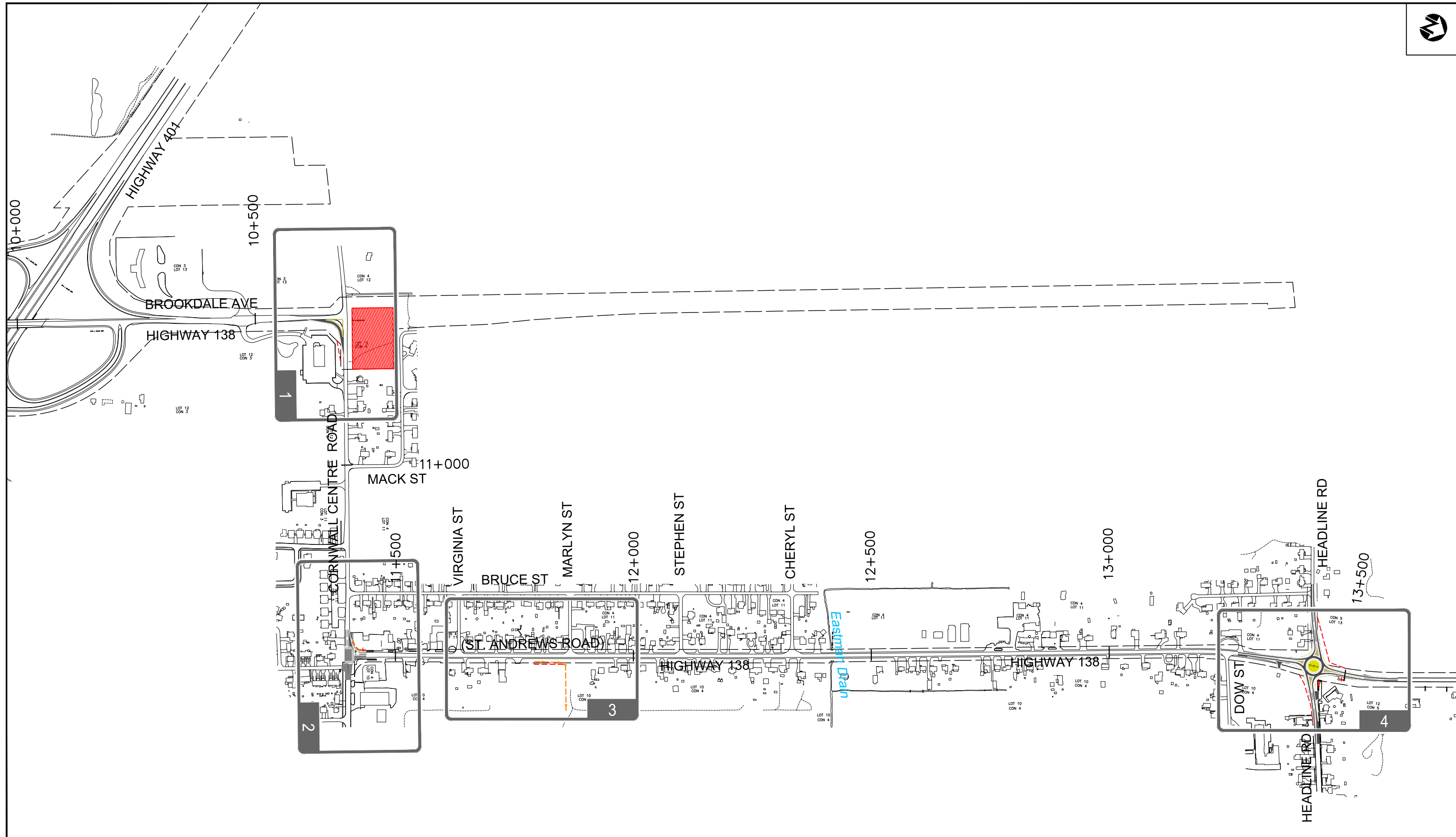

Appendix A: Recommended Plan

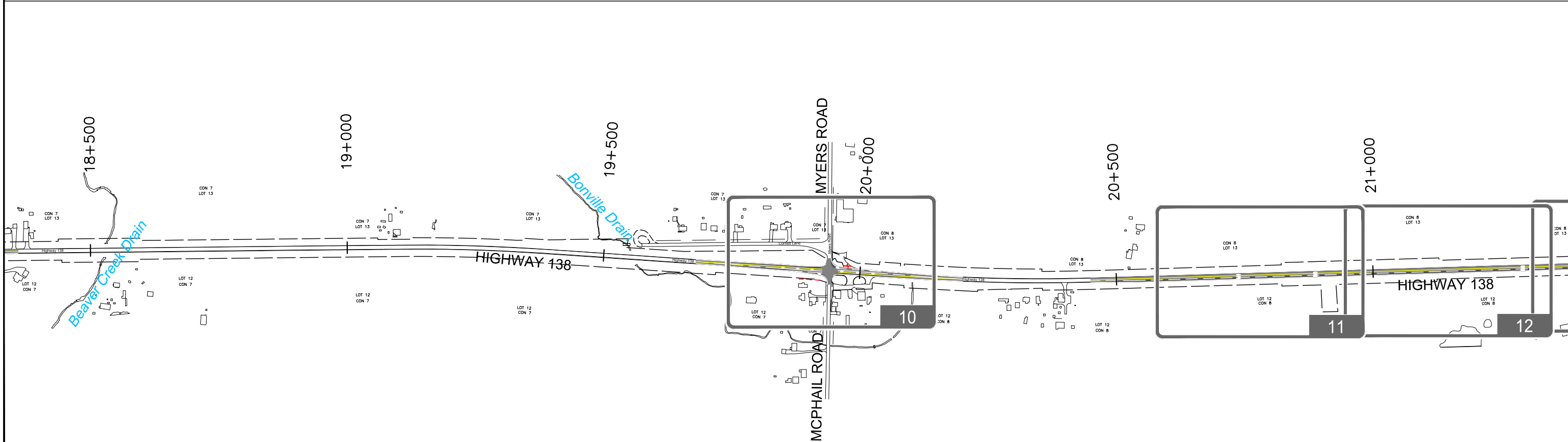
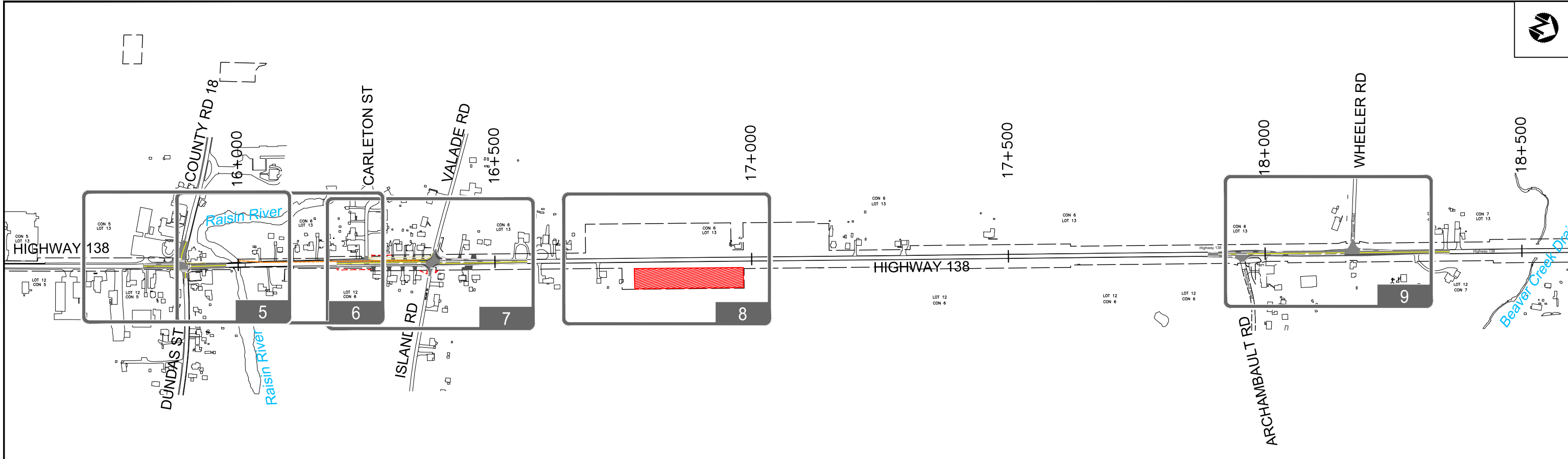


HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

100 m
 1:7500

Recommended Plan
 Keyplan

SHEET
 1

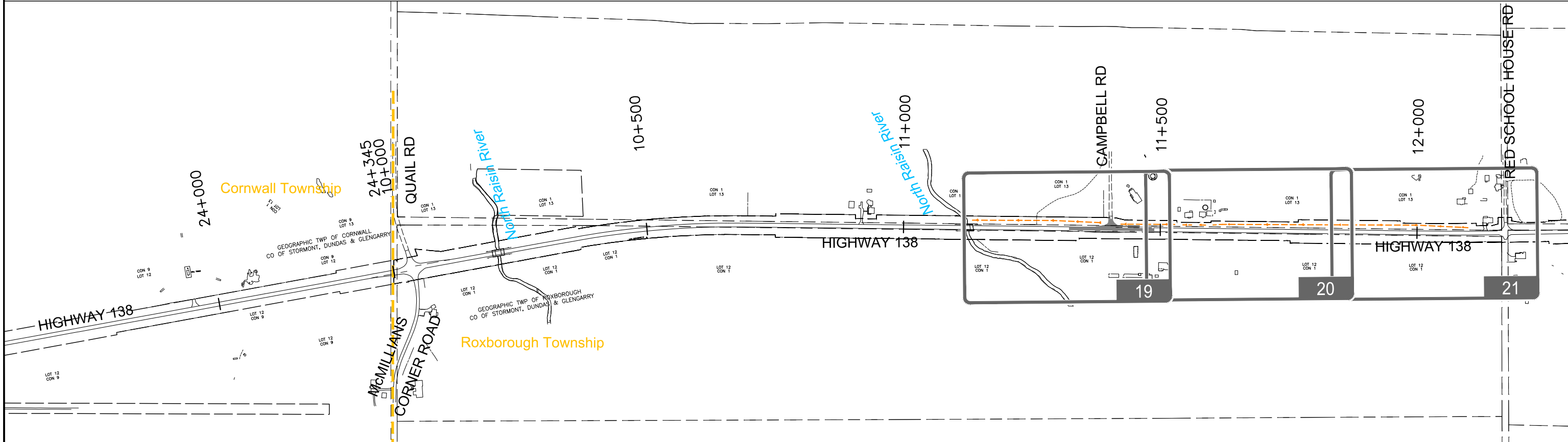
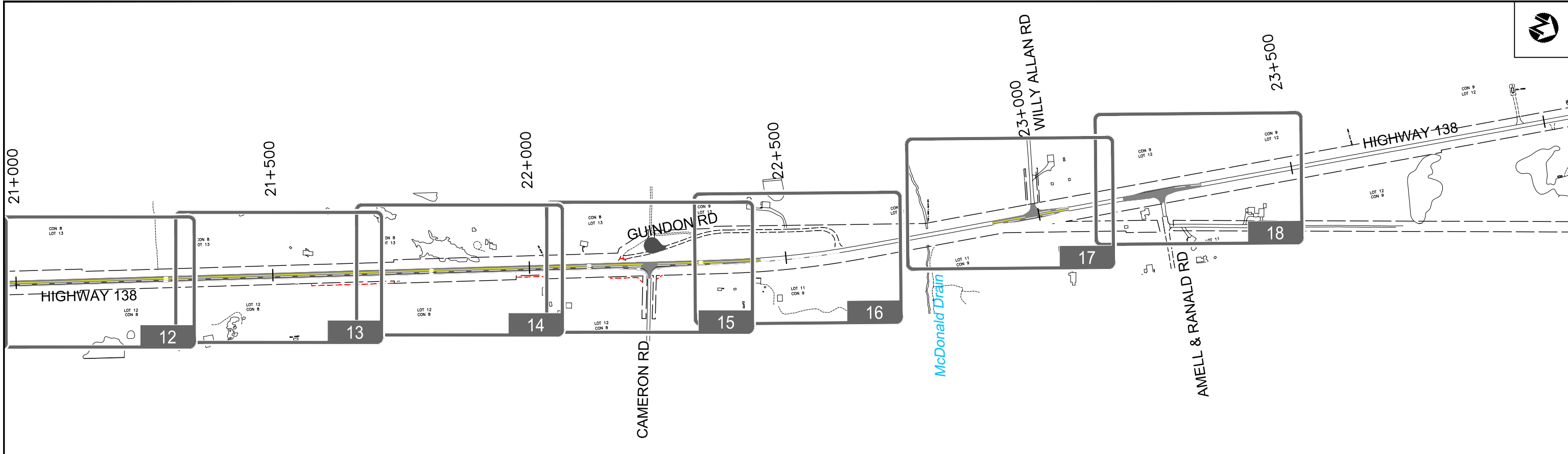


HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

100 m
 1:7500

Recommended Plan
 Keyplan

SHEET
 ii

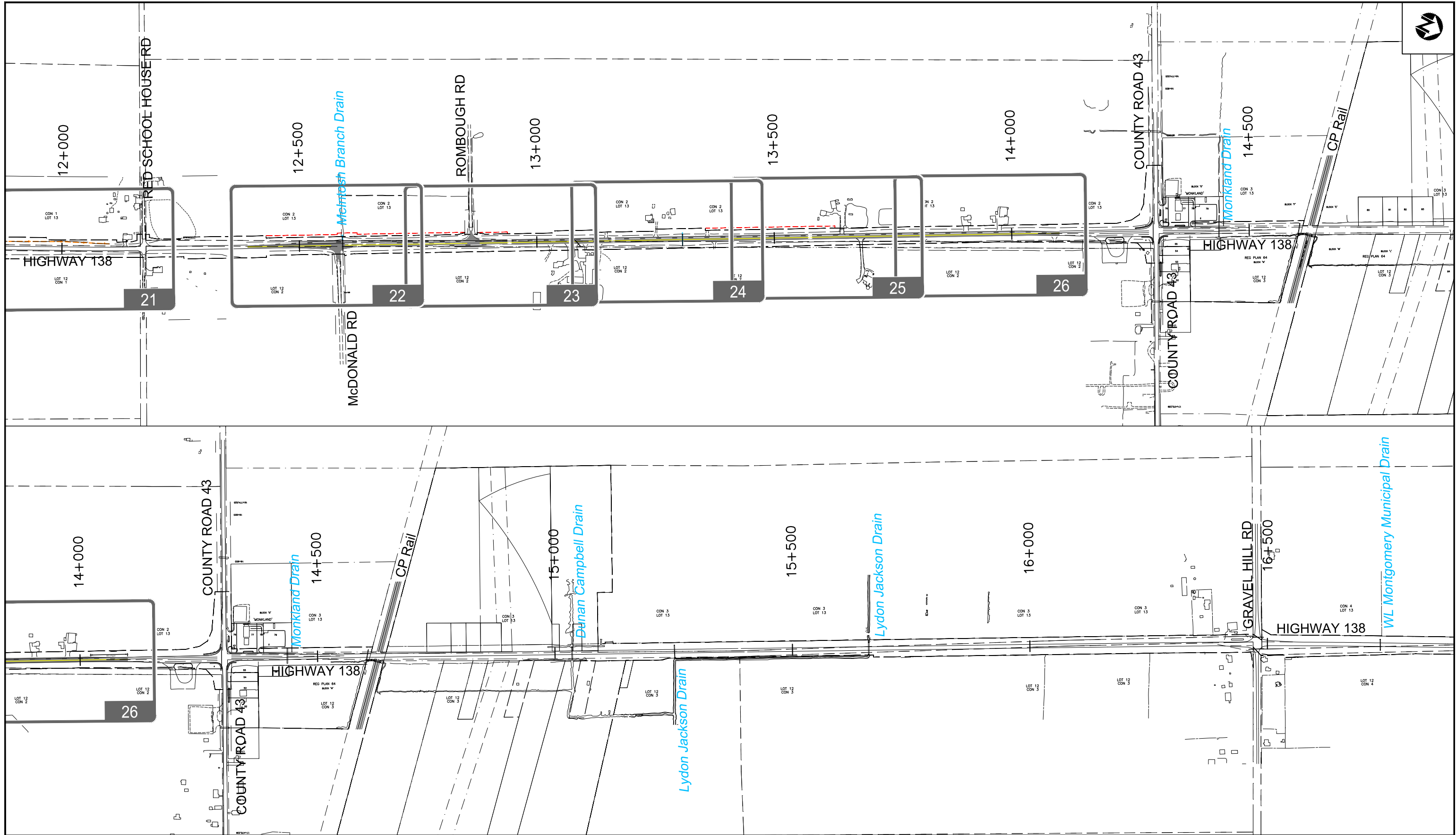


HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

100 m
 1:7500

Recommended Plan
 Keyplan

SHEET
 iii



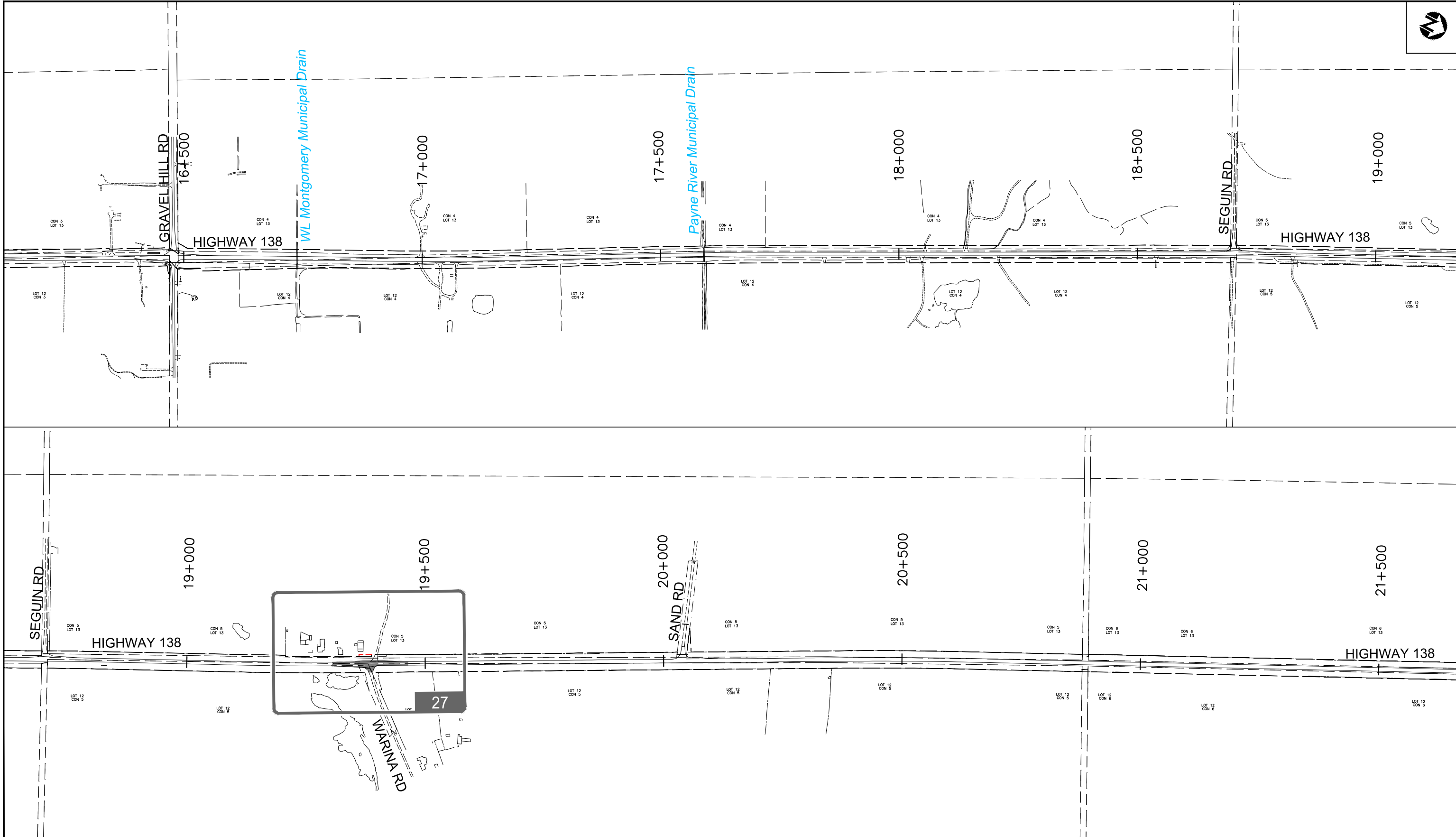
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00



100 m
 1:7500

Recommended Plan
 Keyplan

SHEET
 iv



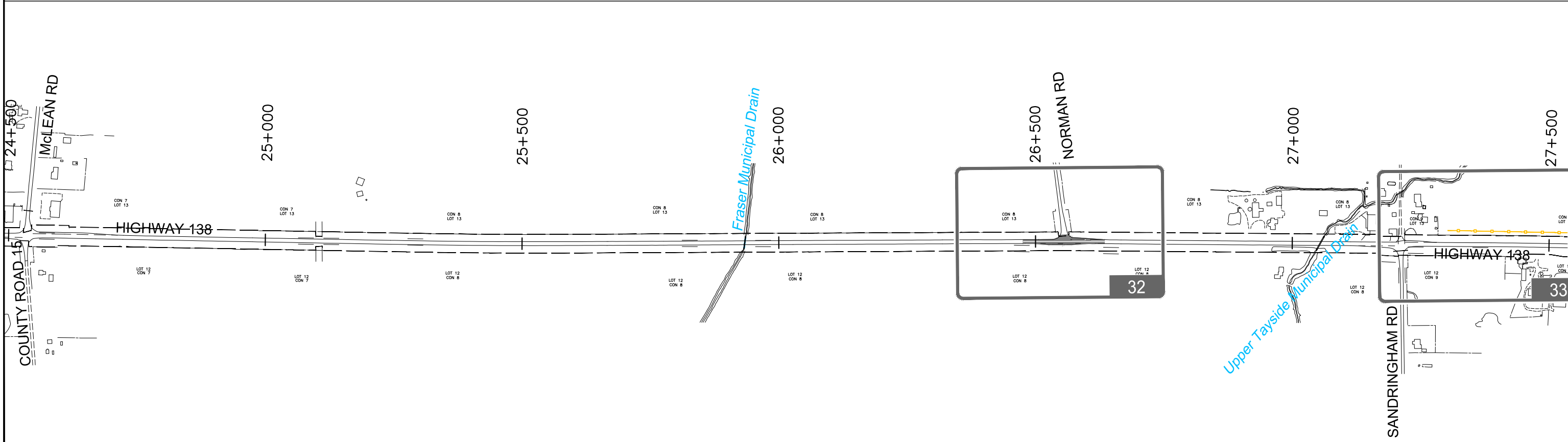
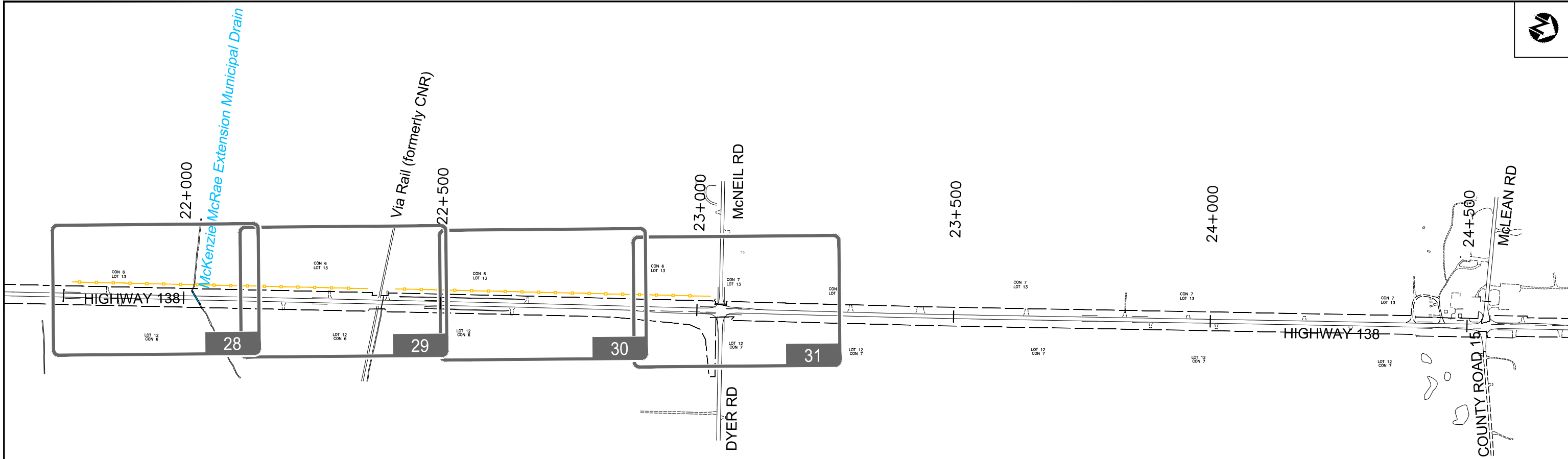
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00



100 m
 1:7500

Recommended Plan
 Keyplan

SHEET
 V

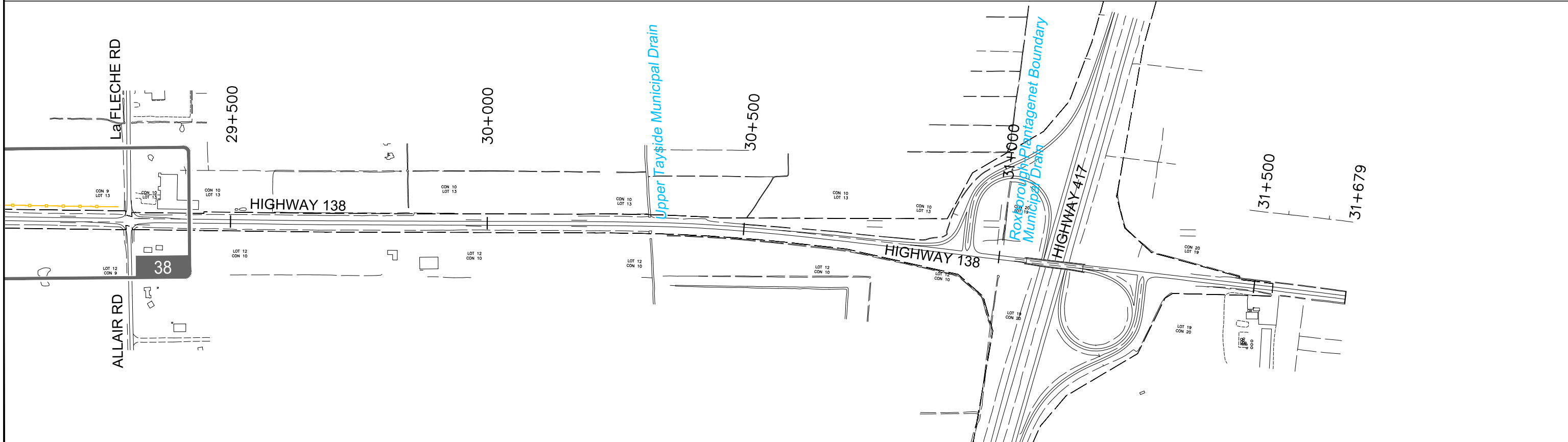
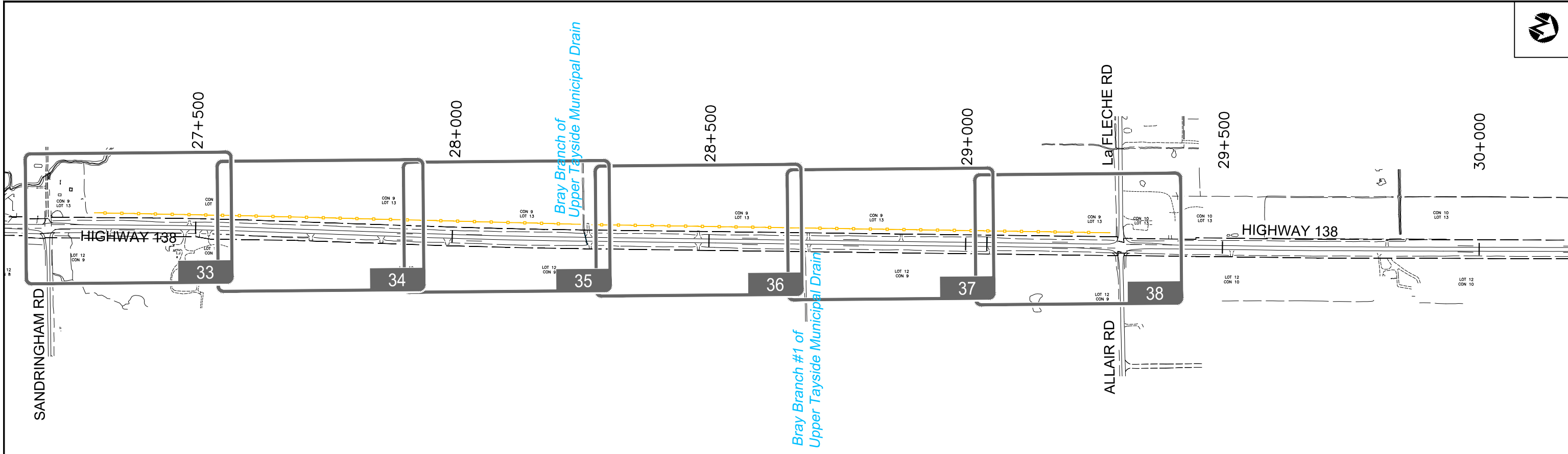


HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

100 m
 1:7500

Recommended Plan
 Keyplan

SHEET
 vi



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

100 m
 1:7500

Recommended Plan
 Keyplan

SHEET
 vii



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Carpool Lot Location

20 m
 1:1000

Recommended Plan
 Sta 10+600 to Sta 10+800
 Cornwall Township



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
 1:1000

Recommended Plan
 Sta 11+350 to Sta 11+450
 Cornwall Township





HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required
	Ditch Grading

20 m
 1:1000

Recommended Plan
 Sta 11+700 to Sta 11+900
 Cornwall Township





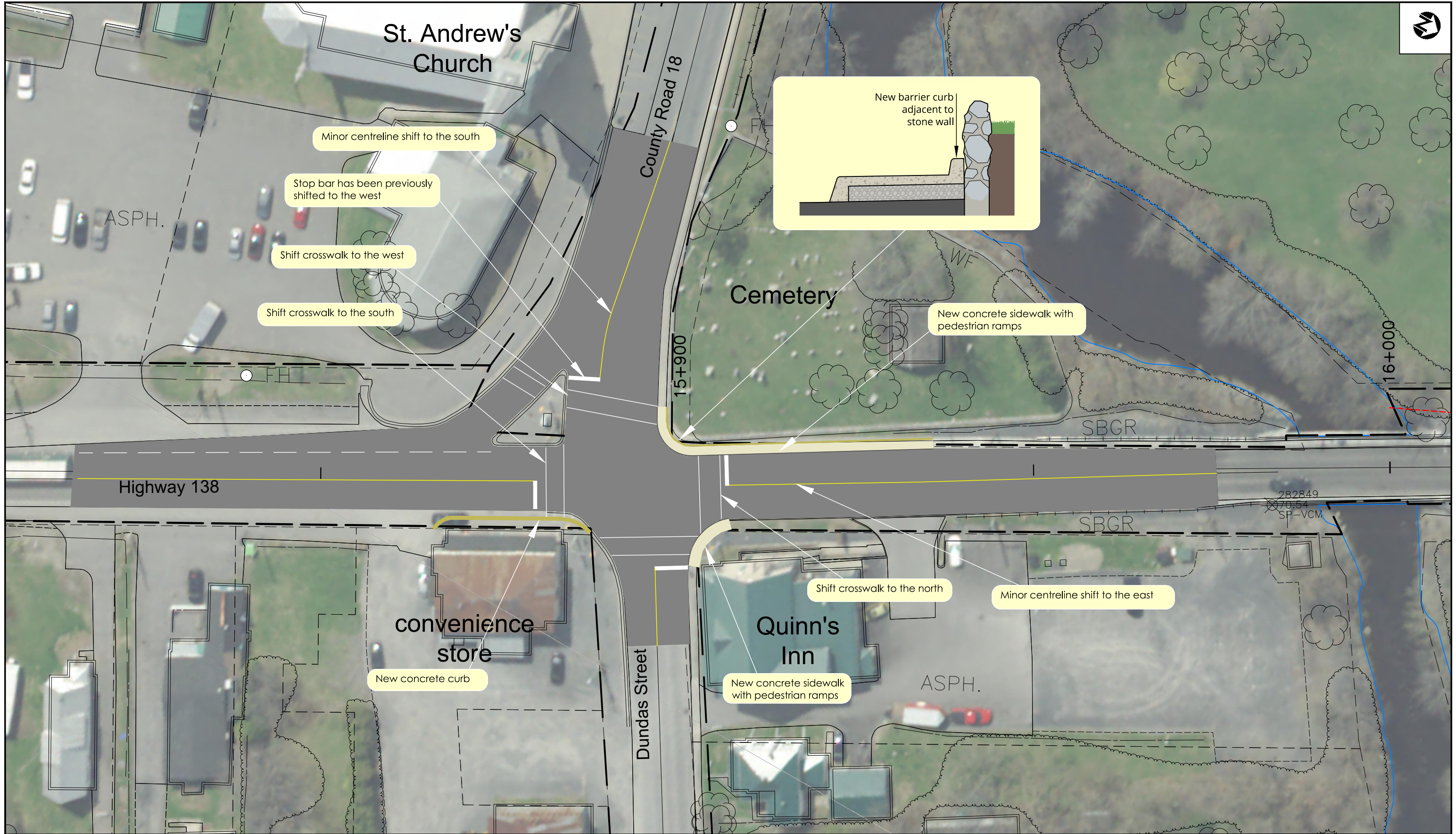
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Grading Limits
- New Concrete Curb
- Property Required

20 m
 1:1500

Recommended Plan
 Sta 13+200 to Sta 13+700
 Cornwall Township



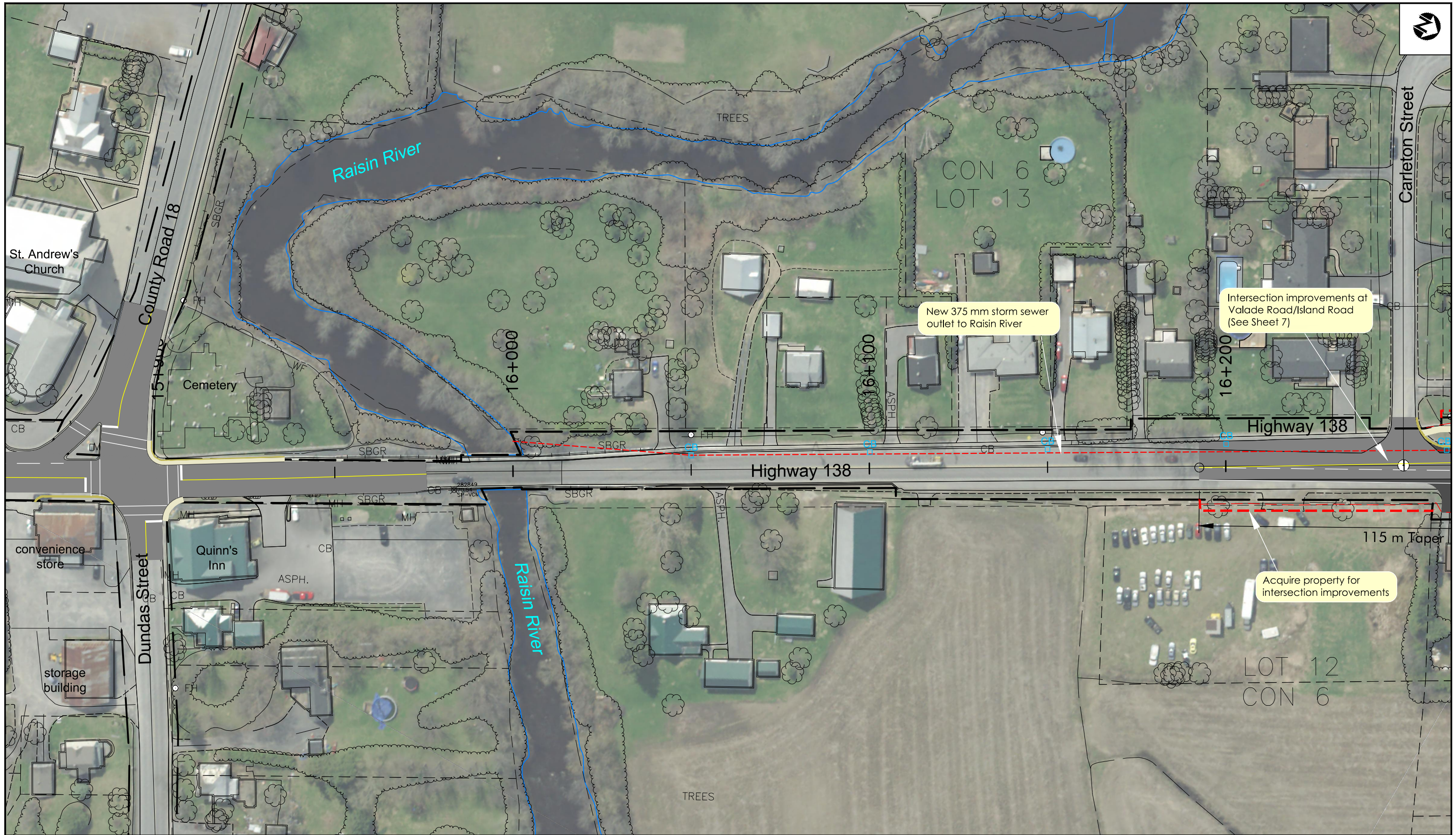
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

10 m
 1:500

Recommended Plan
 Sta 15+800 to Sta 16+000
 Cornwall Township





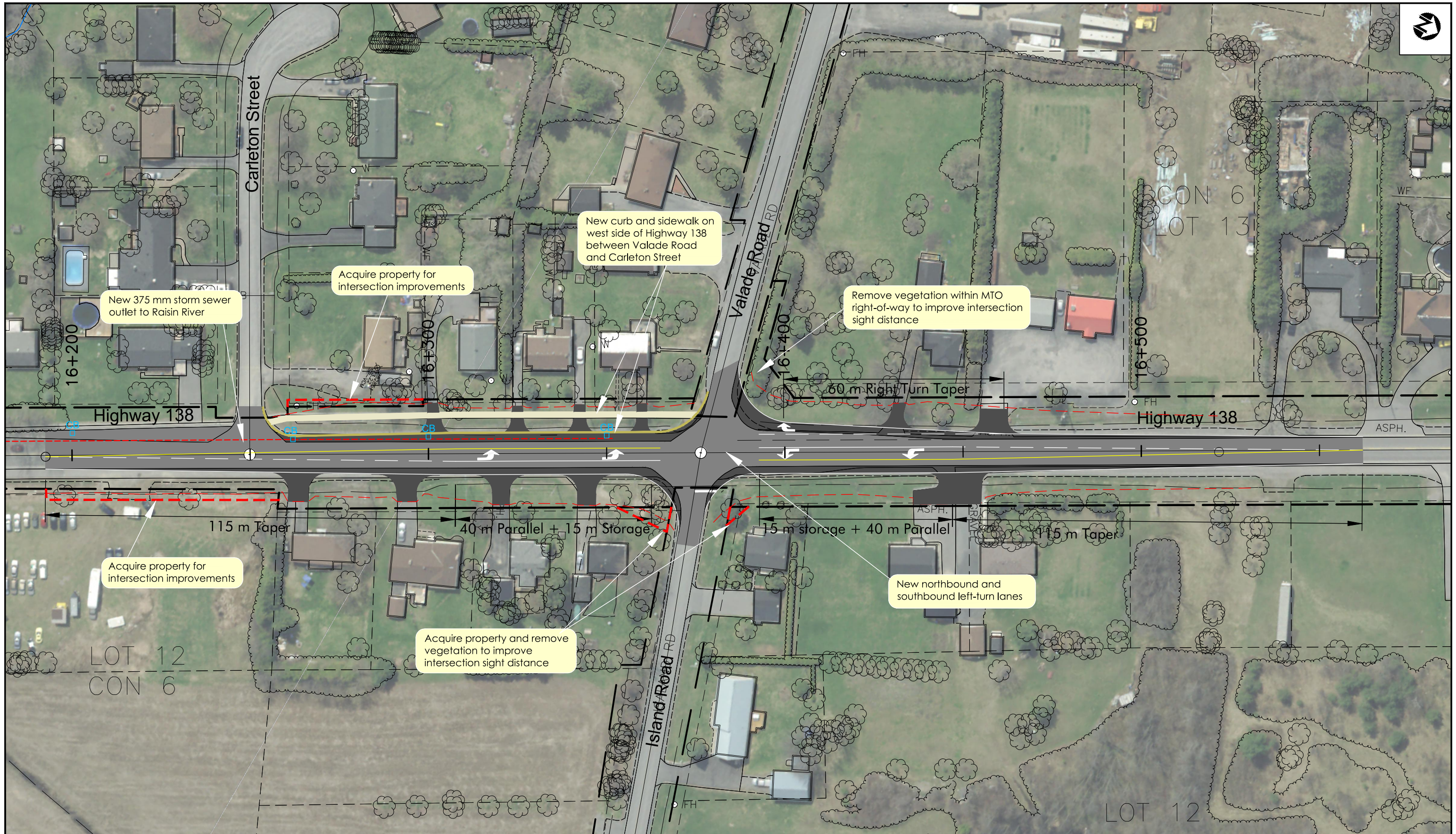
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
 1:1000

Recommended Plan
 Sta 15+900 to Sta 16+200
 Cornwall Township

SHEET
6



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
 1:1000

Recommended Plan
 Sta 16+200 to Sta 16+570
 Cornwall Township



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- | | |
|---|--|
|  Existing Asphalt |  Grading Limits |
|  Existing Right-of-way |  New Concrete Curb |
|  New Roadway Pavement |  Property Required |
|  Property Line Fabric (approximate only) |  Carpool Lot Location |

20 m
 1:1000

Recommended Plan
 Sta 16+600 to Sta 17+000
 Cornwall Township



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
 1:1500

Recommended Plan
 Sta 17+900 to Sta 18+400
 Cornwall Township





HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND			
	Existing Asphalt		Grading Limits
	Existing Right-of-way		New Concrete Curb
	New Roadway Pavement		Property Required
	Property Line Fabric (approximate only)		

20 m
 1:1500

Recommended Plan
 Sta 19+700 to Sta 20+200
 Cornwall Township

SHEET
 10





HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required

20 m
 1:1000

Recommended Plan
 Sta 20+450 to Sta 20+800
 Cornwall Township



CON 8
LOT 13



LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
1:1000

HIGHWAY 138 IMPROVEMENTS
from Highway 401 to Highway 417
PRELIMINARY DESIGN STUDY
GWP 4015-08-00

Recommended Plan
Sta 20+800 to Sta 21+200
Cornwall Township

SHEET
12





New northbound passing lane
(2.0 km long)



HIGHWAY 138 IMPROVEMENTS
from Highway 401 to Highway 417
PRELIMINARY DESIGN STUDY
GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required

20 m
1:1000

Recommended Plan
Sta 21+200 to Sta 21+550
Cornwall Township

SHEET
13

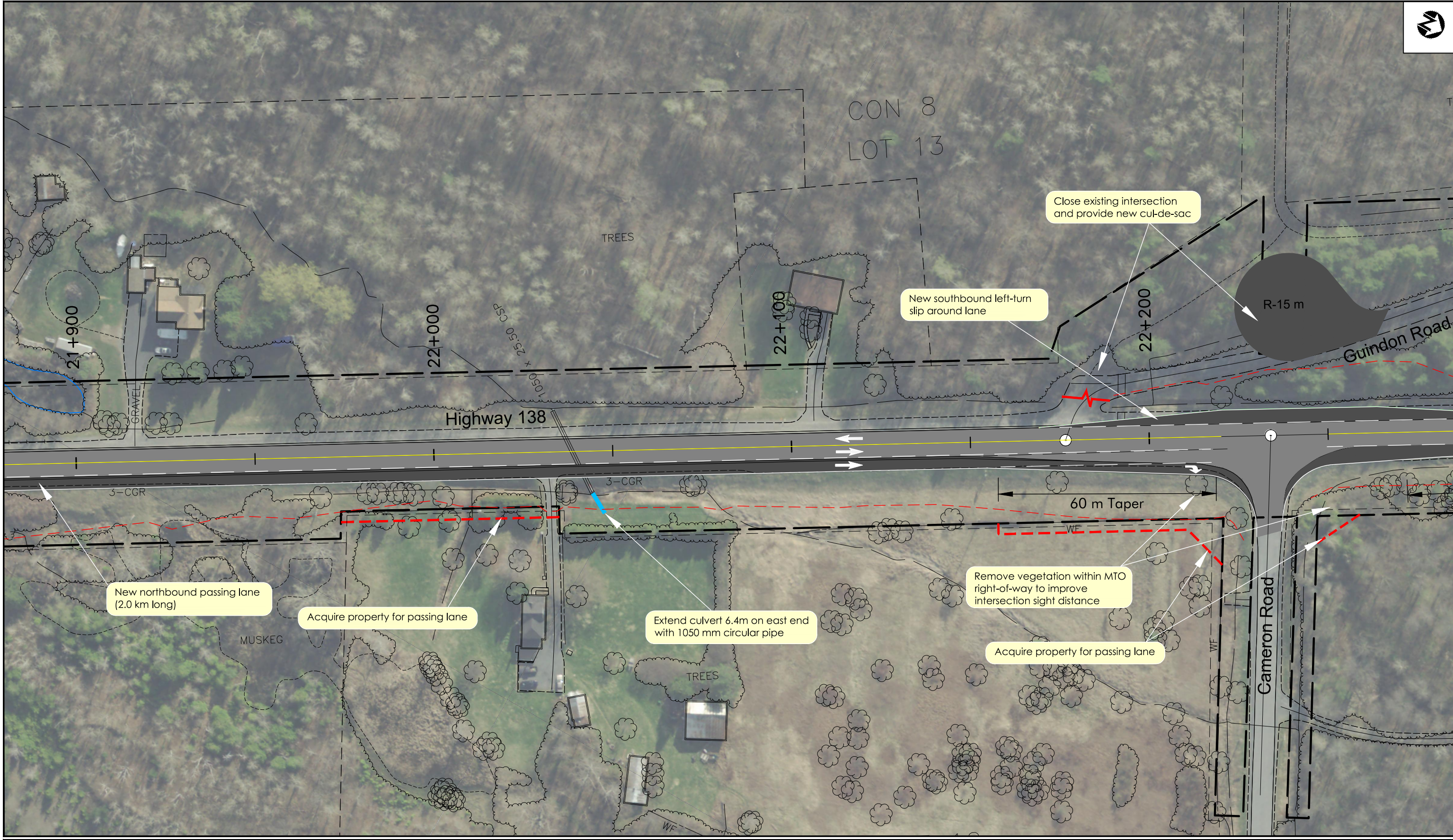


HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND			
	Existing Asphalt		Grading Limits
	Existing Right-of-way		New Concrete Curb
	New Roadway Pavement		Property Required
	Property Line Fabric (approximate only)		

20 m
 1:1000

Recommended Plan
 Sta 21+550 to Sta 21+900
 Cornwall Township



New northbound passing lane
(2.0 km long)

Acquire property for passing lane

Extend culvert 6.4m on east end
with 1050 mm circular pipe

Remove vegetation within MTO
right-of-way to improve
intersection sight distance

Acquire property for passing lane

New southbound left-turn
slip around lane

Close existing intersection
and provide new cul-de-sac

R-15 m

60 m Taper

HIGHWAY 138 IMPROVEMENTS
from Highway 401 to Highway 417
PRELIMINARY DESIGN STUDY
GWP 4015-08-00

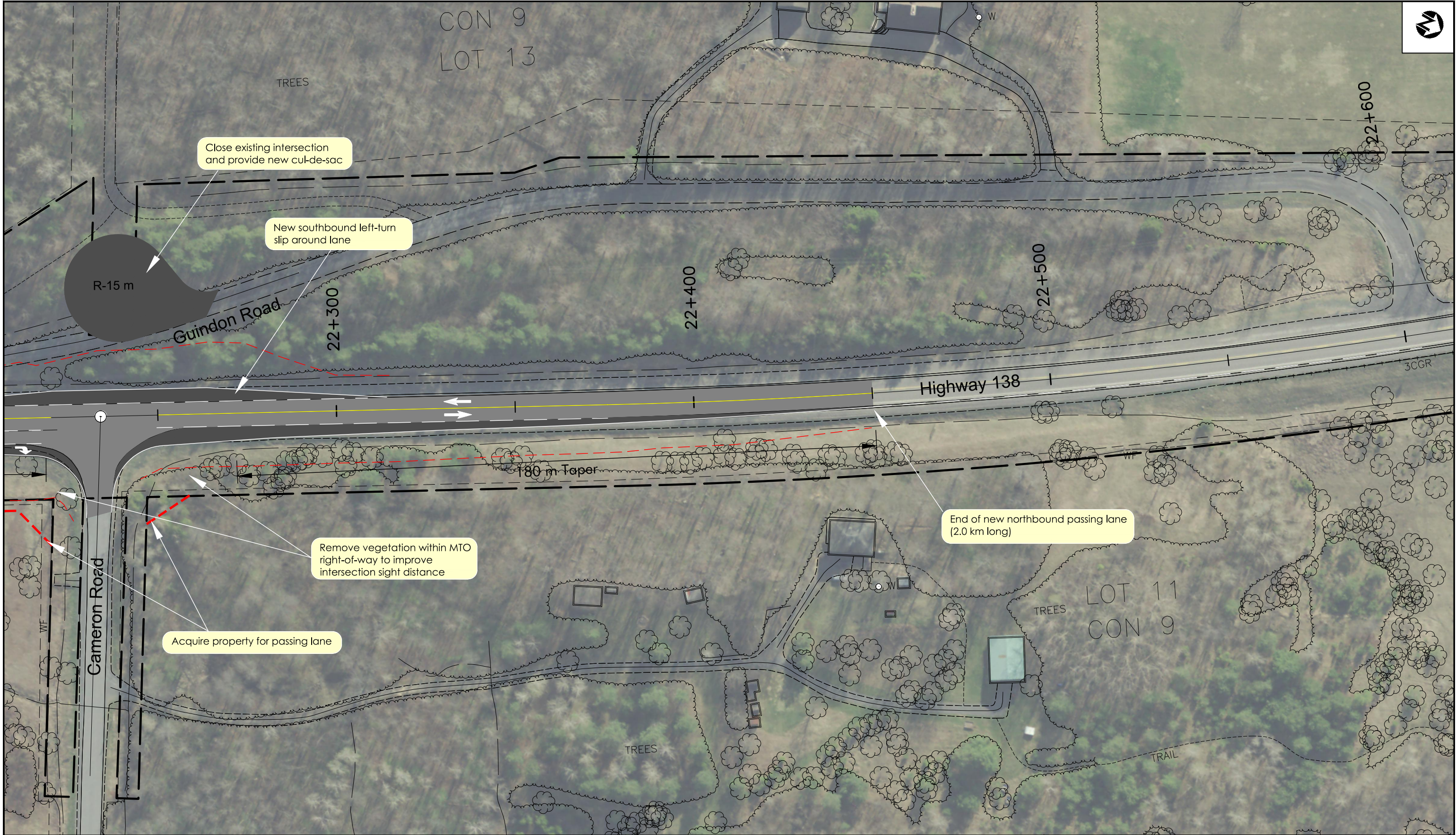
LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
1:1000

Recommended Plan
Sta 21+900 to Sta 22+250
Cornwall Township

SHEET
15





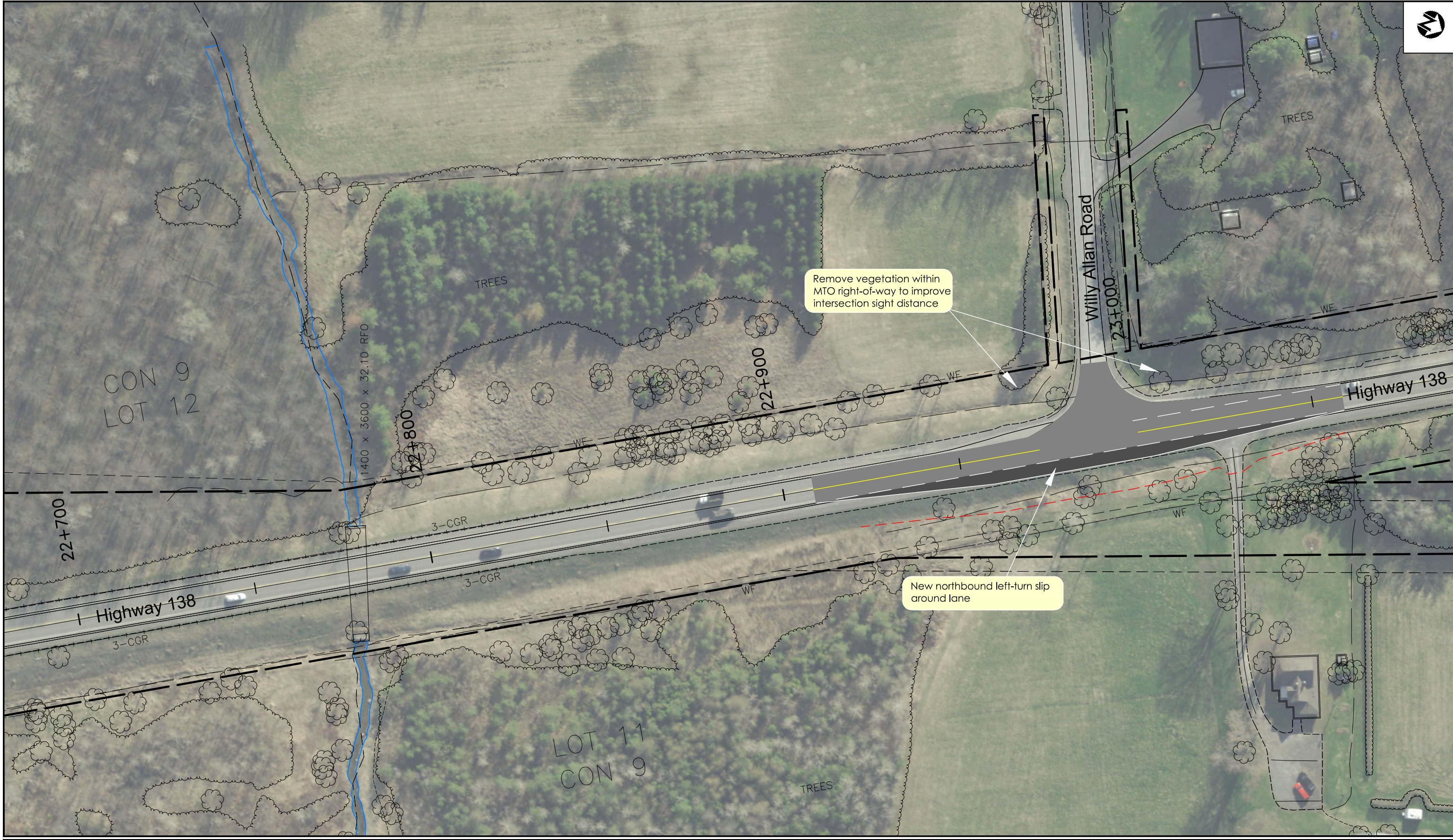
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND			
	Existing Asphalt		Grading Limits
	Existing Right-of-way		New Concrete Curb
	New Roadway Pavement		Property Required
	Property Line Fabric (approximate only)		

20 m
 1:1000

Recommended Plan
 Sta 22+250 to Sta 22+600
 Cornwall Township

SHEET
16



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND			
	Existing Asphalt		Grading Limits
	Existing Right-of-way		New Concrete Curb
	New Roadway Pavement		Property Required
	Property Line Fabric (approximate only)		

20 m
 1:1000

Recommended Plan
 Sta 22+700 to Sta 23+050
 Cornwall Township

SHEET
 17



New southbound left-turn slip around lane

Remove vegetation within MTO right-of-way to improve intersection sight distance

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
1:1000

HIGHWAY 138 IMPROVEMENTS
from Highway 401 to Highway 417
PRELIMINARY DESIGN STUDY
GWP 4015-08-00

Recommended Plan
Sta 23+050 to Sta 23+400
Cornwall Township

SHEET
18





HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- | | | | |
|--|--|--|-------------------|
| | Existing Asphalt | | Grading Limits |
| | Existing Right-of-way | | New Concrete Curb |
| | New Roadway Pavement | | Property Required |
| | Property Line Fabric
(approximate only) | | Ditch Grading |

20 m
 1:1000

Recommended Plan
 Sta 11+150 to Sta 11+500
 Roxborough Township



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND			
	Existing Asphalt		Grading Limits
	Existing Right-of-way		New Concrete Curb
	New Roadway Pavement		Property Required
	Property Line Fabric (approximate only)		Ditch Grading

20 m
 1:1000

Recommended Plan
 Sta 11+500 to Sta 11+850
 Roxborough Township

EXHIBIT
20



Regrade west ditch along Highway 138 to improve drainage from Red School House Road to Campbell Road



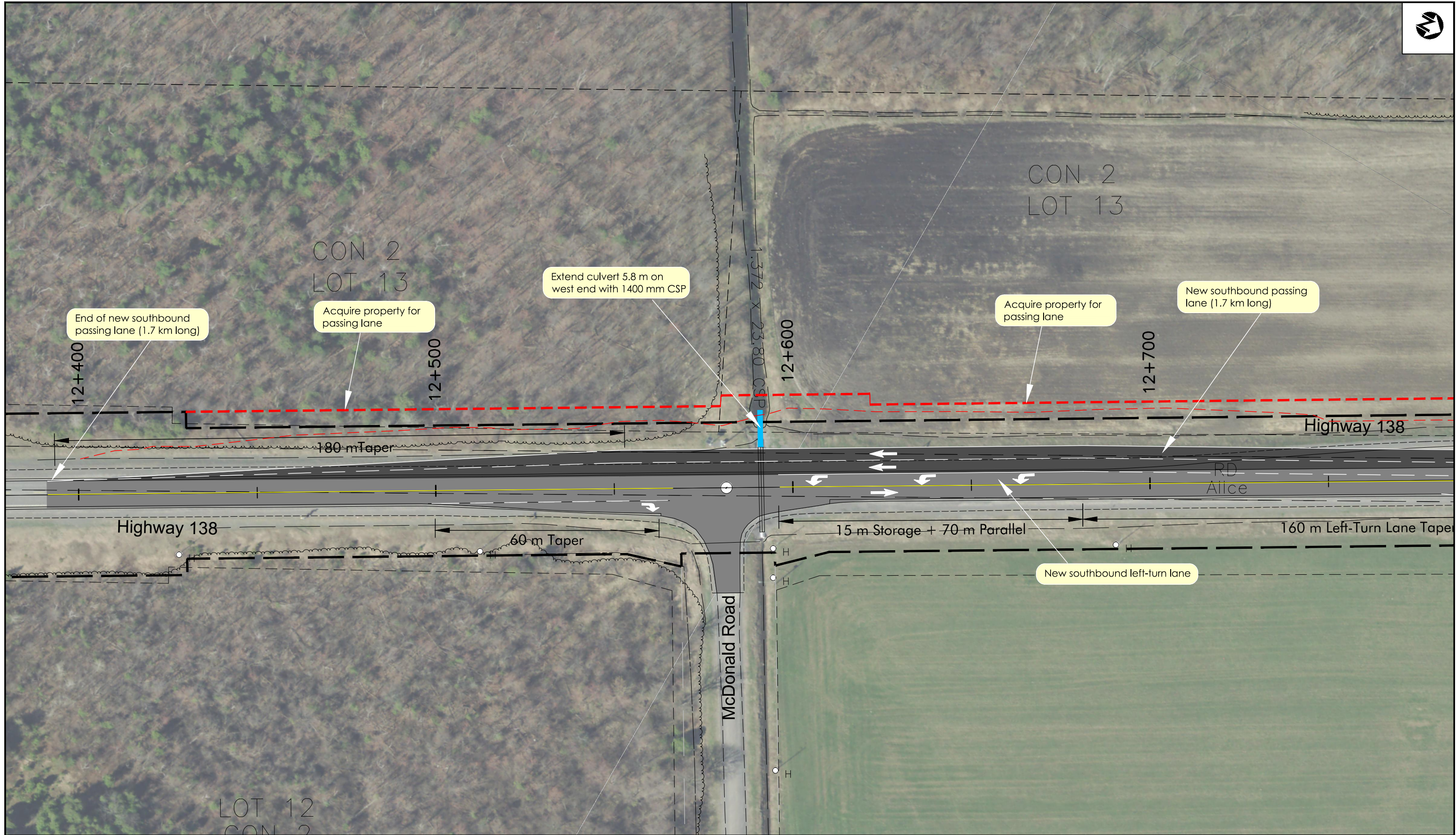
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

- LEGEND
- Existing Asphalt
 - Existing Right-of-way
 - New Roadway Pavement
 - Property Line Fabric (approximate only)
 - Grading Limits
 - New Concrete Curb
 - Property Required
 - Ditch Grading

20 m
 1:1000

Recommended Plan
 Sta 11+850 to Sta 12+200
 Roxborough Township

EXHIBIT
21

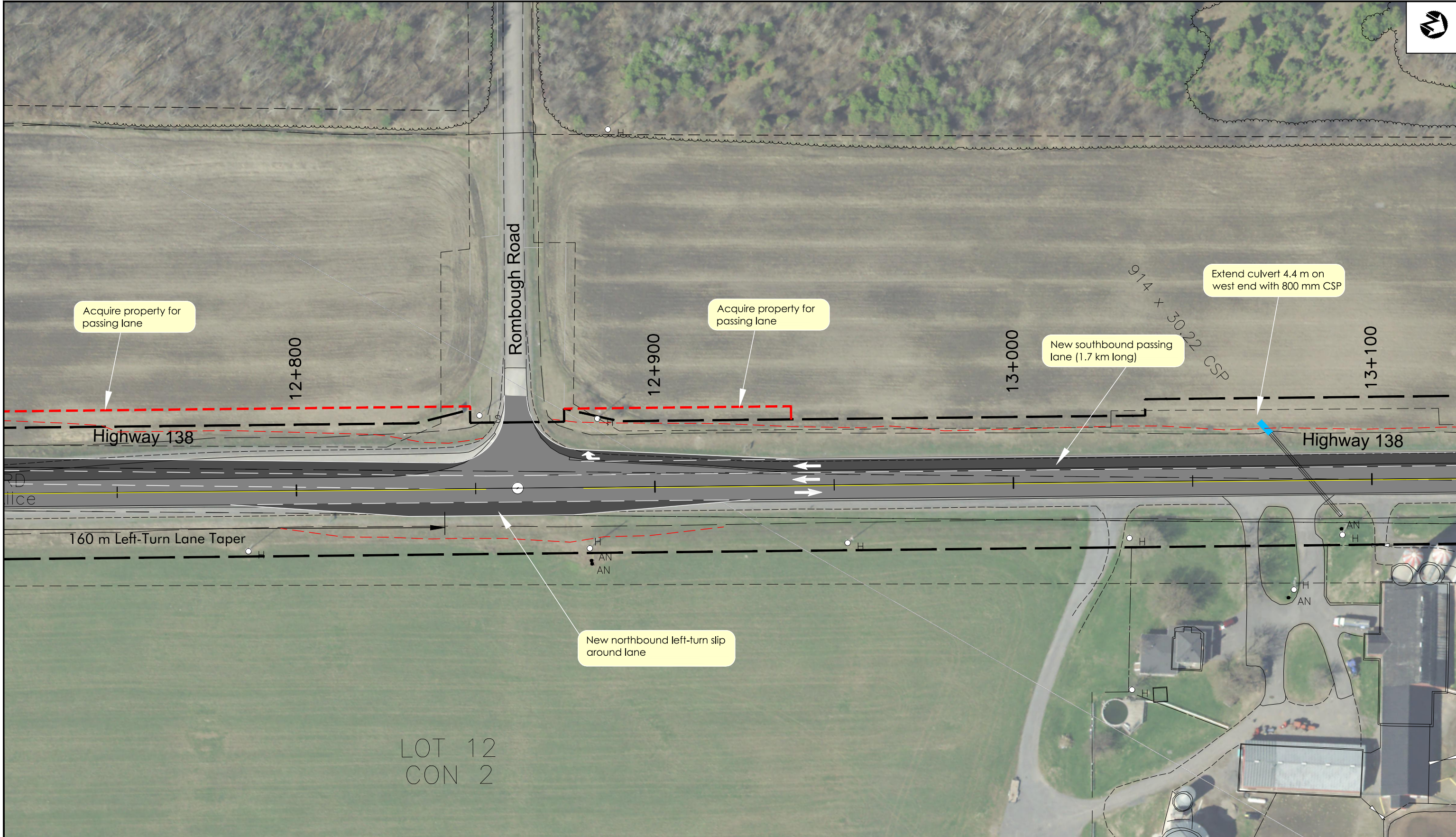


HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
 1:1000

Recommended Plan
 Sta 12+400 to Sta 12+750
 Roxborough Township



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
 1:1000

Recommended Plan
 Sta 12+750 to Sta 13+050
 Roxborough Township

EXHIBIT
23



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
 1:1000

Recommended Plan
 Sta 13+050 to Sta 13+400
 Roxborough Township

EXHIBIT
24



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required

20 m
 1:1000

Recommended Plan
 Sta 13+400 to Sta 13+750
 Roxborough Township

EXHIBIT
25



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required

20 m
 1:1000

Recommended Plan
 Sta 13+750 to Sta 14+100
 Roxborough Township

EXHIBIT
26



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required

20 m
 1:1000

Recommended Plan
 Sta 19+200 to Sta 19+550
 Roxborough Township

EXHIBIT
27



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Permanent Snow Fence

20 m
 1:1000

Recommended Plan
 Sta 21+800 to Sta 22+150
 Roxborough Township

EXHIBIT
28



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Permanent Snow Fence

20 m
 1:1000

Recommended Plan
 Sta 22+150 to Sta 22+500
 Roxborough Township



Install permanent snow fencing
Sta 21+800 to Sta 23+050

CON 6
LOT 13

22+500

22+600

22+700

22+800

Highway 138

Highway 138

LOT 12
CON 6

LOT 12
CON 6



HIGHWAY 138 IMPROVEMENTS
from Highway 401 to Highway 417
PRELIMINARY DESIGN STUDY
GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Permanent Snow Fence

20 m
1:1000

Recommended Plan
Sta 22+500 to Sta 22+850
Roxborough Township

EXHIBIT
30



Install permanent snow fencing
Sta 21+800 to Sta 23+050



HIGHWAY 138 IMPROVEMENTS
from Highway 401 to Highway 417
PRELIMINARY DESIGN STUDY
GWP 4015-08-00

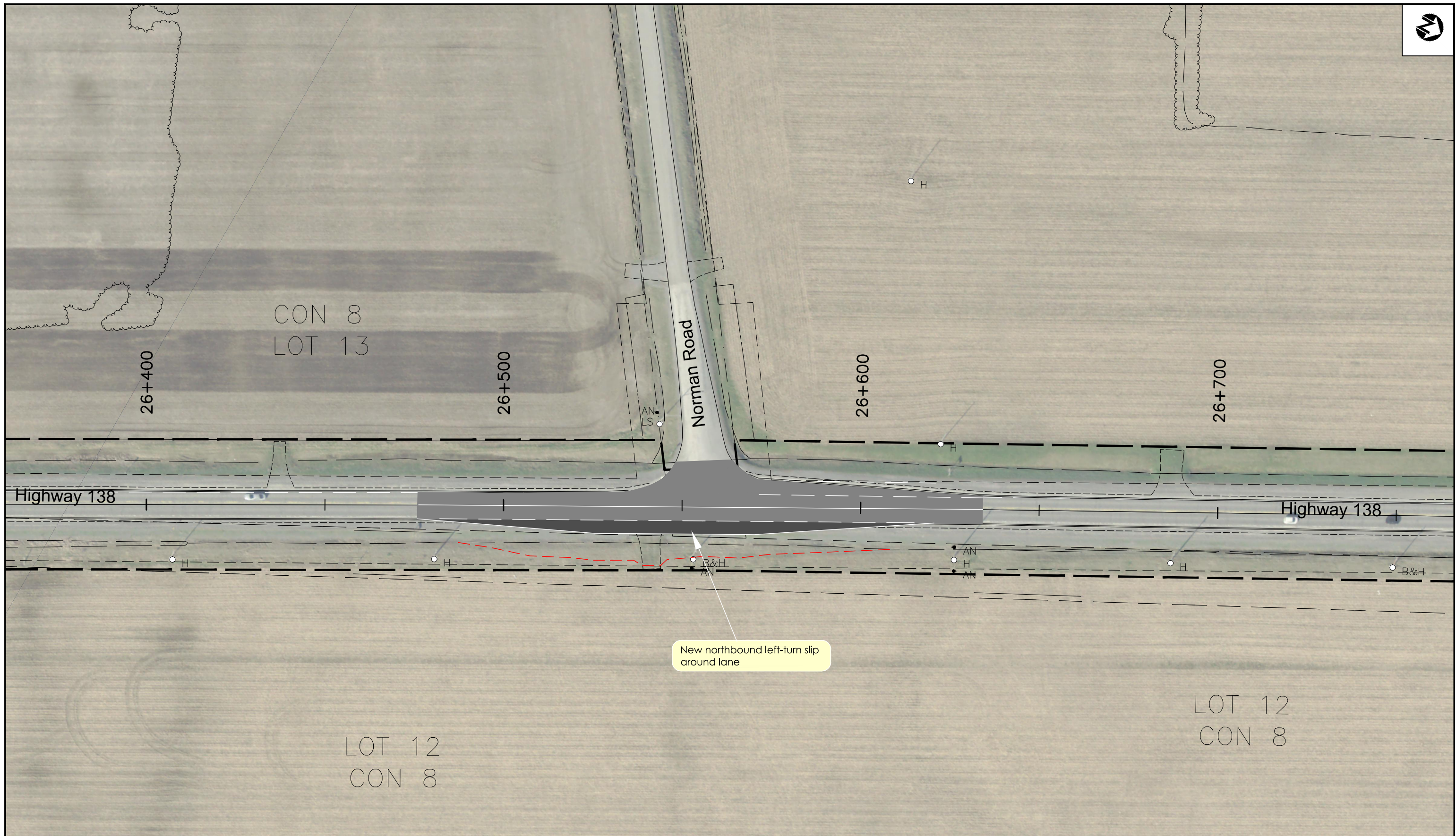
LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Permanent Snow Fence

20 m
1:1000

Recommended Plan
Sta 22+850 to Sta 23+200
Roxborough Township

EXHIBIT
31



New northbound left-turn slip around lane



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required

20 m
 1:1000

Recommended Plan
 Sta 26+400 to Sta 26+750
 Roxborough Township



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Permanent Snow Fence

20 m
 1:1000

Recommended Plan
 Sta 27+200 to Sta 27+550
 Roxborough Township

EXHIBIT
33



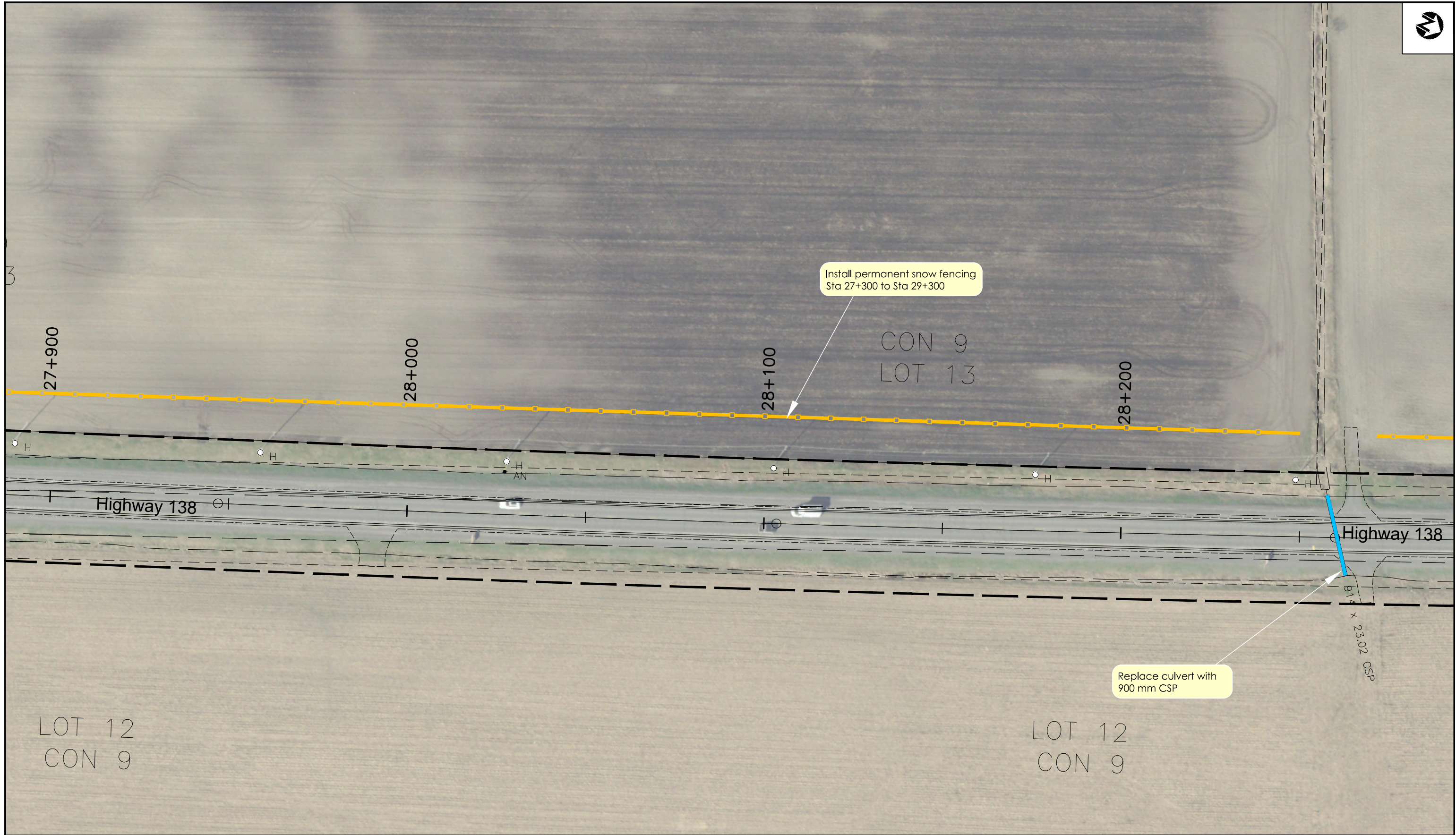
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Permanent Snow Fence

20 m
 1:1000

Recommended Plan
 Sta 27+550 to Sta 27+900
 Roxborough Township



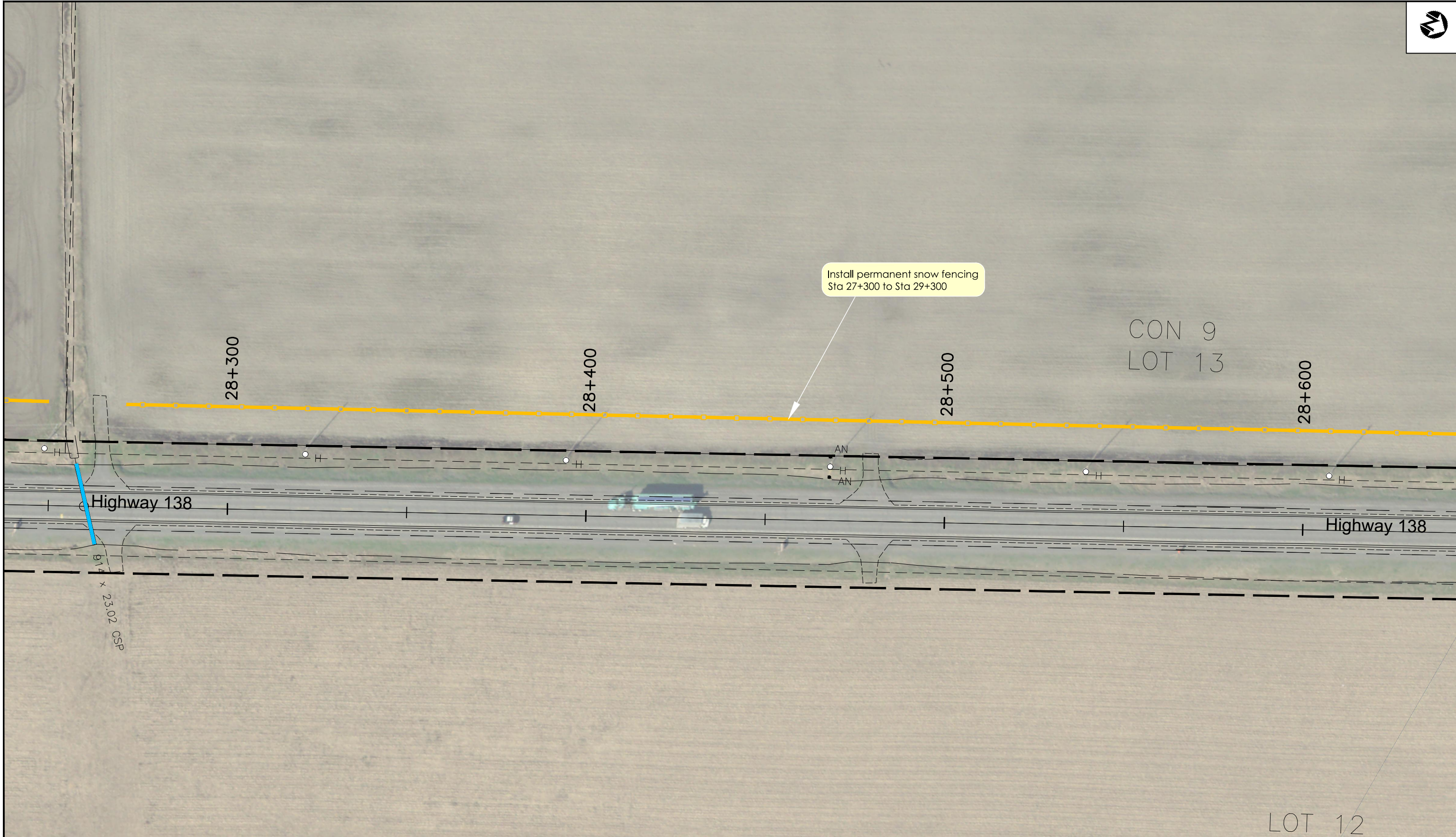
HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required
	Permanent Snow Fence

20 m
 1:1000

Recommended Plan
 Sta 27+900 to Sta 28+250
 Roxborough Township

EXHIBIT
35



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Permanent Snow Fence

20 m
 1:1000

Recommended Plan
 Sta 28+250 to Sta 28+600
 Roxborough Township

EXHIBIT
36



HIGHWAY 138 IMPROVEMENTS
 from Highway 401 to Highway 417
 PRELIMINARY DESIGN STUDY
 GWP 4015-08-00

LEGEND

- Existing Asphalt
- Existing Right-of-way
- New Roadway Pavement
- Property Line Fabric (approximate only)
- Grading Limits
- New Concrete Curb
- Property Required
- Permanent Snow Fence

20 m
 1:1000

Recommended Plan
 Sta 28+600 to Sta 28+950
 Roxborough Township



Install permanent snow fencing
Sta 27+300 to Sta 29+300

Replace culvert with
750 mm CSP



HIGHWAY 138 IMPROVEMENTS
from Highway 401 to Highway 417
PRELIMINARY DESIGN STUDY
GWP 4015-08-00

LEGEND	
	Existing Asphalt
	Existing Right-of-way
	New Roadway Pavement
	Property Line Fabric (approximate only)
	Grading Limits
	New Concrete Curb
	Property Required
	Permanent Snow Fence

20 m
1:1000

Recommended Plan
Sta 28+950 to Sta 29+300
Roxborough Township

EXHIBIT
38