERING BERMS, INSTALLED DURING NAVIGATION SEASON, ARE TO BE MARKED WITH YELLOW BUOYS AND/OR YELLOW LIGHTS.
3. NO PERSON SHALL PERMIT ANY TOOLS, EQUIPMENT, VEHICLES, TEMPORARY STRUCTURES OR PARTS THEREOF USED OR MAINTAINED FOR THE PURPOSE OF BUILDING OR PLACING A WORK IN A NAVIGABLE WATER TO REMAIN IN SUCH WATER AFTER THE COMPLETION OF THE PROJECT.
4. WHERE A WORK OR PORTION OF A WORK THAT IS BEING CONSTRUCTED OR MAINTAINED IN A NAVIGABLE WATER CAUSES DEBRIS OR OTHER MATERIAL TO ACCUMULATE ON THE BED OR ON THE SURFACE OF THE WATER, THE OWNER OF THAT WORK OR PORTION OF THAT WORK SHALL CAUSE THE DEBRIS OR OTHER MATERIAL TO BE REMOVED TO THE SATISFACTION OF THE MINISTER OF TRANSPORT, INFRASTRUCTURE AND COMMUNITIES.

DEWATERING SEQUENCE

1. INSTALL SILT FENCE, STRAW BALE FLOW CHECK DAMS AND ANY OTHER EROSION CONTROL MEASURES WHICH MAY BE REQUIRED.
2. PLACE FLOATING SILT CURTAINS UPSTREAM AND DOWNSTREAM OF WORKING AREA.
3. INSTALL SHEET PILE COFFERDAMS OR OTHER CONTAINMENT SYSTEM(S) AS REQUIRED.
4. DEWATER AND DE-FISH THE WORKING AREA SIMULTANEOUSLY.
5. COMPLETE DEMOLITION AND REMOVAL OF THE EXISTING BRIDGE SUBSTRUCTURE.
6. EXCAVATE AS REQUIRED IN ORDER TO CONSTRUCT NEW FOUNDATIONS, ABUTMENTS, AND PIERS.
7. PLACE BACKFILL AS REQUIRED ON BOTH SIDES OF ABUTMENTS AND PIERS TO FACILITATE REMOVAL OF COFFERDAMS. PLACE ROCK PROTECTION.
8. REMOVE COFFERDAMS.
9. REMOVE FLOATING SILT CURTAINS.
10. COMPLETE REMAINING CONSTRUCTION OF THE BRIDGE.
11. COMPLETE ROADWORK.
12. INSTALL PERMANENT SILT FENCE AND STRAW BALE CHECK DAMS.

EROSION CONTROL - BRIDGE RECONSTRUCTION

1. ALL WORK SHALL BE DONE IN THE DRY.
2. NO IN-WATER WORK SHALL TAKE PLACE BETWEEN _____ AND _____.
3. DEWATERING OF THE SITE SHALL BE ACHIEVED BY THE INSTALLATION OF COFFERDAMS TO ISOLATE THE WORKING AREA, AND THE PLACEMENT OF CONVENTIONAL SUMP PUMPS WHERE REQUIRED. THE CONTRACTOR'S SPECIFIC METHOD SHALL BE APPROVED BEFOREHAND BY THE CONTRACT ADMINISTRATOR. ALTERNATIVE METHODS OF DEWATERING SUCH AS SHEET PILE COFFERDAMS AROUND THE ABUTMENTS MAY BE POSSIBLE PENDING THE WRITTEN APPROVAL OF THE CONTRACT ADMINISTRATOR.
4. THE CONTRACTOR SHALL APPLY AND OBTAIN A PERMIT TO TAKE WATER (PTTW) SHOULD PUMPING EXCEEED 50,000 LITRES PER DAY.
5. DISCHARGE FROM PUMPING OPERATIONS SHALL FIRST OUTLET INTO A SILTING POND OR SEDIMENT TRAP BEFORE THE WATER IS ALLOWED TO RE-ENTER THE RIVER OR ANOTHER WATERCOURSE.
6. COFFERDAMS SHALL BE DESIGNED BY THE CONTRACTOR AND SUBMITTED TO THE CONTRACT ADMINISTRATOR FOR APPROVAL.
7. ALL DISTURBED AREAS INCLUDING BANKS ABOVE WATER LEVEL SHALL BE REGRADED, TOPSOILED AND SEEDED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AS SOON AS POSSIBLE.
8. ALL EROSION CONTROL MEASURES (SILT FENCE, ROCK DAMS, SILTATION POND/DEWATERING TRAP, ETC.) SHALL BE CHECKED DAILY DURING ON-SITE WORK AND BE MAINTAINED IN GOOD STATE SO THAT THEY ARE FUNCTIONING PROPERLY. SILT FENCE AND STRAW BALE CHECK DAMS TO BE LEFT IN PLACE FOR 12 MONTHS OR UNTIL SUCH TIME AS THE SITE STABILIZES (THESE ARE LOCATED ABOVE HIGH WATER LEVEL).
9. NO MACHINERY SHALL CROSS THE RIVER AT ANY TIME. ANY MACHINERY THAT IS REQUIRED ON THE OTHER SIDE OF THE RIVER WHILE THE BRIDGE IS DISMANTLED OR UNDER CONSTRUCTION SHALL BE HAULED BY FLOAT OR DRIVEN AROUND ON THE ROADS. MACHINERY, VEHICLES, EQUIPMENT PUMPS, ETC., WILL NOT BE REFUELED WITHIN 30 METRES OF THE WATERCOURSE. MACHINERY SHALL NOT BE CLEANED WITHIN 30 METRES OF THE RIVER.
10. ALL WASTE MATERIAL FROM CONSTRUCTION SHALL BE STORED AWAY AND ABOVE THE HIGH WATERMARK AND AT NO TIME SHALL SUCH MATERIAL ENTER IN THE WATER.
11. FOR TYPICAL CHECK DAMS REFER TO OPSD 219.210
12. FOR SILT FENCE REFER TO OPSD 219.110.
13. SEED MIX TO BE STANDARD ROADSIDE MIX PER OPSS.MUNI 804.

ADDITIONAL ENVIRONMENTAL MEASURES TO BE ADHERED TO:

1. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE IMPLEMENTED PRIOR TO WORK, AND MAINTAINED DURING THE WORK PHASE, TO PREVENT THE ENTRY OF SEDIMENT INTO THE WATER OR THE MOVEMENT OF RE-SUSPENDED SEDIMENT.
2. A FLOATING TURBIDITY CURTAIN OR SILT FENCE SHOULD BE PLACED IMMEDIATELY AROUND THE WORK SITE PRIOR TO THE INSTALLATION OF COFFERDAMS.
3. ALL DISTURBED WORK AREAS SHOULD BE STABILIZED AND RE-VEGETATED AS REQUIRED UPON THE COMPLETION OF WORK AND RESTORED TO A PRE-DISTURBED STATE OR BETTER.
4. SEDIMENT AND EROSION CONTROL MEASURES SHOULD BE LEFT IN PLACE UNTIL ALL DISTURBED AREAS HAVE BEEN STABILIZED.
5. EXISTING STREAM FLOWS SHOULD BE MAINTAINED DOWNSTREAM OF THE DE-WATERED WORK AREA WITHOUT INTERRUPTION, DURING ALL STAGES OF WORK. THERE SHOULD BE NO INCREASE IN WATER LEVELS UPSTREAM OF THE DE-WATERED WORK AREA.
6. FISH SHOULD BE REMOVED FROM THE WORK AREA PRIOR TO DE-WATERING AND RELEASED ALIVE IMMEDIATELY DOWNSTREAM.
7. SILT OR DEBRIS THAT HAS ACCUMULATED AROUND THE TEMPORARY COFFERDAMS SHOULD BE REMOVED PRIOR TO THEIR WITHDRAWAL.
8. NATURAL STRUCTURES SUCH AS LOGJAMS AND IN-STREAM WOODY COVER SHOULD NOT BE REMOVED UNLESS THEY REPRESENT A BARRIER TO FLOWS OR FISH MOVEMENT.
9. OPERATE HEAVY MACHINERY ON LAND AND IN A MANNER THAT MINIMIZES DISTURBANCE TO THE BANKS OR BED OF THE RIVER.
10. ENSURE THAT MACHINERY ARRIVES ON SITE IN A CLEAN, WASHED CONDITION AND IS MAINTAINED FREE OF FLUID LEAKS.
11. WASH, REFUEL AND SERVICE MACHINERY AND STORE FUEL AND OTHER MATERIALS FOR THE MACHINERY AWAY FROM THE WATER TO PREVENT ANY DELETERIOUS SUBSTANCE FROM ENTERING THE WATER OR SPREADING ONTO THE ICE SURFACE.
12. KEEP AN EMERGENCY SPILL KIT ON SITE IN CASE OF FLUID LEAKS OR SPILLS FROM MACHINERY.
13. STABILIZE ANY WASTE MATERIALS REMOVED FROM THE WORK SITE TO PREVENT THEM FROM ENTERING THE WATERBODY. THIS COULD INCLUDE COVERING STOCKPILES WITH BIODEGRADABLE MATS OR TARPS, OR PLANTING STOCKPILES WITH GRASS OR SHRUBS.
14. ALL UNSTABLE BANKS OF THE WATERCOURSE SHOULD BE STABILIZED AND SIDE RUN-OFF DITCHES SHOULD BE CONSTRUCTED TO DIVERT ROAD RUN-OFF THROUGH THE GREENBELT BEFORE ENTERING THE STREAM.
15. VEGETATE AND STABILIZE ANY DISTURBED AREAS BY SEEDING AND PLANTING TREES, SHRUBS, OR GRASSES.
16. STREAM CROSSINGS SHOULD ALLOW FOR UNIMPEDED UPSTREAM AND DOWNSTREAM MOVEMENT OF FISH.
17. CONCRETE LEACHATE IS ALKALINE AND HIGHLY TOXIC TO FISH AND AQUATIC LIFE AND MEASURES MUST BE TAKEN TO PREVENT ANY INCIDENCE OF CONCRETE OR CONCRETE LEACHATE FROM ENTERING THE WATERCOURSE. ALL CAST-IN-PLACE CONCRETE, GROUT, MORTARS, ETC. SHOULD BE TOTALLY ISOLATED FROM PRECIPITATION AND THE WATERS OF THE CANAL FOR A MINIMUM 48 HOUR PERIOD OR UNTIL SIGNIFICANTLY CURED TO ALLOW THE pH TO REACH NEUTRAL LEVELS. CONTAINMENT FACILITIES SHOULD BE PROVIDED AT THE SITE FOR THE WASH-DOWN FROM CONCRETE DELIVERY TRUCKS, CONCRETE PUMPING EQUIPMENT, AND OTHER TOOLS AND EQUIPMENT AS REQUIRED.

No.	REVISION	DATE
1.	ISSUED FOR PIC	JULY 16/19

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DRAWN BY: D.S.
CHECKED BY: A.G.
FIELD BOOK:

SCALE
1:200
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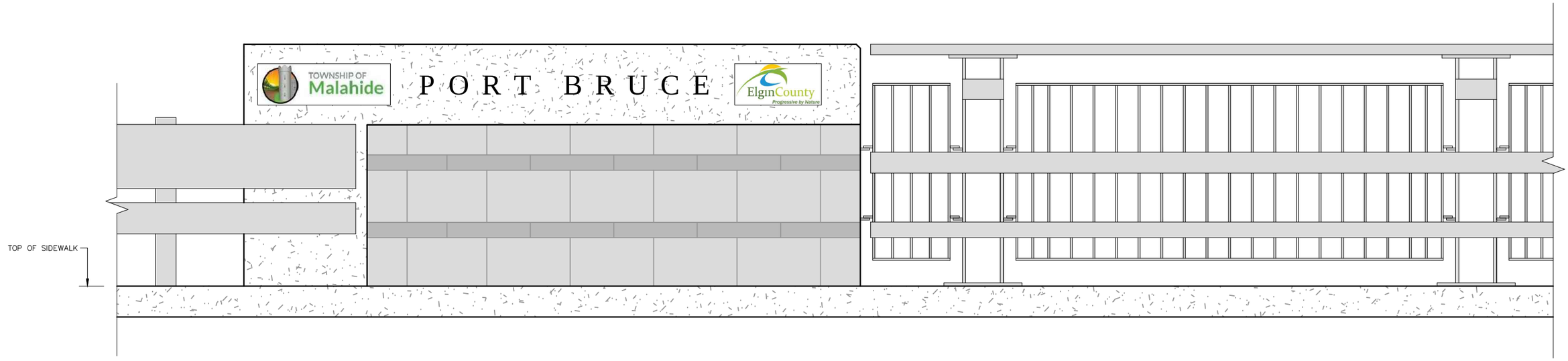
(ON 24 x 36 PAPER)

PORT BRUCE BRIDGE REPLACEMENT
TOWNSHIP OF MALAHIDE — COUNTY OF ELGIN

EROSION AND SEDIMENT CONTROL / DEWATERING PLAN

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER 18-283
DATE JULY 2019
DRAWING NUMBER 7



BRIDGE RAILING & CONCRETE END POST
SCALE 1:10

No.	REVISION	DATE
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PORT BRUCE BRIDGE REPLACEMENT

TOWNSHIP OF MALAHIDE — COUNTY OF ELGIN

BRIDGE RAILING & CONCRETE END POST

K. SMART ASSOCIATES LIMITED
CONSULTING ENGINEERS AND PLANNERS
KITCHENER SUDBURY

JOB NUMBER
18-283
DATE
JULY 2019
DRAWING NUMBER
8

Next Steps:

- **Receive feedback on preferred alternative.**
- **Finalize the 'Project File'**
- **Publish a 'Notice of Completion.' The Notice will identify the opportunity to review the 'Project File' over a 45 calendar day period.**
- **Assuming that comments raised during the 45 day review period can be resolved, the County will proceed with the Detailed Design, Tendering, and Construction.**
- **Construction to commence in Fall 2019**

Comments regarding this PIC will be received until July 26, 2019. Please complete a comment sheet and place in the comment box or submit via e-mail to:

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THANK YOU FOR ATTENDING