APPENDIX A
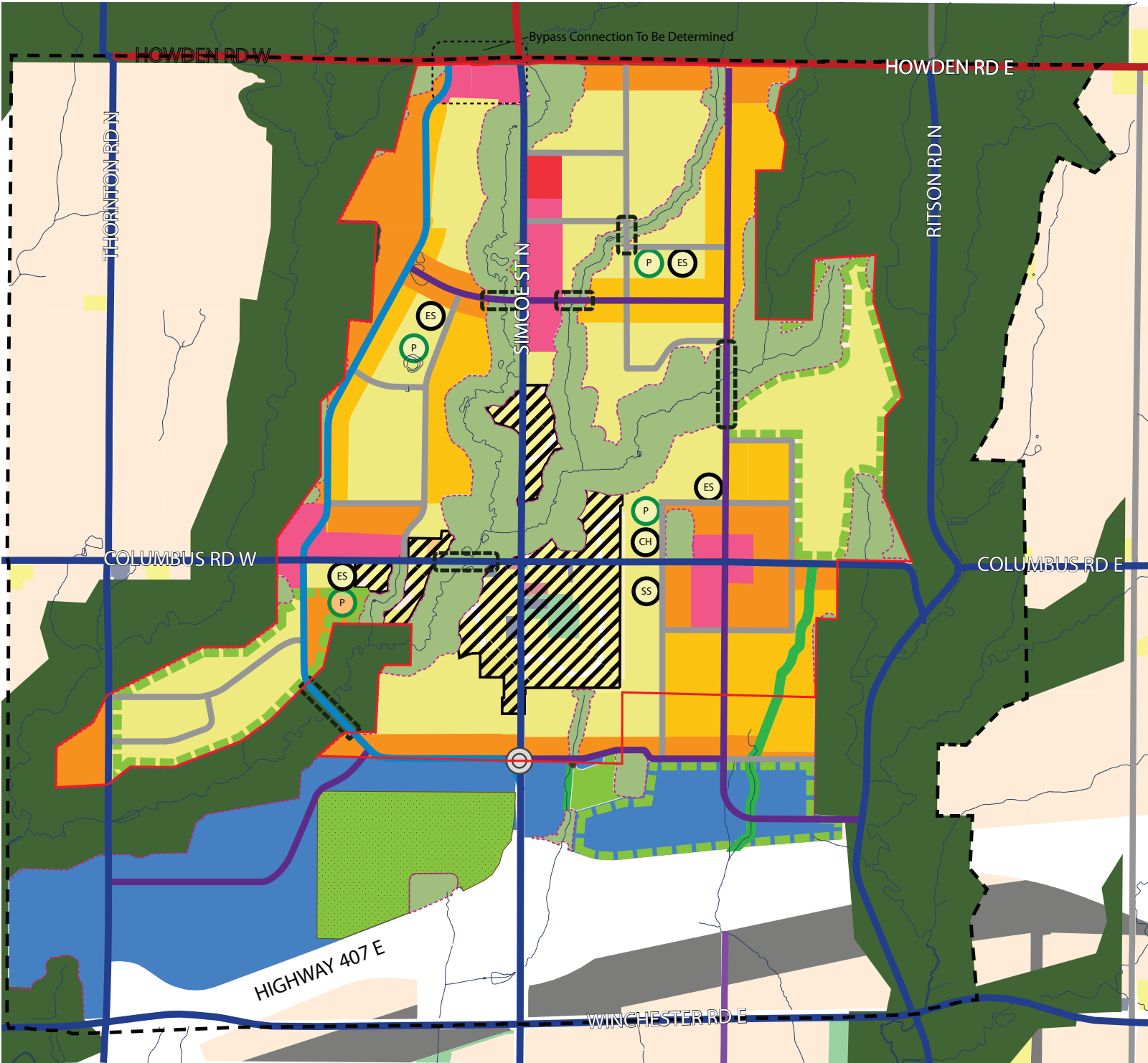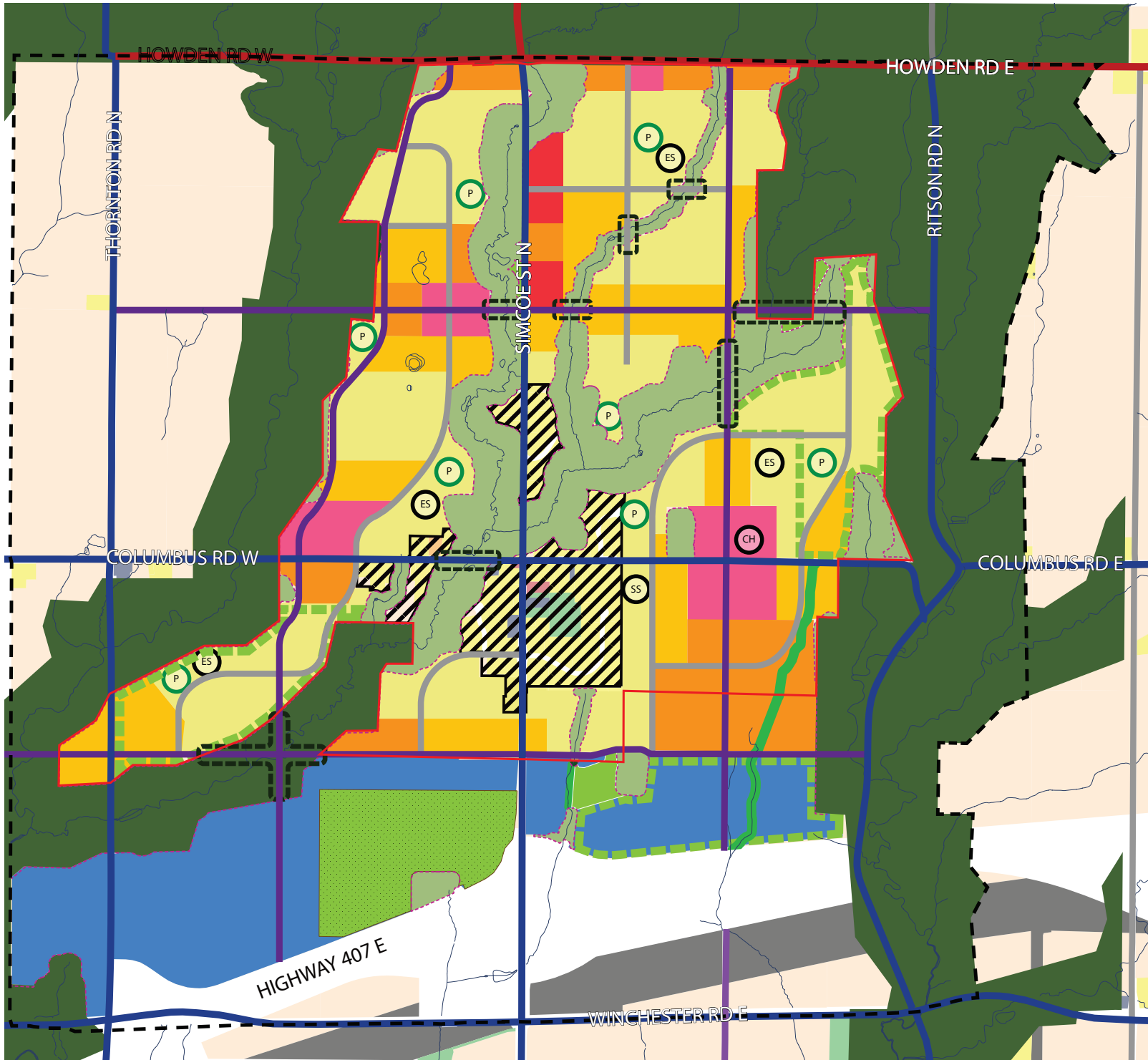
Land Use and Road Plan Alternatives
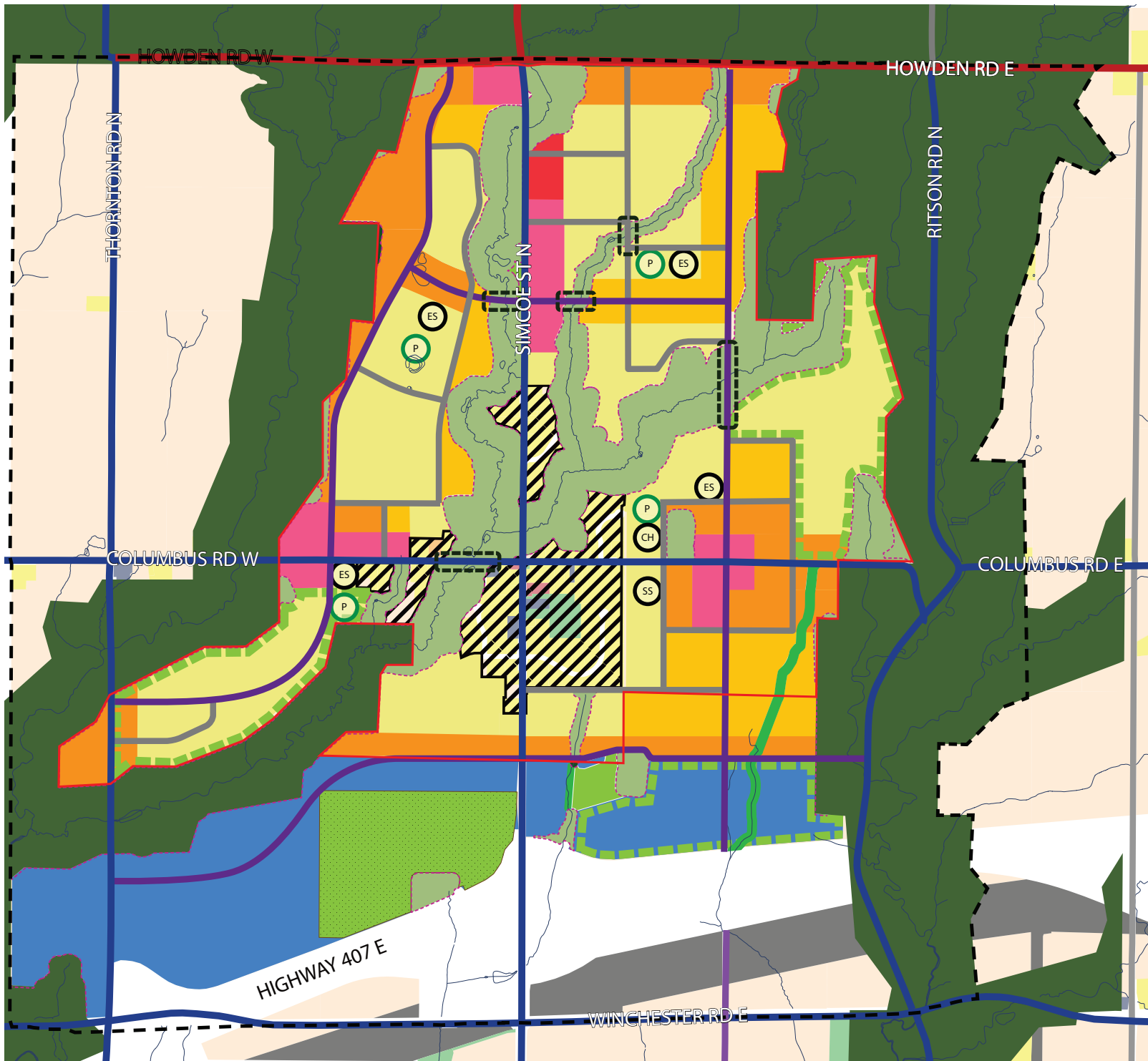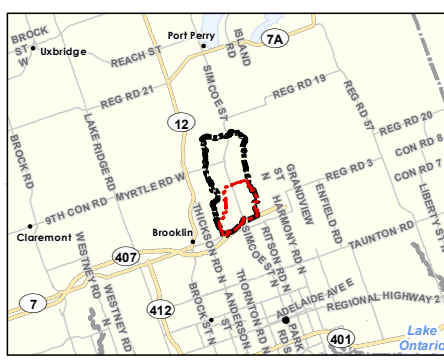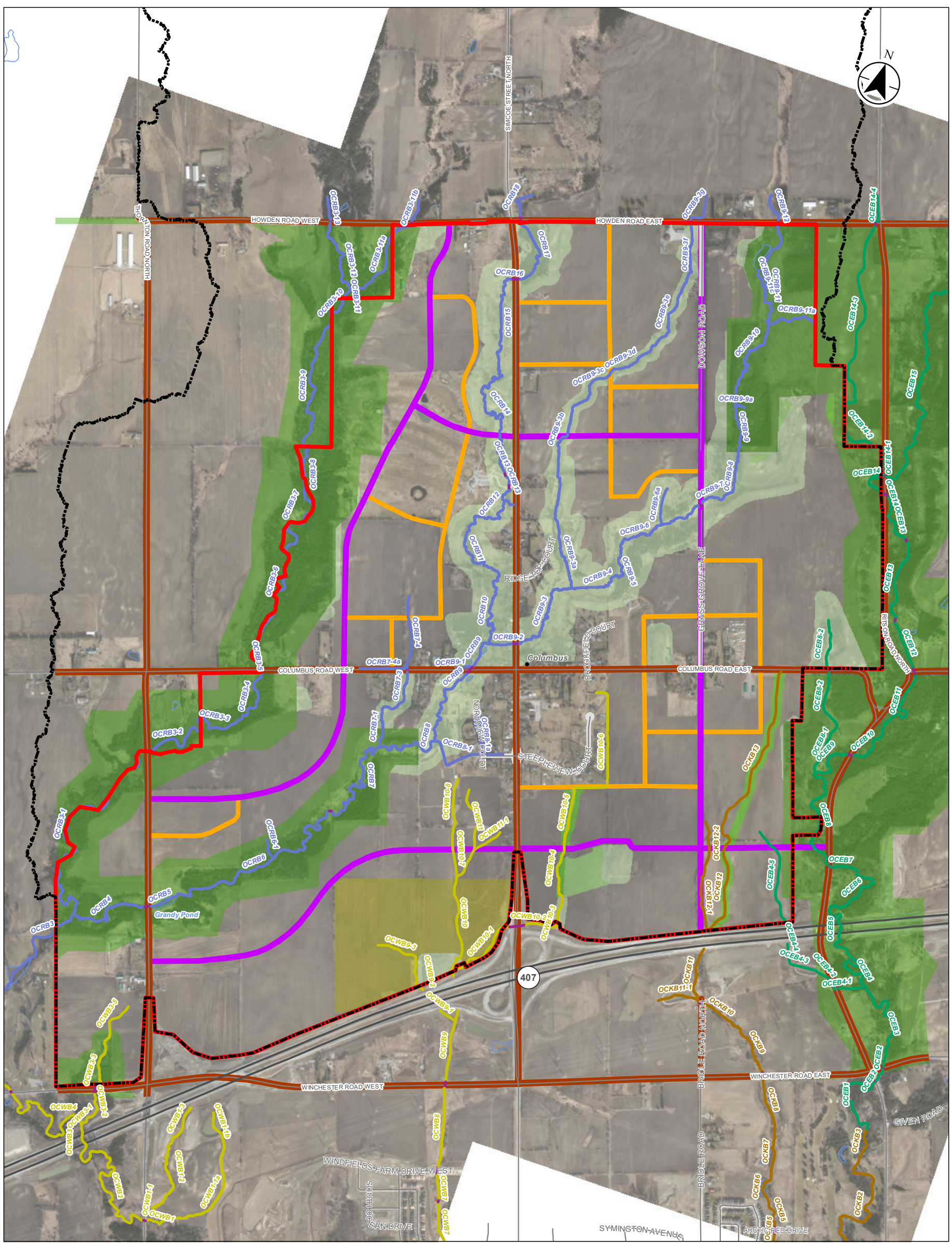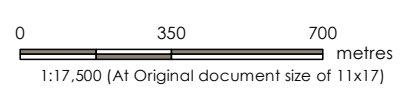
HOWDEN RD W

HOWDEN RD E

THORNTON RD N

RITSON RD N

SIMCOE ST N

P   ES

ES

P

ES

P

CH

COLUMBUS RD W

COLUMBUS RD E

ES

SS

P

HIGHWAY 407 E

WINCHESTER RD E

Bypass Connection To Be Determined

HOWDEN RD W   HOWDEN RD E

THORNTON RD N

RITSON RD N

SIMCOE ST N

P ES
ES
P

ES
P
CH
SS

COLUMBUS RD W   COLUMBUS RD E

ES
P

HIGHWAY 407 E

WINCHESTER RD E

HOWDEN RD W

HOWDEN RD E

THORNTON RD N

RITSON RD N

SIMCOE ST N

COLUMBUS RD W

COLUMBUS RD E

HIGHWAY 407 E

WINCHESTER RD E

Figure No.

4.2.2.1

Title

Reach Delineation – Alternative 1 Overlay

Legend

Boundary Area
Study Area

Reach Name
Culvert
OCEB
OCKB
OCRB
OCWB

Alternative 1 Overlay

C.S.W.S. Natural Heritage System
Green Belt Protected Countryside
MTO SAR Compensation Lands
Proposed Linkage Area

Proposed Enhancement Area
Existing Arterial
Existing Local
Proposed Arterial
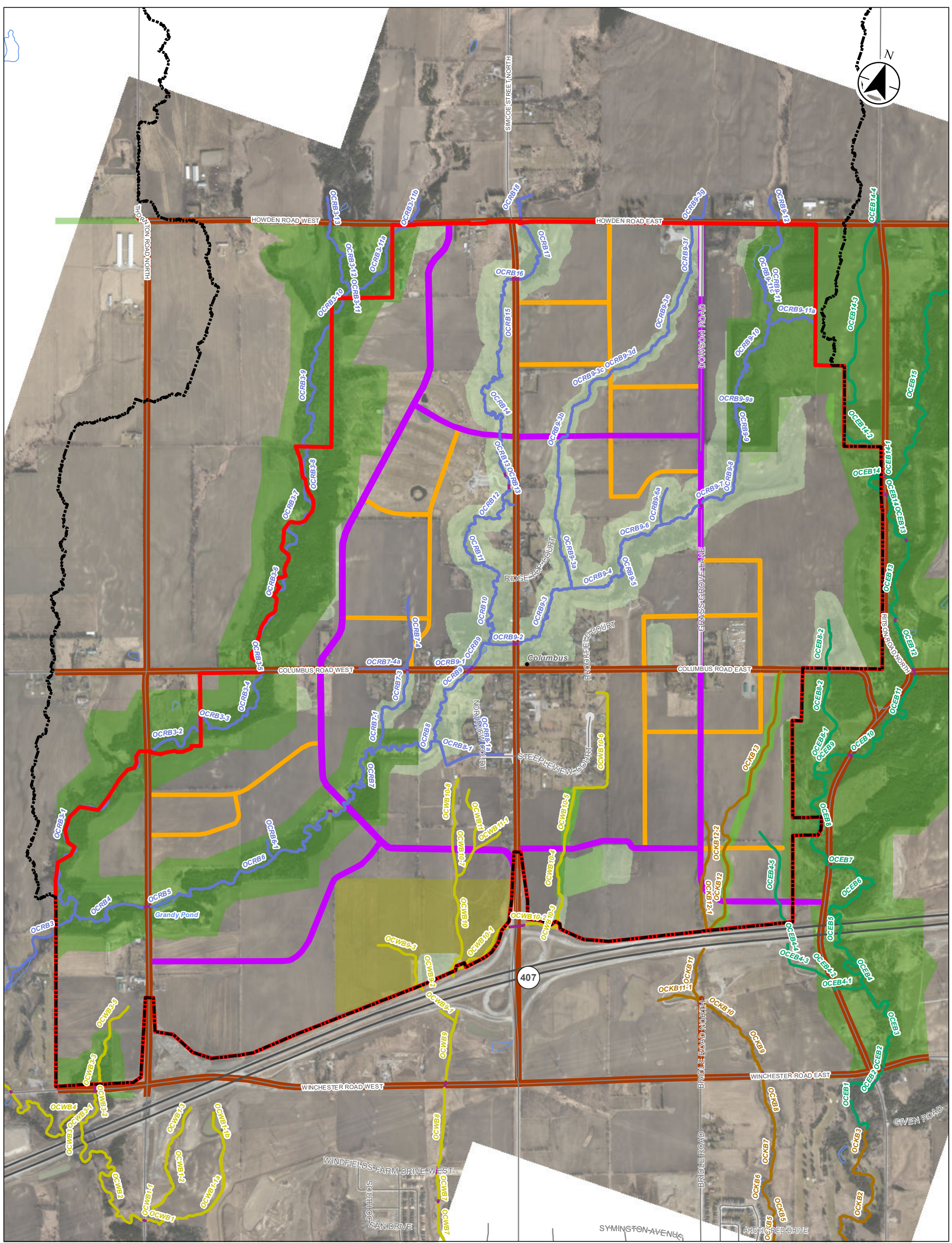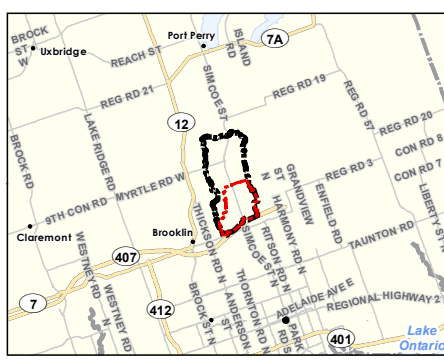Proposed Collector

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
2. Base features produced under license with the Ontario Ministry of Natural Resources and Forestry © Queen's Printer for Ontario, 2016.
3. Orthoimagery © First Base Solutions, 2016. Imagery Date, 2016.

0   350   700 metres
1:17,500 (At Original document size of 11x17)

Project Location
City of Oshawa

160622416 REVB
Prepared by SPE on 2019-11-14
Checked by TPG on 2019-01-31

Client/Project

COLUMBUS LANDOWNERS GROUP
COLUMBUS SUBWATERSHED STUDY

Legend

- ▭ Boundary Area
- ▭ Study Area

Reach Name
- ━━ Culvert
- ━━ OCEB
- ━━ OCKB
- ━━ OCRB
- ━━ OCWB

Alternative 2 Overlay
- C.S.W.S. Natural Heritage System
- Green Belt Protected Countryside
- MTO SAR Compensation Lands
- Proposed Linkage Area
- Proposed Enhancement Area
- Existing Arterial
- Existing Local
- Proposed Arterial
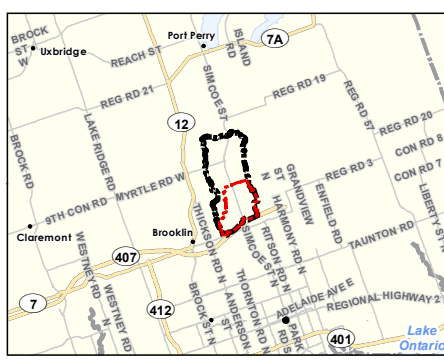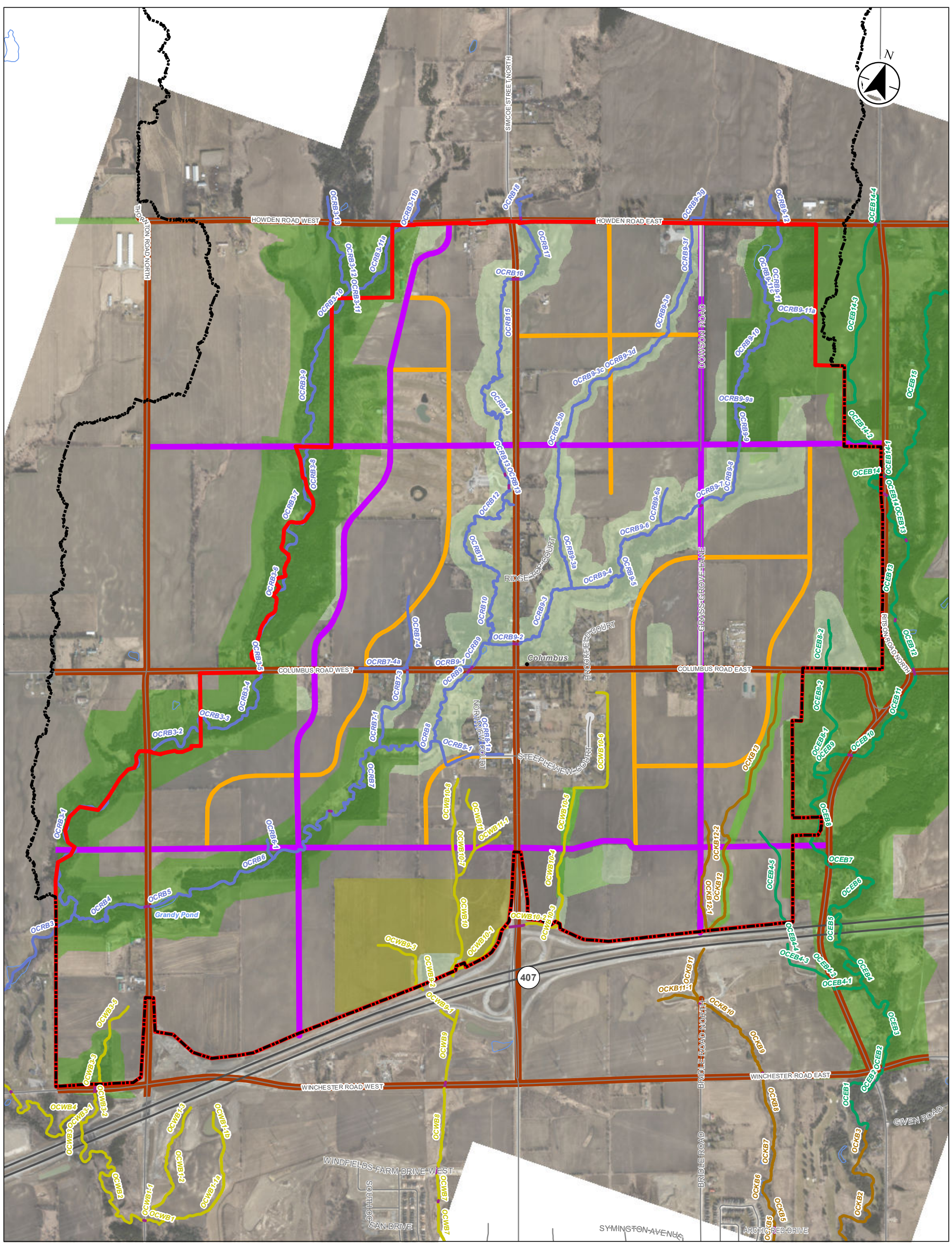- Proposed Collector

Notes
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0   350   700 metres
1:17,500 (At Original document size of 11x17)

Stantec   **GEO MORPHIX**

Project Location
City of Oshawa

160622416 REVB
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Checked by TPG on 2019-01-31

Client/Project
COLUMBUS LANDOWNERS GROUP
COLUMBUS SUBWATERSHED STUDY

Figure No.
4.2.2.2

Title
Reach Delineation – Alternative 2 Overlay

Legend

- Boundary Area
- Study Area

Reach Name
- Culvert
- OCEB
- OCKB
- OCRB
- OCWB

Alternative 3 Overlay
- C.S.W.S. Natural Heritage System
- Green Belt Protected Countryside
- MTO SAR Compensation Lands
- Proposed Linkage Area
- Proposed Enhancement Area
- Existing Arterial
- Existing Local
- Proposed Arterial
- Proposed Collector

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
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0   350   700 metres
1:17,500 (At Original document size of 11x17)

Stantec   **GEO MORPHIX**

Project Location
City of Oshawa

160622416 REVB
Prepared by SPE on 2019-11-14
Checked by TPG on 2019-01-31

Client/Project
COLUMBUS LANDOWNERS GROUP
COLUMBUS SUBWATERSHED STUDY

Figure No.
4.2.2.3

Title
Reach Delineation – Alternative 3 Overlay

APPENDIX B

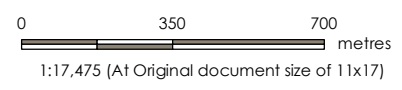## Columbus Subwatershed Study (Phase 1) Report – Select Figures
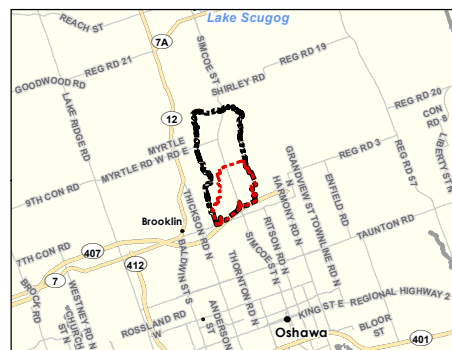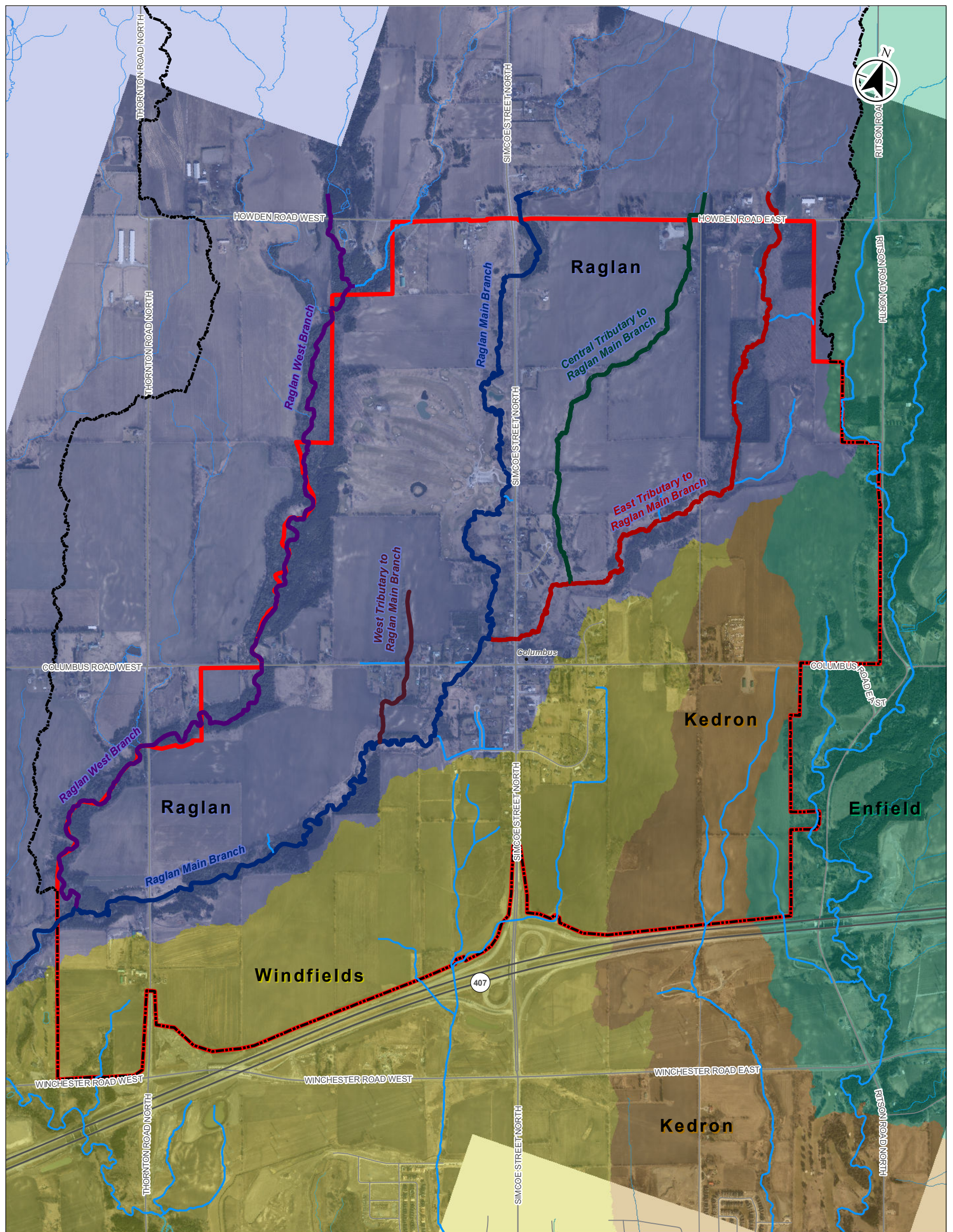
Legend

- ▭ Boundary Area
- ▭ Study Area
- —— Highway
- —— Major Road
- —— Minor Road
- ~~ Watercourse

Subwatershed
- Enfield
- Kedron
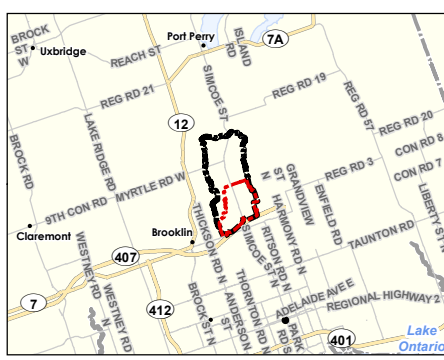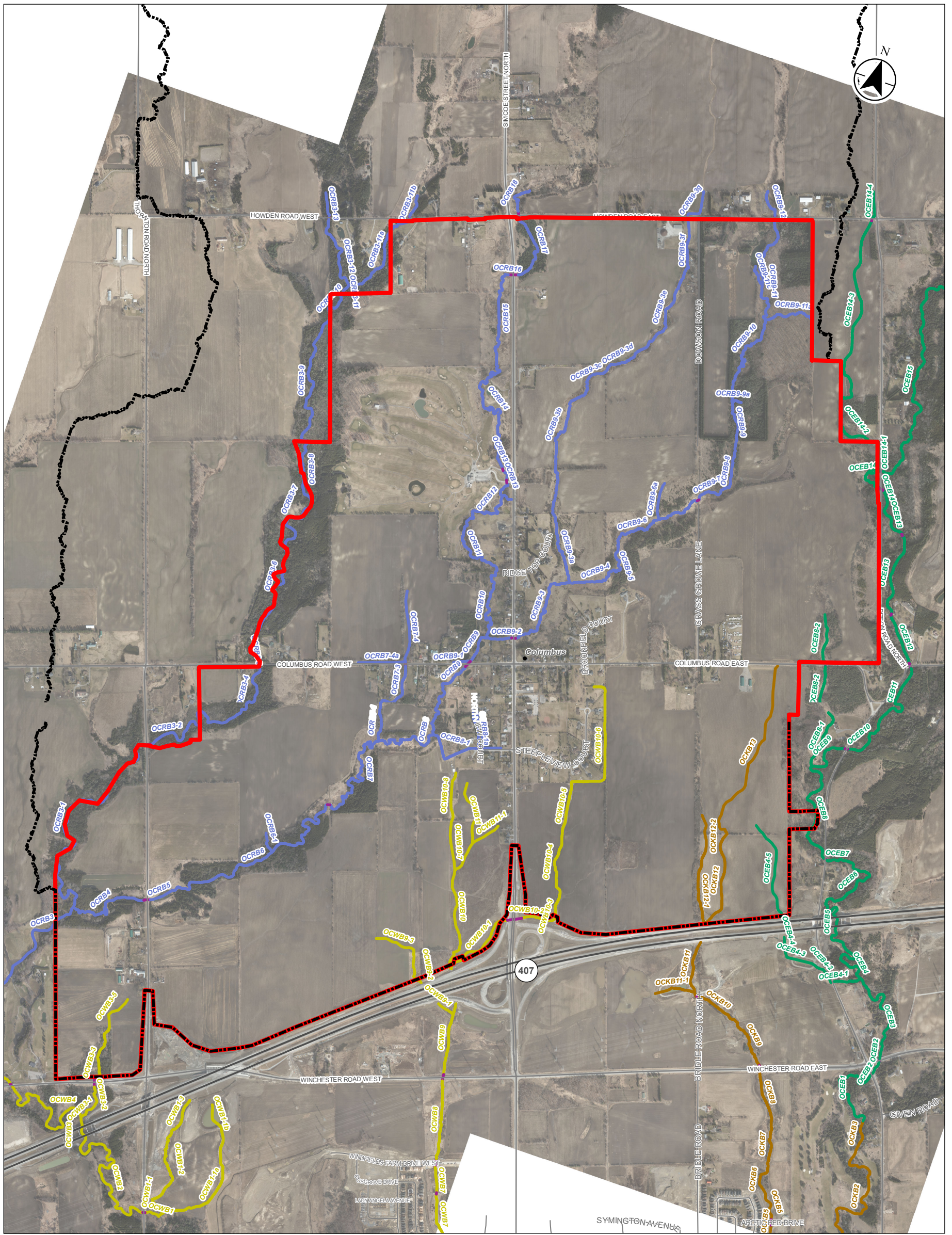- Raglan
- Windfields

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
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0   350   700 metres

1:17,475 (At Original document size of 11x17)

Stantec   **GEO MORPHIX**

Project Location
City of Oshawa

160622416 REVA
Prepared by WAB on 2019-02-01
Checked by PV on 2017-02-17

Client/Project
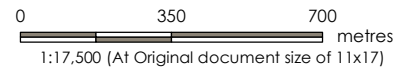COLUMBUS LANDOWNERS GROUP
COLUMBUS SUBWATERSHED STUDY

Figure No.
4.2.1

Title
Subwatersheds and Branch Delineation

Legend

Boundary Area
Study Area
Highway
Major Road
Minor Road

Reach Name
Culvert
OCEB
OCKB
OCRB
OCWB

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
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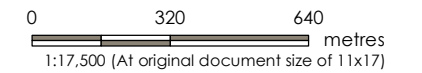3. Orthoimagery © First Base Solutions, 2016. Imagery Date, 2016.

0   350   700 metres
1:17,500 (At Original document size of 11x17)

Stantec   **GEO** MORPHIX

Stantec

Legend
Boundary Area
Study Area
Participating Land Owner
Parcel Boundary
Base Flow Sites and Average Flow (CLOCA)
Drive-Point Piezometer (Stantec, 2016)
Surface Water Quality/Quantity Monitoring Station (Stantec)
Constructed Drain
Highway
Major Road
Minor Road
Watercourse (CSWS)
Waterbody

0   320   640 metres
1:17,500 (At original document size of 11x17)

Notes
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Project Location
City of Oshawa

160622416 REVB
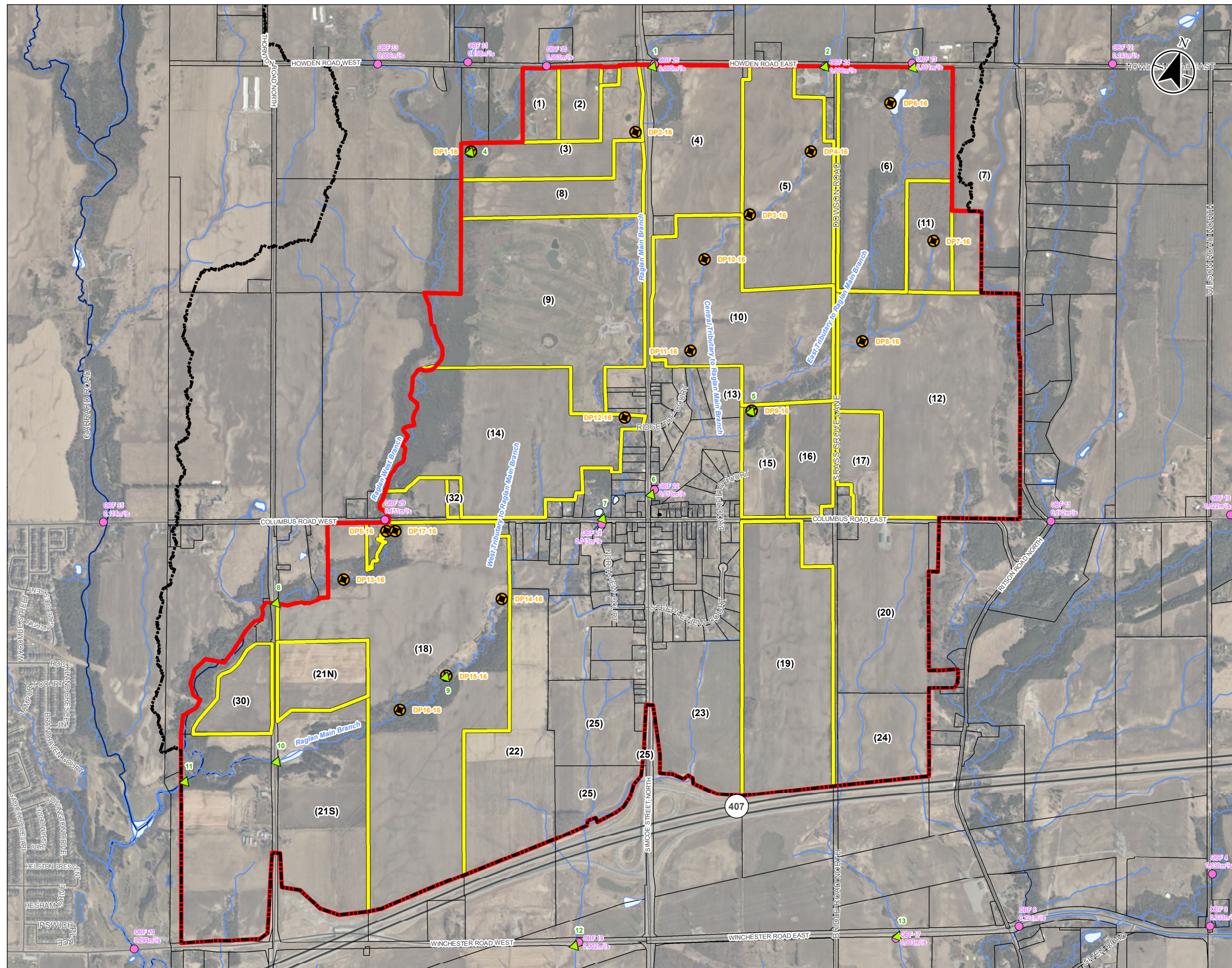Prepared by SPE on 2019-01-31
Checked by TPG on 2019-01-31

Client/Project
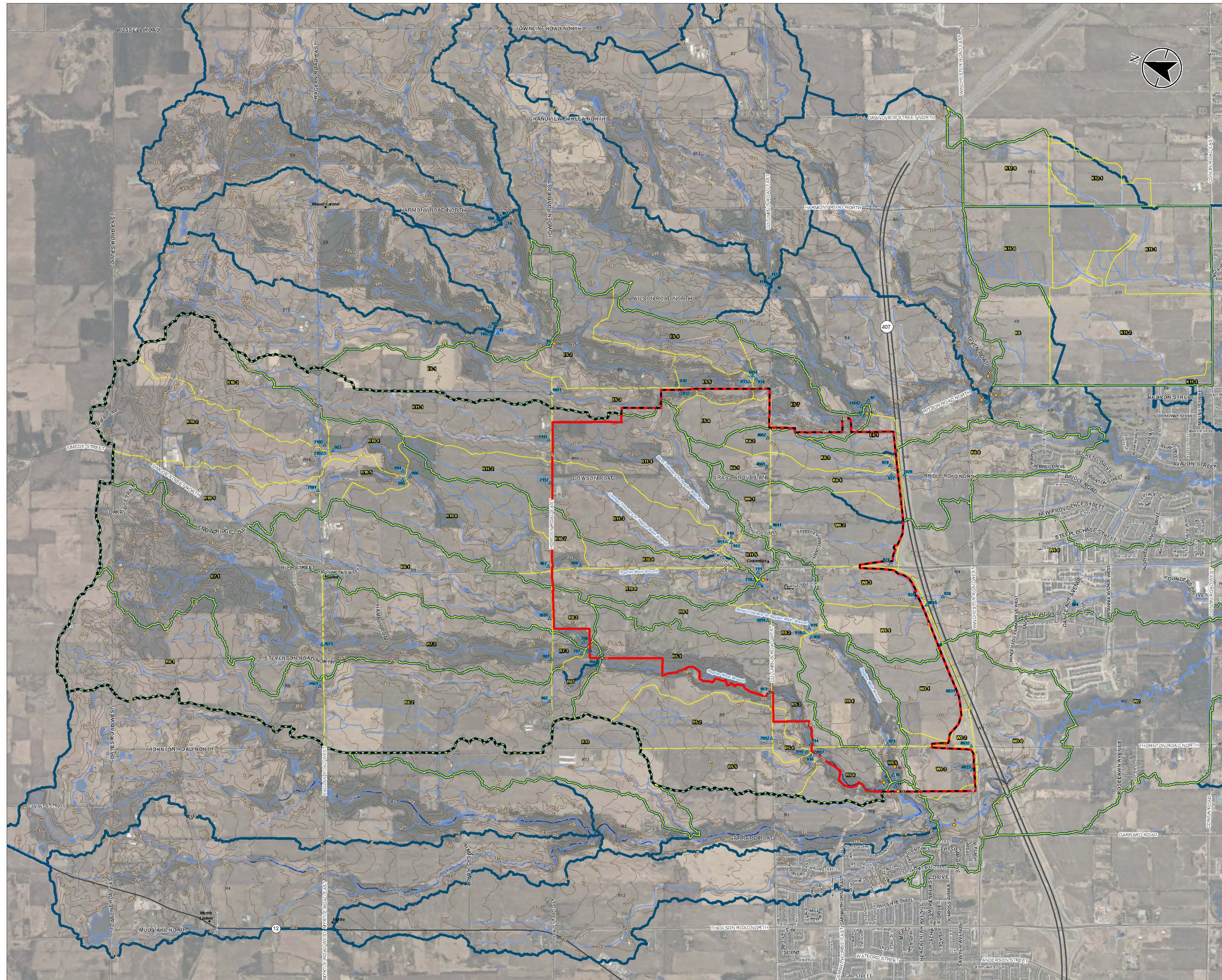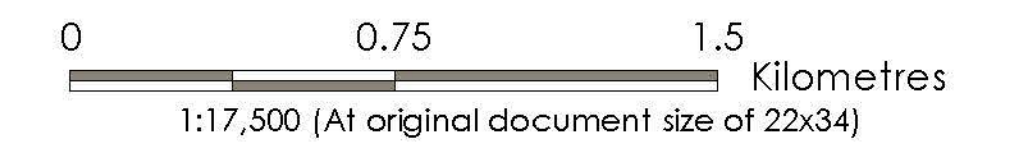COLUMBUS LANDOWNERS GROUP
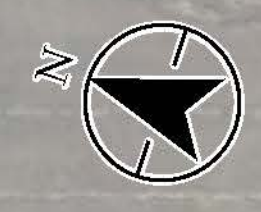COLUMBUS SUBWATERSHED STUDY

Figure No.
4.4.1

Title
Stream Flow & Water Quality Monitoring Stations

Stantec

Legend
- Boundary Area
- Study Area
- ▲ Flow Node (Stantec)
- ● Flow Points (CLOCA)
- Subcatchments (Stantec)
- Subcatchments (CLOCA)
- Topographic Contour (CLOCA 5m)
- Highway
- Major Road
- Minor Road
- Watercourse (CSWS)
- Constructed Drain
- Waterbody

0   0.75   1.5 Kilometres

1:17,500 (At original document size of 22x34)
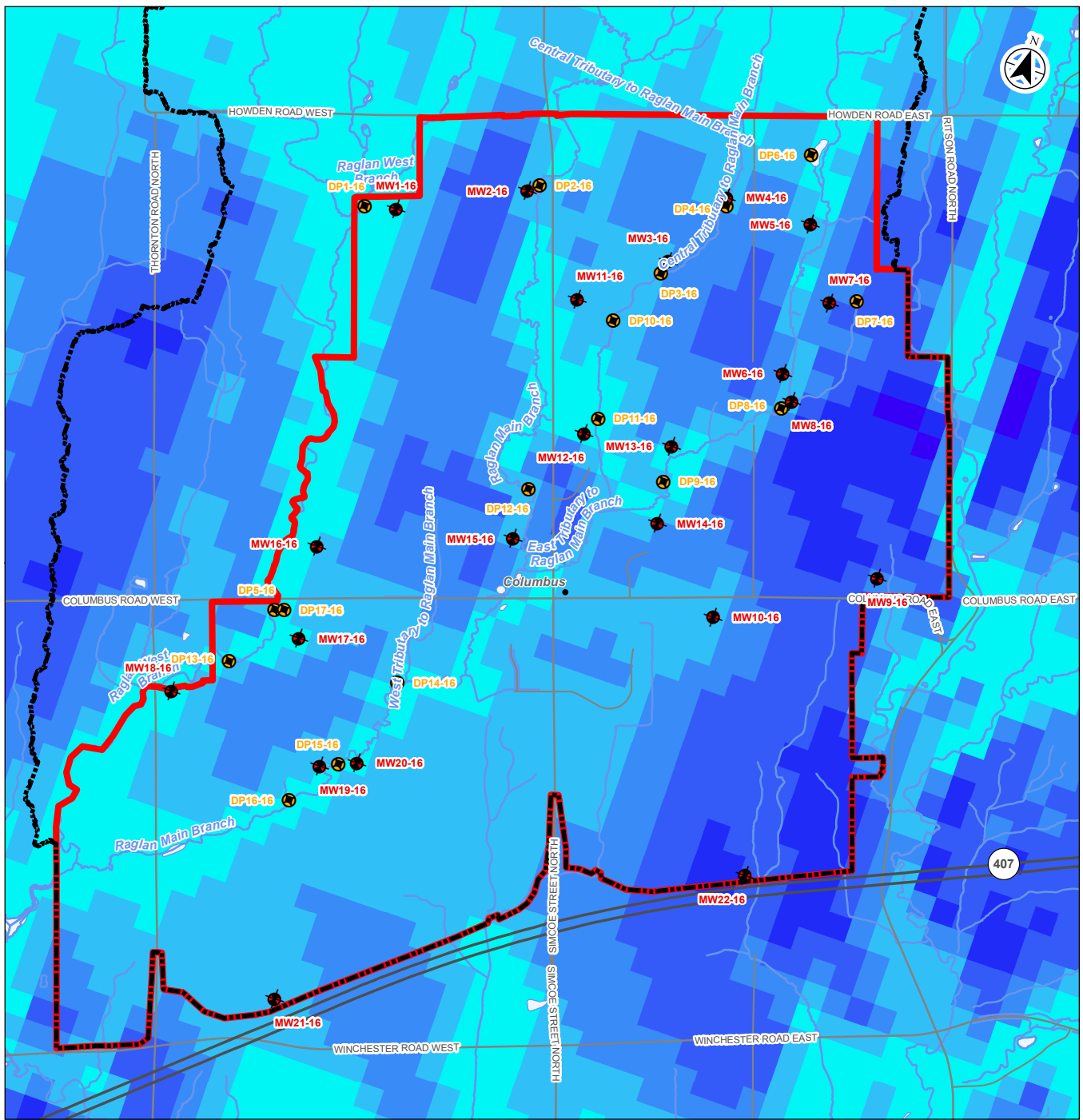
Project Location
City of Oshawa

160622416 REVA
Prepared by SPE on 2019-02-04
Checked by TPG on 2019-01-30

Client/Project
COLUMBUS LANDOWNERS GROUP
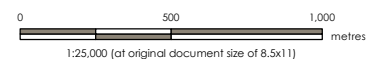COLUMBUS SUBWATERSHED STUDY

Figure No.
4.4.2 (b)

Title
Study Area Subcatchment Mapping

Figure No.
4.4.6

Title
Watercourse Crossing Inventory

Water Table Depth

Figure No. 4.5.21

COLUMBUS LANDOWNERS GROUP
COLUMBUS SUBWATERSHED STUDY

Legend

Boundary Area
Study Area
Monitoring Well (Stantec, 2016)
Drive-Point Piezometer (Stantec, 2016)
Highway
Major Road
Minor Road
Watercourse (CSWS)

Waterbody

Water Table Depth (m BGS)
0 - 1.8
1.9 - 5.5
5.6 - 9.1
9.2 - 13
14 - 18
19 - 24

1:25,000 (at original document size of 8.5x11)

0   500   1,000
metres

Stantec

Project Location   160622416 REVB
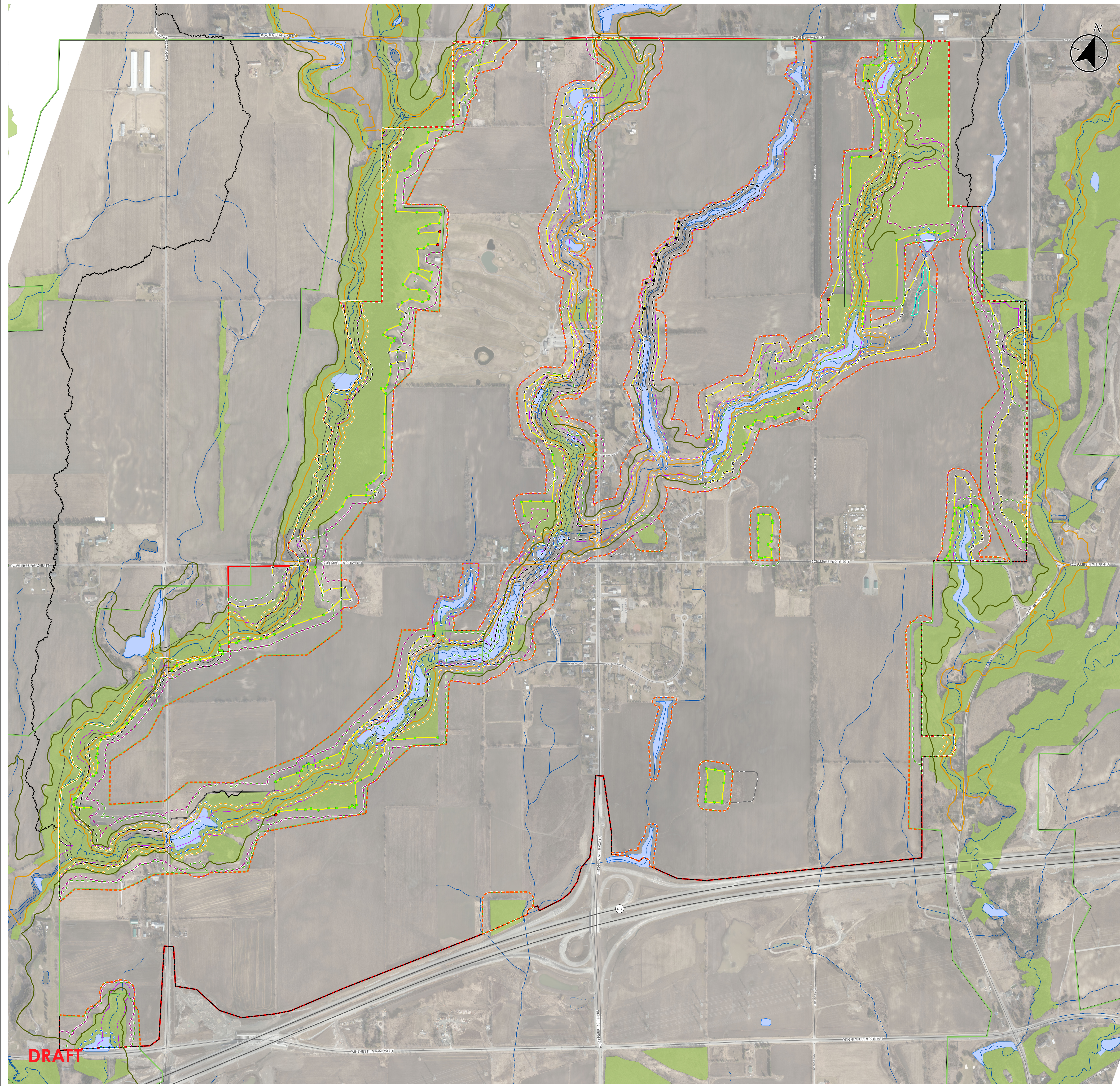City of Oshawa   Prepared by SPE on 2019-01-31
                          Checked by TPG on 2019-01-31

Client/Project
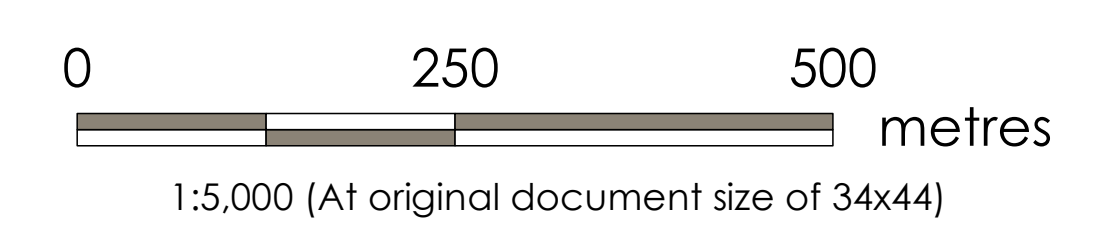COLUMBUS LANDOWNERS GROUP
COLUMBUS SUBWATERSHED STUDY

Notes
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Stantec

GEO
MORPHIX

Legend

☐ Boundary Area
☐ Study Area
■ Top of Slope (Stantec)
+ Top of Bank (Stantec)
● Sign Woodland (Stantec)
● Sign Woodland and Top of Bank (Stantec)
—— Watercourse / Drainage Feature (CSWS)
—— Highway
—— Major Road
—— Minor Road
- - - Vegetation Protection Zone (Phase I)
—— CLOCA Top-of-Bank (Significant Valleylands)
—— Palmer - Drip Line
—— Palmer - Top of Bank
—— Stantec Field Staked Significant Woodland / Significant Valleyland
—— Stantec Field Staked Top of Slope
☐ Floodline (Stantec)
☐ Historical Woodland (2008)
☐ Historical Wetland (2008)
☐ Meander Belt Width
☐ Significant Woodlands
☐ Wetlands

Greenbelt Natural Heritage System
☐ Protected Countryside

Recommended Minimum Vegetation Protection Zones (MVPZ):
☐ Riparian Corridors – 30 m MVPZ on both sides of the watercourse
☐ Floodline Buffer 15m
☐ Meander Belt Widths 15m Buffer
☐ Significant Valleylands Buffer 30m
☐ Significant Woodlands Buffer 30m
☐ Top of Slope Buffer 15m
☐ Wetland Buffer 15m

Note: Top of Bank to be determined through field staking exercise and/or detailed study if in a pre-screened area. Refer to Figure 4.5.26.

0   250   500 metres
1:5,000 (At original document size of 34x44)

Notes
1. Coordinate System: NAD 1983 UTM Zone 17N
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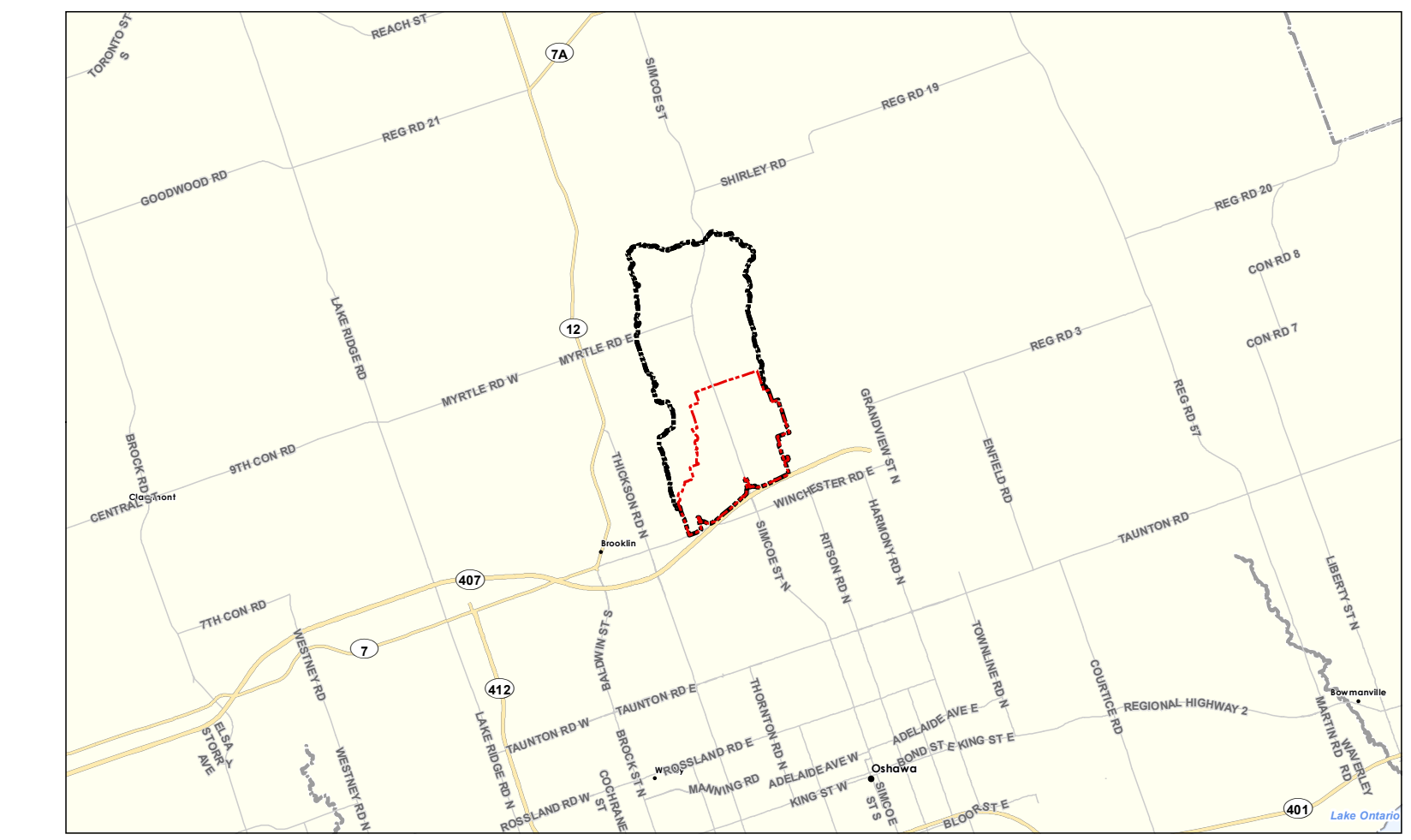3. Orthoimagery © First Base Solutions, 2016. Imagery Date, 2016.

Project Location   160622416 REVB
City of Oshawa   Prepared by SPE on 2019-02-26
                                      Checked by TPG on 2019-01-31

Client/Project
COLUMBUS LANDOWNERS GROUP
COLUMBUS SUBWATERSHED STUDY

Figure No.
5.1   **DRAFT**

Title
Natural Heritage System and Hazards Mapping Overlay