LAYOUT No. 1B PART 1

T.H. 14 VICINITY OF NICOLLET & NORTH MANKATO

FROM 270' EAST OF NICOLLET CREEK TO

10,300' EAST OF CSAH 17

Prepared APRIL 2014 Scale: Hor. 1 inch = 100 ft.

By TOM HINZ

The alignment and grades shown on this map are tentative and subject to change without notice.	Staff Approval Date: 4-25-2014 🟥	The traffic volumes shown are estimated for year 2033 Prepared APRIL 2014.

S.P. 5203-104 T.H. 14 A.J. T71790 PPMS Activity 1140

S.P. T.H. A.J. PPMS Activity

S.P. T.H. A.J. PPMS Activity

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DATE: 04-JUN-2014 09:03

LAYOUT HISTORY

INITIAL PROJECT (5203-104) INCLUDED AN EXPANSION FROM A 2-LANE ROADWAY TO A 4-LANE DIVIDED ROADWAY FROM THE EAST SIDE OF NICOLLET TO NORTH MANKATO.

THE NICOLLET BYPASS PROJECT (5203-106) WAS INCORPORATED INTO 5203-104.
NEW PROJECT LIMITS RUN FROM WEST OF NICOLLET, BYPASSING NICOLLET, TO NORTH MANKATO.

RCUT INTERSECTIONS WERE PLACED AT ALL PUBLIC ROAD INTERSECTIONS. TRADITIONAL, FULL-ACCESS INTERSECTIONS WERE USED FOR DRIVEWAYS.

A GRADE-SEPARATED INTERCHANGE WAS CONSIDERED AT THE JUNCTION OF TH 14 AND PROPOSED TH 111/CSAH 23. THE DETERMINATION WAS MADE TO ACQUIRE RIGHT OF WAY FOR FUTURE CONSTRUCTION OF AT INTERCHANGE IN THIS LOCATION.

TH 99 CONNECTION TO TH 14 WEST OF NICOLLET WAS REMOVED FROM THE LAYOUT. TH 99 WILL TERMINATE AT THE JUNCTION OF TH 111.

RCUTS WERE REPLACED WITH TRADITIONAL, FULL-ACCESS INTERSECTIONS AT MOST PUBLIC ROAD INTERSECTIONS DUE TO THE ADDITIONAL COSTS OF RCUTS AND THE LOW TRAFFIC VOLUMES ON MOST SIDE ROADS. AN RCUT WAS STILL RECOMMENDED AT THE JUNCTION OF TH 14 AND TH 111.

THE LOCAL COMMUNITY VOICED STRONG OPPOSITION TO ANY SOLUTION AT THE JUNCTION OF TH 14 AND TH 111 OTHER THAN A GRADE-SEPARATED INTERCHANGE.

THE RCUT AT TH 14/TH 111 WAS REPLACED WITH A DIAMOND INTERCHANGE WITH ROUNDABOUTS ON TH 111 AT THE RAMP TERMINALS.

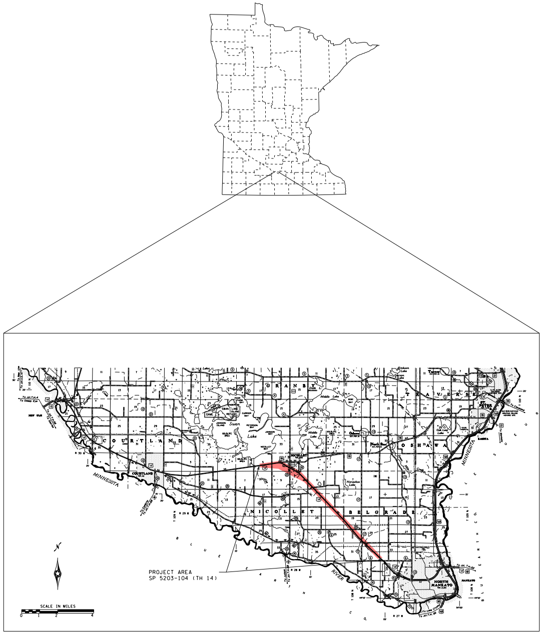
MODIFIED ROUNDABOUTS TO ACCOMMODATE 115' OSOW VEHICLES.

AFTER REVIEW AND COMMENTS BY THE GDSU AND RRT, ADDED CURB & GUTTER TO ALL LEGS OF BOTH ROUNDABOUTS TO MAINTAIN STANDARDS AND CONSISTENCY.

REDUCED SHOULDER WIDTH ON TH 111 NORTH OF THE INTERCHANGE FROM 10' TO 8'

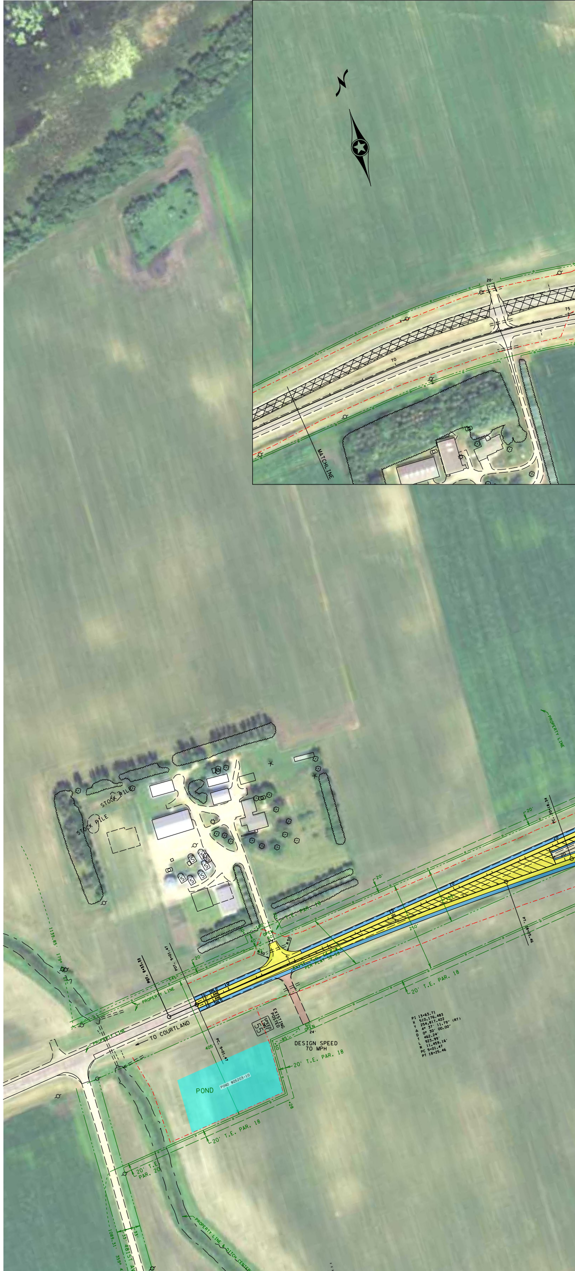
SIGNATURES ADVANCED FROM LAYOUT 1A TO LAYOUT 1B

INDEX MAP

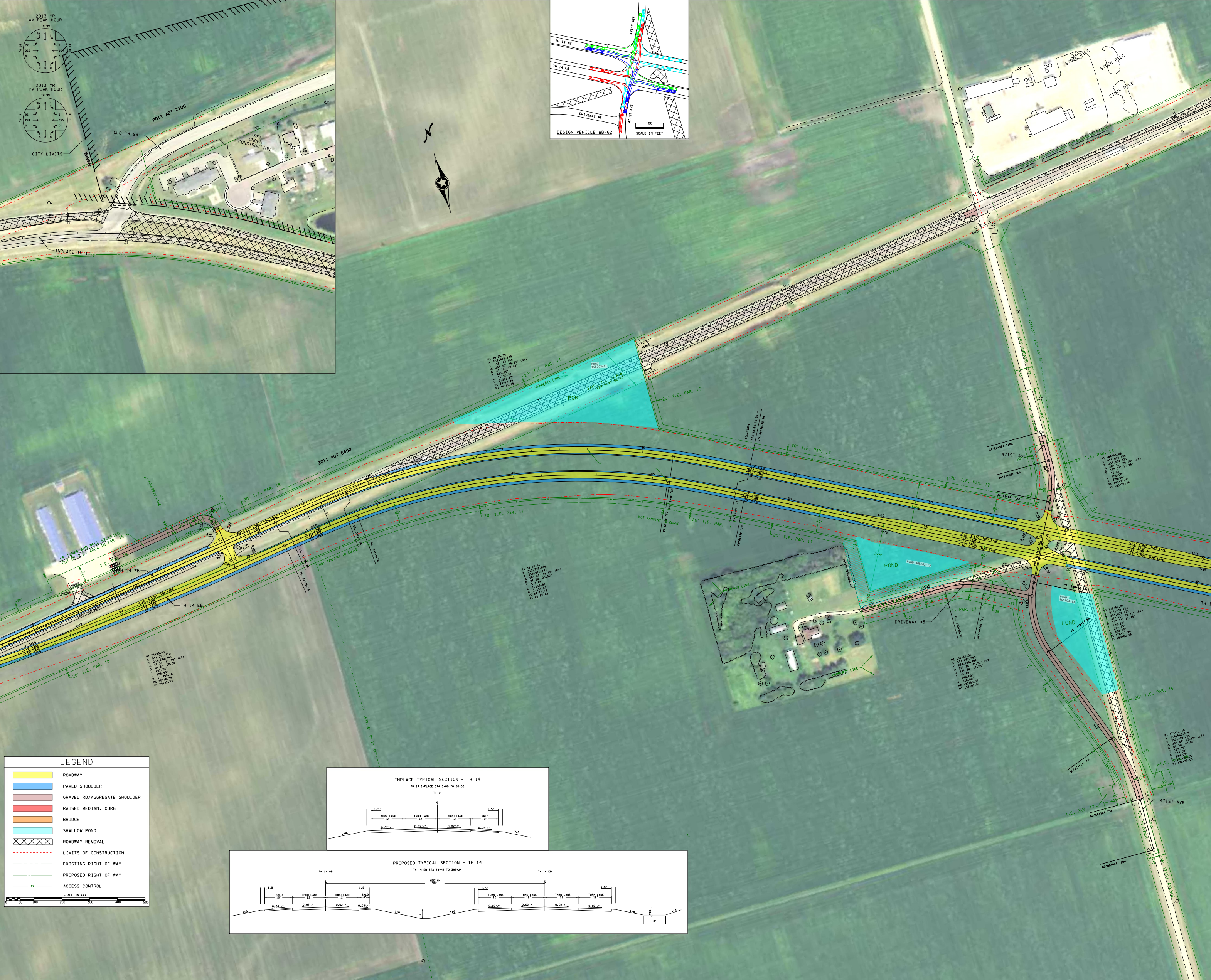


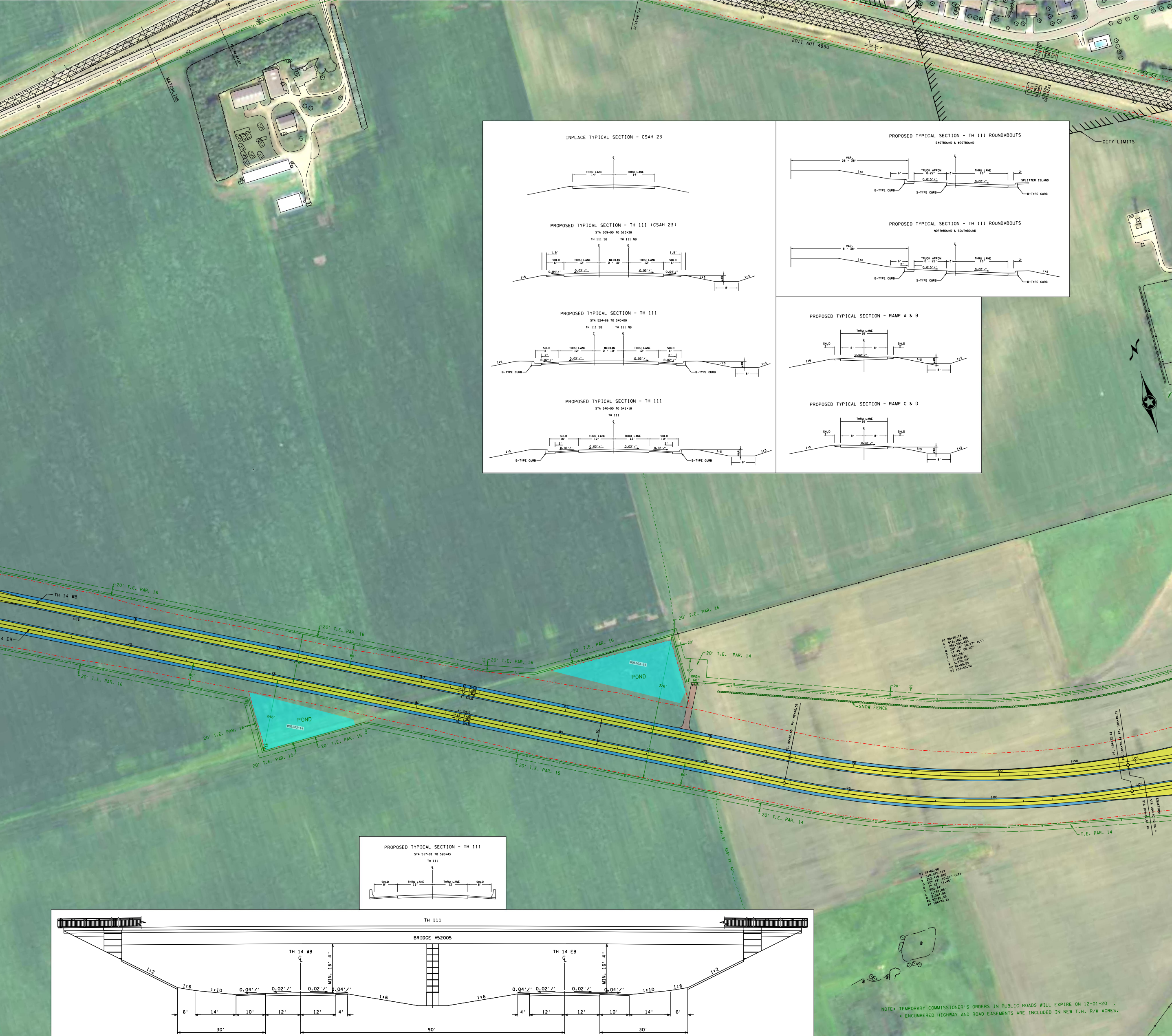
N
GRANBY
COURTLAND
OSHAWA
NICOLLET
BELGRADE
MINNESOTA
RIVER
NORTH MANKATO
ST. PETER
PROJECT AREA
SP 5203-104 (TH 14)
SCALE IN MILES

NICOLLET COUNTY

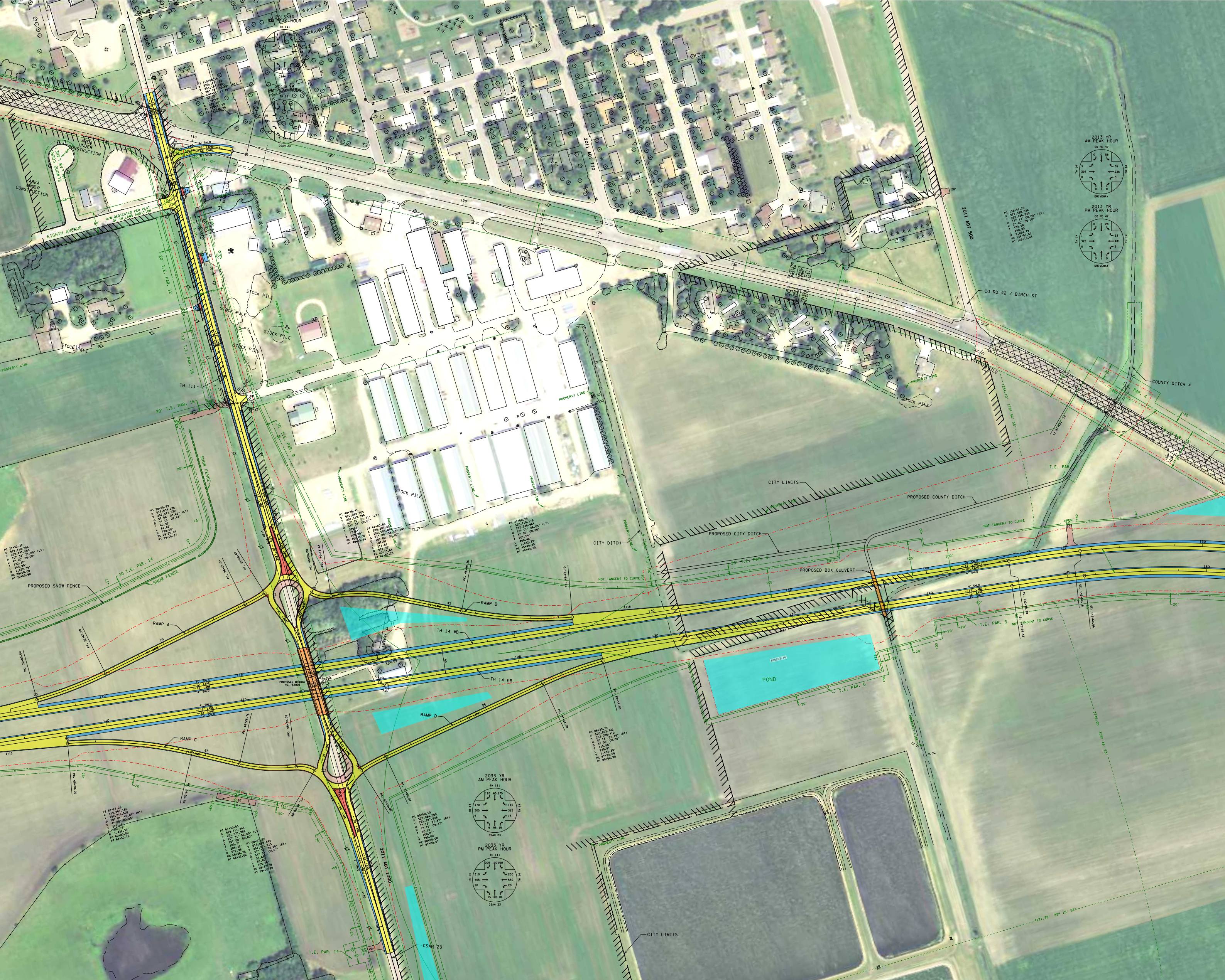


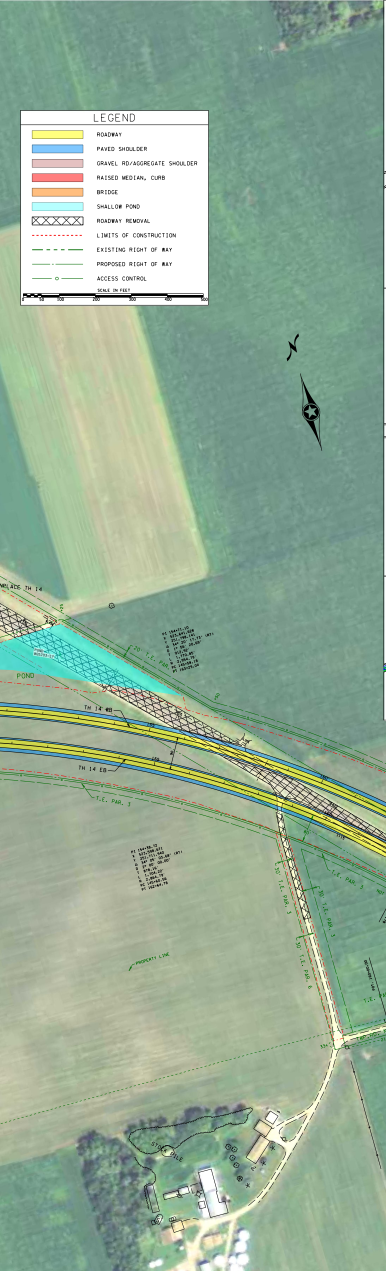
N
MATCHLINE
STOCK PILE
STOCK PILE
PROPERTY LINE
TO COURTLAND
10' SHLD
12' LANE
12' LANE
10' SHLD
EXIST. T.H. 14 R/W PER PLAT 52-55
EXISTING POSTED
SPEED LIMIT 55
60' OPEN
24'
DESIGN SPEED
70 MPH
20' T.E. PAR. 18
20' T.E. PAR. 20
POND
POND WQ5203-10
POT. 8+33.32
POT. 9+01.47
PC. 9+01.47
PT. 18+25.46
250'
405'
545'
PI 13+63.71
X 510,176.483
Y 254,817.422
Δ 4° 37' 11.79" (RT)
D 0° 30' 00.00"
T 462.24'
L 923.99'
R 11,459.16'
PC 9+01.47
PT 18+25.46


2013 YR
AM PEAK HOUR
TH 99
78
0
1
77
262
0
1
164
0
0
0
0
TH 14
TH 14
2013 YR
PM PEAK HOUR
TH 99
96
0
1
96
244
0
2
255
0
0
0
0
TH 14
TH 14
CITY LIMITS
OLD TH 99
2011 ADT 2100
AREA
UNDER
CONSTRUCTION
INPLACE TH 14
TH 14 WB
TH 14 EB
471ST AVE
471ST AVE
DRIVEWAY #3
100
SCALE IN FEET
DESIGN VEHICLE WB-62
STOCK PILE
STOCK PILE
STOCK PILE
2011 ADT 6800
POND
POND
POND
PROPERTY LINE
20' T.E. PAR. 17
20' T.E. PAR. 18
20' T.E. PAR. 16
20' T.E. PAR. 19
LP TANKS AND WELL EXCEPTED
OUT OF T.E. AREA IN PAR. 19
TH 14 WB
TH 14 EB
TURN LANE
NOT TANGENT TO CURVE
DRIVEWAY #3
471ST AVE
471ST AVE
471ST AVENUE
LEGEND
ROADWAY
PAVED SHOULDER
GRAVEL RD/AGGREGATE SHOULDER
RAISED MEDIAN, CURB
BRIDGE
SHALLOW POND
ROADWAY REMOVAL
LIMITS OF CONSTRUCTION
EXISTING RIGHT OF WAY
PROPOSED RIGHT OF WAY
ACCESS CONTROL
SCALE IN FEET
0
50
100
200
300
400
500
INPLACE TYPICAL SECTION - TH 14
TH 14 INPLACE STA 0+00 TO 60+00
TH 14
℄
1.5'
TURN LANE
12'
THRU LANE
12'
THRU LANE
12'
SHLD
10'
1.5'
0.02'/'
0.02'/'
0.02'/'
0.04'/'
VAR.
VAR.
PROPOSED TYPICAL SECTION - TH 14
TH 14 EB STA 29+42 TO 393+24
TH 14 WB
TH 14 EB
℄
MEDIAN
90'
℄
1.5'
SHLD
10'
THRU LANE
12'
THRU LANE
12'
SHLD
4'
1.5'
1.5'
TURN LANE
12'
THRU LANE
12'
THRU LANE
12'
TURN LANE
12'
1.5'
0.04'/'
0.02'/'
0.02'/'
0.04'/'
0.02'/'
0.02'/'
0.02'/'
0.02'/'
1:5
1:6
4'
1:6
1:5
VAR
1:3
8'


INPLACE TYPICAL SECTION - CSAH 23
THRU LANE 14'
THRU LANE 14'
PROPOSED TYPICAL SECTION - TH 111 (CSAH 23)
STA 509+00 TO 513+38
TH 111 SB
TH 111 NB
SHLD 6'
THRU LANE 12'
MEDIAN 0 - 10'
THRU LANE 12'
SHLD 6'
1.5'
0.04'/'
0.02'/'
1:5
1:3
VAR
8'
PROPOSED TYPICAL SECTION - TH 111
STA 524+96 TO 540+00
TH 111 SB
TH 111 NB
SHLD 8'
THRU LANE 12'
MEDIAN 0 - 10'
THRU LANE 12'
SHLD 8'
2'
B-TYPE CURB
PROPOSED TYPICAL SECTION - TH 111
STA 540+00 TO 541+18
TH 111
SHLD 10'
THRU LANE 12'
THRU LANE 12'
SHLD 10'
B-TYPE CURB
PROPOSED TYPICAL SECTION - TH 111 ROUNDABOUTS
EASTBOUND & WESTBOUND
VAR. 28 - 38'
1:6
6'
TRUCK APRON 0-22'
3'
THRU LANE 18'
2'
0.015'/'
0.02'/'
SPLITTER ISLAND
B-TYPE CURB
S-TYPE CURB
B-TYPE CURB
PROPOSED TYPICAL SECTION - TH 111 ROUNDABOUTS
NORTHBOUND & SOUTHBOUND
VAR. 8 - 38'
TRUCK APRON 0 - 22'
THRU LANE 18'
PROPOSED TYPICAL SECTION - RAMP A & B
THRU LANE 16'
SHLD 2'
8'
8'
SHLD 2'
PROPOSED TYPICAL SECTION - RAMP C & D
THRU LANE 16'
SHLD 2'
SHLD 2'
PROPOSED TYPICAL SECTION - TH 111
STA 517+91 TO 520+43
TH 111
SHLD 8'
THRU LANE 12'
THRU LANE 12'
SHLD 8'
TH 111
BRIDGE #52005
TH 14 WB
TH 14 EB
MIN. 16' 4"
1:2
1:6
1:10
0.04'/'
0.02'/'
6'
14'
10'
12'
4'
30'
90'
MATCHLINE
2011 ADT 4850
EXISTING POSTED SPEED LIMIT 55
CITY LIMITS
TH 14 WB
TH 14 EB
20' T.E. PAR. 16
20' T.E. PAR. 15
20' T.E. PAR. 14
T.E. PAR. 14
POND
SNOW FENCE
OPEN

NOTE: TEMPORARY COMMISSIONER'S ORDERS IN PUBLIC ROADS WILL EXPIRE ON 12-01-20 .
* ENCUMBERED HIGHWAY AND ROAD EASEMENTS ARE INCLUDED IN NEW T.H. R/W ACRES.


2013 YR AM PEAK HOUR
2013 YR PM PEAK HOUR
CSAH 23
2011 ADT 3300
2011 ADT 770
2011 ADT 500
AREA UNDER CONSTRUCTION
EIGHTH AVENUE
STOCK PILE
PROPERTY LINE
TH 111
20' T.E. PAR. 12
T.E. PAR. 16
SNOW FENCE
20' T.E. PAR. 14
PROPOSED SNOW FENCE
RAMP A
RAMP B
RAMP C
RAMP D
TH 14 WB
TH 14 EB
PROPOSED BRIDGE NO. 52005
CITY DITCH
CITY LIMITS
PROPOSED CITY DITCH
PROPOSED COUNTY DITCH
PROPOSED BOX CULVERT
NOT TANGENT TO CURVE
T.E. PAR. 3
T.E. PAR. 6
POND
OPEN
CO RD 42 / BIRCH ST
COUNTY DITCH 4
T.E. PAR. 4
EXIST. T.H. 14 R/W
CO RD 42
TH 14
DRIVEWAY
2013 YR
AM PEAK HOUR
CO RD 42
0 0 58
3 36
397 225
0 0
0 1 0
DRIVEWAY
2013 YR
PM PEAK HOUR
CO RD 42
0 2 28
1 33
322 481
0 2
0 1 0
DRIVEWAY
PI 138+91.29
X 522,590.038
Y 252,826.930
Δ 17° 13' 00.00" (RT)
D 2° 00' 00.00"
T 433.68
L 860.83
R 2,864.79
PC 134+57.61
PT 143+18.44
2033 YR
AM PEAK HOUR
TH 111
165 65 175
170 110
505 315
5 15
5 95 15
CSAH 23
2033 YR
PM PEAK HOUR
TH 111
205 100 150
310 250
405 550
10 20
15 105 10
CSAH 23
2011 ADT 1300
CITY LIMITS
T.E. PAR. 14
CSAH 23

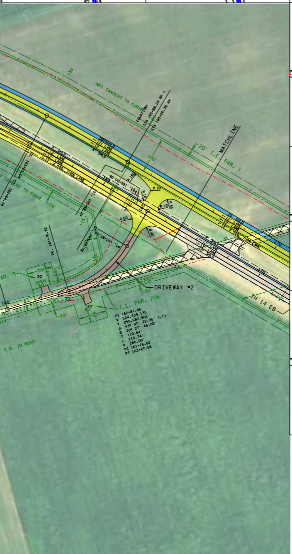


NPLACE TH 14
POND
POND #05203-17
20' T.E. PAR.
PI 154+71.10
X 523,641.628
Y 251,798.141
Δ 34° 20' 17.73" (RT)
D 1° 56' 20.69"
T 912.92'
L 1,770.85'
R 2,954.79'
PC 145+58.18
PT 163+29.04
TH 14 WB
TH 14 EB
T.E. PAR. 3
PI 154+38.72
X 523,598.671
Y 251,711.940
Δ 34° 05' 03.68" (RT)
D 2° 00' 00.00"
T 878.16'
L 1,704.22'
R 2,864.79'
PC 145+60.56
PT 162+64.78
30' T.E. PAR. 3
PROPERTY LINE
STOCK PILE

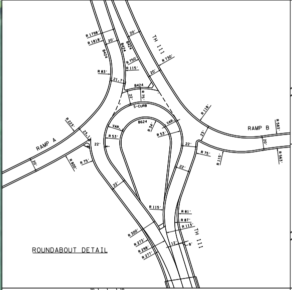
LEGEND

🟨	ROADWAY
🟦	PAVED SHOULDER
▨	GRAVEL RD/AGGREGATE SHOULDER
🟥	RAISED MEDIAN, CURB
🟧	BRIDGE
▨	SHALLOW POND
☒☒☒☒☒	ROADWAY REMOVAL
- - - - -	LIMITS OF CONSTRUCTION
— - — -	EXISTING RIGHT OF WAY
—— · ——	PROPOSED RIGHT OF WAY
—— ○ ——	ACCESS CONTROL

SCALE IN FEET
0 50 100 200 300 400 500

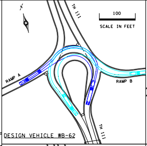


NOT TANGENT TO CURVE
EQUATION: STA 165+88.74 BK = STA 165+26.36 AH
20' T.E. PAR. 1
MATCHLINE
T.E. PAR. 3
DRIVEWAY #2
T.E. PAR. 206
PI 162+87.46
X 524,339.135
Y 250,682.601
Δ 43° 07' 22.95" (LT)
D 20° 27' 46.00"
T 110.64'
L 210.74'
R 280.00'
PC 161+76.82
PT 163+87.56
T.O. IN ROAD
TH 14 EB



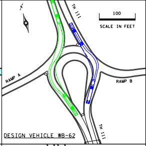
TH 111
RAMP A
RAMP B
S-CURB
B624
B424

ROUNDABOUT DETAIL



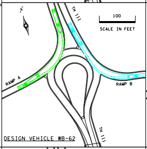
TH 111
100
SCALE IN FEET
RAMP A
RAMP B

DESIGN VEHICLE WB-62



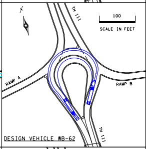
TH 111
100
SCALE IN FEET
RAMP A
RAMP B

DESIGN VEHICLE WB-62



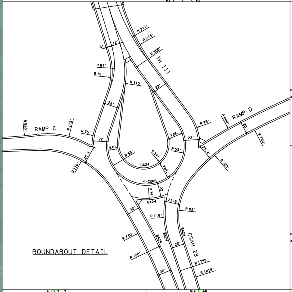
TH 111
100
SCALE IN FEET
RAMP A
RAMP B

DESIGN VEHICLE WB-62



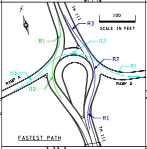
TH 111
100
SCALE IN FEET
RAMP A
RAMP B

DESIGN VEHICLE WB-62



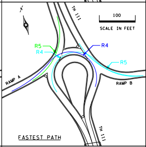
TH 111
RAMP C
RAMP D
CSAH 23
S-CURB
B624
B424

ROUNDABOUT DETAIL



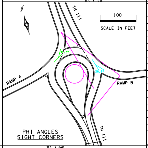
TH 111
100
SCALE IN FEET
R1
R2
R3
RAMP A
RAMP B

FASTEST PATH



TH 111
100
SCALE IN FEET
R4
R5
RAMP A
RAMP B

FASTEST PATH



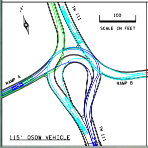
TH 111
100
SCALE IN FEET
RAMP A
RAMP B

PHI ANGLES SIGHT CORNERS

ROUNDABOUT DESIGN SPEED SUMMARY
TH 111 & TH 14 RAMPS A & B

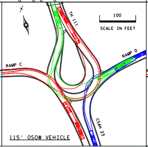
APPROACH	CURVE	RADIUS (ft)	E (ft/ft)	SPEED (mph)	DIFFERENCE (mph) *
SB TH 111	R1	130	0.02	22.5	6.1
	R2	130	-0.02	20.7	4.3
	R3	---	0.02	---	---
	R4	---	-0.02	---	---
	R5	150	0.02	23.8	7.4
WB RAMP B	R1	150	0.02	23.8	7.4
	R2	98	-0.02	18.6	2.2
	R3	300	0.02	31.1	14.7
	R4	69	-0.02	16.4	0
	R5	185	0.02	25.8	9.4
NB CSAH 23	R1	130	0.02	22.5	6.1
	R2	150	-0.02	21.8	5.4
	R3	300	0.02	31.1	14.7
	R4	73	-0.02	16.7	0.3
	R5	---	0.02	---	---

* RELAVITE SPEED DIFFERENCE IS FROM THE MINIMUM SPEED IN ROUNDABOUT, USUALLY R4



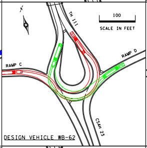
TH 111
100
SCALE IN FEET
RAMP A
RAMP B

115' OSOW VEHICLE



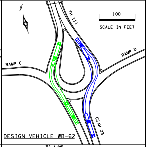
TH 111
100
SCALE IN FEET
RAMP C
RAMP D
CSAH 23

115' OSOW VEHICLE



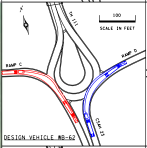
TH 111
100
SCALE IN FEET
RAMP C
RAMP D
CSAH 23

DESIGN VEHICLE WB-62



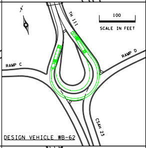
TH 111
100
SCALE IN FEET
RAMP C
RAMP D
CSAH 23

DESIGN VEHICLE WB-62



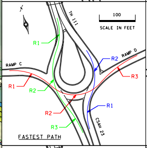
TH 111
100
SCALE IN FEET
RAMP C
RAMP D
CSAH 23

DESIGN VEHICLE WB-62



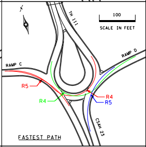
TH 111
100
SCALE IN FEET
RAMP C
RAMP D
CSAH 23

DESIGN VEHICLE WB-62



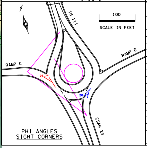
TH 111
100
SCALE IN FEET
R1
R2
R3
RAMP C
RAMP D
CSAH 23

FASTEST PATH



TH 111
100
SCALE IN FEET
R4
R5
RAMP C
RAMP D
CSAH 23

FASTEST PATH



TH 111
100
SCALE IN FEET
RAMP C
RAMP D
CSAH 23

PHI ANGLES SIGHT CORNERS

ROUNDABOUT DESIGN SPEED SUMMARY
TH 111 & TH 14 RAMPS A & B

APPROACH	CURVE	RADIUS (ft)	E (ft/ft)	SPEED (mph)	DIFFERENCE (mph) *
SB TH 111	R1	140	0.02	23.2	6.8
	R2	150	-0.02	21.8	5.4
	R3	300	0.02	31.1	14.7
	R4	73	-0.02	16.7	0.3
	R5	---	0.02	---	---
NB TH 111	R1	130	0.02	22.5	6.1
	R2	130	-0.02	20.7	4.3
	R3	---	0.02	---	---
	R4	---	-0.02	---	---
	R5	150	0.02	23.8	7.4
EB RAMP C	R1	150	0.02	23.8	7.4
	R2	95	-0.02	18.4	2
	R3	300	0.02	31.1	14.7
	R4	69	-0.02	16.4	*
	R5	195	0.02	26.4	10

* RELAVITE SPEED DIFFERENCE IS FROM THE MINIMUM SPEED IN ROUNDABOUT, USUALLY R4