City of Ramsey
Agenda
Public Works Committee
Tuesday, June 20, 2017
5:30 pm
Lake Itasca Room, 7550 Sunwood Drive NW

1. Call to Order

2. Citizen Input

3. Approve Agenda

4. Approve Minutes

1. Approve Public Works Committee meeting minutes.

5. Committee Business

1. Pedestrian Crosswalk Applications in the City of Ramsey

2. Consider Recommending City Council Approval of Plans and Specifications for Riverdale Drive Extension - Traprock Street to Ramsey Boulevard, Improvement Project #16-20

3. Consider Recommending City Council Approval of Plans and Specifications for Sunwood Drive Striping Improvements, Improvement Project #17-04

4. Consider Recommending City Council Authorization to Prepare Plans and Specifications for Puma Street Utility Extensions, Improvement Project #17-10

6. Committee/Staff Input

1. Staff Updates on Improvement Projects and Items of Interest

2. Review Future Topics Calendar

7. Adjournment

Public Works Committee **4. 1.**

Meeting Date: 06/20/2017
Submitted For: Grant Riemer, Engineering/Public Works
By: MaryJo Warner, Engineering/Public Works

Title:
Approve Public Works Committee meeting minutes.

Purpose/Background:
To review and approve the Public Works Committee meeting minutes dated May 16, 2017.

Timeframe:
5 minutes.

Observations/Alternatives:
n/a

Funding Source:
n/a

Recommendation:

Action:
Motion to approve Public Works Committee meeting minutes dated May 16, 2017.

Attachments

Minutes

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	06/15/2017 07:38 AM
Kurt Ulrich	Kurt Ulrich	06/15/2017 08:54 AM
Form Started By: MaryJo Warner		Started On: 06/14/2017 01:41 PM
Final Approval Date: 06/15/2017		

PUBLIC WORKS COMMITTEE
CITY OF RAMSEY
ANOKA COUNTY
STATE OF MINNESOTA

The Public Works Committee conducted a regular meeting on Tuesday, May 16, 2017, at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, Minnesota.

Members Present: Acting Chairperson Jill Johns
Councilmember Mark Kuzma

Absent: Chairperson Chris Riley

Also Present: City Engineer Bruce Westby
Public Works Superintendent Grant Riemer

1. CALL TO ORDER

Acting Chairperson Johns called the regular meeting of the Public Works Committee to order at 5:30 p.m.

2. CITIZEN INPUT

There was none.

3. APPROVE AGENDA

Motion by Councilmember Kuzma, seconded by Acting Chairperson Johns, to approve the agenda, as presented.

Motion carried. Voting Yes: Acting Chairperson Johns and Councilmember Kuzma. Voting No: None. Absent: Chairperson Riley.

4. APPROVE MINUTES

4.01: Approve Public Works Committee Meeting Minutes

Motion by Councilmember Kuzma, seconded by Acting Chairperson Johns, to approve the following minutes:

Regular Meeting Minutes dated March 21, 2017
Special Meeting Minutes dated April 18, 2017

Motion carried. Voting Yes: Acting Chairperson Johns and Councilmember Kuzma. Voting No: None. Absent: Chairperson Riley.

5. COMMITTEE BUSINESS

5.01: Review Pedestrian Safety Concerns at Variolite Street and 161st Avenue

PW Superintendent Riemer reviewed the Staff Report, and explained that the Public Works Committee, at their April 18, 2017, meeting, directed City Staff to gather traffic data and other information regarding pedestrian safety at the intersection of Variolite Street and 161st Avenue, that included traffic counts, speed data, level of service ratings, stopping sight distances for vehicles, pedestrian sight distances, and accident reports.

Variolite Street has a posted speed limit of 50 miles per hour (mph), with a restricted sight line view to the north of 161st Avenue because of a hill. Additional information gathered from the police speed trailer over a two-day period shows that 85% of traffic at this intersection have an average speed of 65 mph.

Visibility to the south is clear, but the sightline to the north is only 330 feet, which creates safety concerns for pedestrians. The trial camera showed only 8 pedestrians crossing the intersection over a 3-day period so the intersection does not meet Minnesota Department of Transportation (MnDOT)'s recommendations for a crosswalk, which is 20 pedestrians per hour. Engineering studies that found that crosswalks in uncontrolled intersections are not recommended unless speed can be reduced to 40 mph and a refuge median installed.

A Hawk system, or pedestrian stop light, is a possible solution. A Hawk system has a traffic stop light that is activated when the pedestrian pushes a button. This type of system has an estimated cost of $75,000-120,000.

City Staff recommends no action be considered until 2021, when Variolite Street is scheduled for reconstruction. Possible roadway improvements can be considered at that time. It is also recommended that speed enforcement should be increased at this location.

Matt Westerhof, 16078 Uranimite Street NW, Ramsey, thanked the Public Works Committee and City Staff for doing this study. He stated his wife petitioned the neighborhood and got 56 signatures requesting that the City consider some type of speed control at this intersection. He added he is a member of the Comprehensive Plan Committee, and pedestrian access is an important aspect of the continued development of the City of Ramsey.

Mr. Westerhof stated he and his family like to walk through their neighborhood, meet their neighbors, and enjoy their community. He added there are new homes being constructed in this neighborhood, and Ramsey Central Park is nearby, and the lack of pedestrian safety at this intersection must be addressed.

Mr. Westerhof stated he reviewed the Minnesota Manual for Uniform Traffic Control Devices, and certain criteria in this document indicates that this intersection could qualify for a stop sign.

Mr. Westerhof stated while he appreciates the fact that the City is looking for a solution, he hopes that it will be addressed before 2021-22. He added a crosswalk might not be necessary, but he would support more speed enforcement in the neighborhood. He noted there are few east/west corridors in Ramsey, and 161st has become a busy route which is a concern for his neighborhood.

Acting Chairperson Johns stated the Police speed trailer could be parked at the intersection to make drivers aware of the speed limit. She added excessive speeds should be addressed by the Police Department.

PW Superintendent Riemer stated the electric speed signs are deliberately left blank, so they don't influence driver behavior during the data gathering period, but they still record traffic speeds. When the signs are turned on or a squad car is present people do slow down.

Councilmember Kuzma expressed concern that there are many issues in the City that require attention and funding. He stated he is unsure whether the high cost of a pedestrian crossing stop light at this intersection is a community-wide priority. He asked whether the community could have a special assessment for the neighborhood.

City Engineer Westby stated he is unsure whether signal systems are listed in the City's assessment policy. He added a petition would be necessary.

Acting Chairperson Johns stated she believes special assessments must be shown to provide value to the whole community.

Mr. Westerhof stated, as a Ramsey resident, he would not want the City to spend that much money on an intersection. He added he hopes a less expensive solution can be found. He asked whether a stop sign is a possibility, which would slow people down.

PW superintendent Riemer stated it is difficult to qualify an intersection for an all-way stop. He stated there must be proven issues or problems with traffic volume and safety criteria, or a history of crashes, for an intersection to qualify. He added there has only been 1 accident at this intersection, in 2012, due to slippery conditions.

Acting Chairperson Johns recommended that an amendment to the City's Capital Improvement Plan be considered, that the grade at the Variolite Street/161st Avenue NW intersection should be looked at for possible improvements to increase visibility and safety for pedestrians.

Acting Chairperson Johns thanked Mr. Westerhof for his attendance and for providing information for the Public Works Committee's review.

Motion by Councilmember Kuzma, seconded by Acting Chairperson Johns, to recommend that City Staff request that the Police Department use the speed trailer at the Variolite Street/161st Avenue NW intersection periodically to help reduce traffic speeds, and to consider an amendment to the Capital Improvement Plan regarding lowering the grade at the Variolite Street/161st Avenue NW intersection to improve the sight line to the north.

Motion carried. Voting Yes: Acting Chairperson Johns and Councilmember Kuzma. Voting No: None. Absent: Chairperson Riley.

5.02: Parking Concern Near Rhinestone Street and Ramsey Parkway

PW Superintendent Riemer reviewed the staff report, and explained that City Staff received an email from a resident expressing concerns about pedestrian safety at the Rhinestone Street/Ramsey Parkway intersection. He added on-street parking near the intersection limits visibility for pedestrians trying to cross the street to The Draw Park and Park View East Apartments.

After looking at the intersection and reviewing the Manual for Uniform Traffic Control Devices, City Staff determined that there should be no on-street parking within 20 feet of the intersection in all directions. City staff recommends that the yellow curb markings be extended, as needed, to ensure uniform "No Parking" restrictions on all legs of the intersection.

Motion by Councilmember Kuzma, seconded by Acting Chairperson Johns, to recommend that the yellow curb markings be extended, as needed, to ensure uniform "No Parking" restrictions on all legs of the intersection at Rhinestone Street/Ramsey Parkway.

Motion carried. Voting Yes: Acting Chairperson Johns, Councilmember Kuzma. Voting No: None. Absent: Chairperson Riley.

5.03: Consider Recommending City Council Approval of Plans and Specifications for Improvement Project #17-03, 2017 Crackseal and Sealcoat Improvements

City Engineer Westby explained the purpose of this case is to consider recommendation of the proposed 2017 crackseal and sealcoat program to the City Council. He presented the proposed layouts, base program bid and 4 alternate bids.

City Engineer Westby stated cost estimates were refined so proposed bids would be more accurate. He added alternate bids have been proposed to spend as much of the budget as possible. He noted $500,000 has been budgeted for 2017, and City Staff recommends that $35,000 be reserved for ground penetrating radar measurements to evaluate existing pavement sections on all streets that are proposed to be reconstructed and milled and overlaid per the existing CIP.

City Engineer Westby stated Public Works is requesting approximately $35,000 for spray patching machine rental. He added the balance of $430,000 will be applied to 2017 Crackseal

and Sealcoat Improvements. He noted, depending upon how the bids come in, City Staff anticipates that at least one or two alternate bids will be included with the base program bid.

Motion by Councilmember Kuzma, seconded by Acting Chairperson Johns, to recommend that the City Council approve plans and specifications for Project 17-03 - 2017 Crackseal and Sealcoat Program.

Motion carried. Voting Yes: Acting Chairperson Johns, Councilmember Kuzma. Voting No: None. Chairperson Riley.

Motion by Councilmember Kuzma, seconded by Acting Chairperson Johns, to recommend that the following related items be funded through the 2017 Streets Budget:

-Analyze pavement sections for CIP projects using ground penetrating radar - $35,000
-Spray patching machine rental - $35,000

Motion carried. Voting Yes: Acting Chairperson Johns, Councilmember Kuzma. Voting No: None. Chairperson Riley.

6. COMMITTEE / STAFF INPUT

6:01 Review Green Valley Road/County Road 63 Speed Zone Study Results

City Engineer Westby reviewed the staff report and explained that the purpose of this case is to provide an update on the Green Valley Road speed zone study results. In 2014, City Staff received a resident complaint regarding excessive traffic speeds on Green Valley Road. The resident requested that the speed limit be reduced from 55 mph to 40-45 mph. This request was reviewed and approved by the Public Works Committee

The City submitted a request to Anoka County Highway Department for a Speed Zone Study in the Fall of 2014. In April 2017, City Staff received the results of the speed study, dated March 3, 2016. Based on the results of the speed study, Anoka County will leave the posted speed limit at 55 mph. Anoka County has indicated that they communicated this information to the resident.

The resident also requested provision of a trail or pedestrian walkway, or wider shoulders, along the roadway. Anoka County has indicated they would consider this request, but it would be a City-driven request, with all costs covered by the City. A trail would not be appropriate at this location as there are no connecting trails at either end. If the shoulders were to be widened, retaining walls and guardrails would be necessary due to the steep slope. This would be extremely expensive and could further reduce driver safety.

Mr. Westby stated City Staff does not recommend trail improvements along the shoulder of Green Valley Road. He added this issue will be revisited by City Staff periodically.

Acting Chairperson Johns stated this area of the City is extremely isolated due the confluence of Highways 47 and 63. She added it would be nice to see some improvements for pedestrian access.

6:02 Review Preliminary Plans for Improvement Project #17-04, Sunwood Drive Striping Improvements

City Engineer Westby reviewed the staff report and explained that Sunwood Drive is currently striped with center two-way turn lanes. Over the years, more defined access points have been constructed. Several specific areas are recommended for striping improvements to increase traffic efficiency and reduce accidents.

City Engineer Westby stated westbound Sunwood Drive will be re-striped to create a dedicated left turn lane into Casey's that can accommodate two to three vehicles. Other dedicated left turn lanes will be added throughout the corridor, and all center two-way turn lanes will be eliminated. He noted a right turn lane onto Center Street is also proposed, which would remove a few parking stalls along the north side of Sunwood Drive in front of the Municipal Center.

Acting Chairperson Johns stated this is a good time to make the Center Street improvement as there is not currently a building there. Councilmember Kuzma agreed.

City Engineer Westby stated a left turn lane into Sunwood Village Apartments from westbound Sunwood is also proposed. He added right and left turn lanes will be installed for the new StoneBrook Day Care Center.

City Engineer Westby stated restriping at both ends of Sunwood Drive is being proposed as part of the sealcoat project under alternate bid A, including the roundabout.

Councilmember Kuzma asked whether a landscape plan is being considered for the roundabout.

City Engineer Westby stated he is unsure whether a landscape plan for the roundabout is included in the Capital Improvement Plan. He said this could be added to an upcoming Public Works Committee agenda for discussion if desired.

Acting Chairperson Johns stated the Public Works Committee had previously discussed the scope of landscape plans.

Councilmember Kuzma stated there was some question about whether the City should consider a landscape plan for the whole COR or just the roundabout area.

City Engineer Westby stated that grass has been established there by the Parks Department.

Parks and Assistant Public Works Superintendent Riverblood stated there has been discussion about enlisting a neighborhood group or gardening club to help create community landscape gardens at the roundabout. He confirmed that the center of the roundabout is irrigated.

Acting Chairperson Johns stated she would like to see this issue added as a future topic for discussion.

City Engineer Westby stated the road striping preliminary plans will be reviewed at an upcoming City Council meeting, for approval and completion in August 2017. He agreed to provide updates to the Public Works Committee.

6:03 Staff Updates on Improvement Projects and Items of Interest

City Engineer Westby stated City Staff has provided a list of City improvement projects, as well as Anoka County and MnDOT projects, for the Public Works Committee to review. He added a notable project is the Mississippi River Trail Phase 3, which was paved last week.

Councilmember Kuzma asked when the Mississippi River Trail dedication will be held.

City Engineer Westby stated Parks and Assistant Public Works Superintendent Riverblood is planning a ribbon-cutting event and that more information will follow.

City Engineer Westby stated the Metropolitan Council has approved the Master Park Plan amendment, which allocates 5.3 acres to the City for the Riverdale Drive extension. He added Anoka County is prepared to deed the property to the City, allowing final MnDOT approval of the plans so they can be bid.

Councilmember Kuzma asked whether the grant funds are still available. City Engineer Westby confirmed this.

City Engineer Westby stated the Alpine Drive and Sunwood Drive reconsruction project plans are currently out for bids, and that the MnDOT Highway 10 cable median barrier project is planned for 2018. He added City Staff are working on utility plans for Bunker Lake Boulevard, to be reviewed by the City Council at their May 23, 2017, meeting. He noted utility extensions will also be required along Puma Street for the Riverstone development project.

City Engineer Westby stated City Staff are working with the Minnesota Department of Health on updating the Wellhead Protection Plan.

City Engineer Westby stated the City Council will review quotes and consider awarding a contract for ground penetrating radar and soil borings in support of future street reconstruction and mill and overlay projects as discussed previously at the May 23rd regular Council meeting.

Acting Chairperson Johns asked for an update on the railroad crossing at Ferry Street in Anoka.

City Engineer Westby stated that project is currently in the preliminary design stage.

6:04 Review Future Topics Calendar

Acting Chairperson Johns requested an update on the roundabout, and whether that is a discussion for the Public Works Committee rather than the City Council as a whole.

City Engineer Westby stated that is not currently on the calendar, but it would make sense to address it at a City Council Work Session.

City Engineer Westby stated that discussion could also include consideration of seasonal City banners along Sunwood Drive, perhaps with sponsorship. He added City Staff could provide further review at the Public Works Committee's next meeting. Acting Chairperson Johns agreed, adding it was originally a project with broader scope that ties in City communications and signage, as well as beautification.

Councilmember Kuzma requested an update on the City documents scanning project. City Engineer Westby stated several quotes had been obtained by Staff from scanning suppliers. He added this is an ongoing task that Staff has been trying to address but has not made much progress on lately. He noted the Community Development Department is implementing an electronic plan review process for private development projects.

7. ADJOURNMENT

Motion by Councilmember Kuzma seconded by Acting Chairperson Johns to adjourn the Public Works Committee meeting.

Motion carried.

The regular meeting of the Public Works Committee adjourned at 6:33 p.m.

Respectfully submitted,

_____

Grant Riemer
Public Works Superintendent

Drafted by Mary Mullen
TimeSaver Off Site Secretarial, Inc.

Public Works Committee **5. 1.**

Meeting Date: 06/20/2017

Submitted For: Grant Riemer, Engineering/Public Works

By: Grant Riemer, Engineering/Public Works

Title:

Pedestrian Crosswalk Applications in the City of Ramsey

Purpose/Background:

Purpose/Background:

The purpose of this case is to review the various types of pedestrian crosswalks that exist in the city of Ramsey and how their application and design differ depending on their location. We will also review how location, sight distances, traffic speeds, volumes both pedestrian and vehicular all factor into the decision making process.

Timeframe:

15-20 minutes

Observations/Alternatives:

Crosswalks and their design vary greatly. They can be as simple as two sidewalks on the opposite sides of an intersection to pedestrian activated traffic signals costing almost $100k. There are two basic classifications of crosswalks, controlled and uncontrolled. A controlled crosswalk would be at an intersection controlled by a traffic signal, stop sign or yield sign. An uncontrolled crossing would any crossing away from a traffic control signal or sign, a good example would be a mid block crossing. Staff will focus mainly on the uncontrolled crossings, as these are the type most requested by residents. Below is a listing of types of Pedestrian crossings we have throughout the city and motorist yield rate associated with each. Staff will present illustrations of each type of crossing at the meeting.

1. Pedestrian crossings in the COR use colored concrete instead of paint to delineate the crosswalk. Aesthetically more pleasing, but doesn't provide much advance warning to motorists.
2. High visibility signs and painted road markings. Yield rate 20% when speed is under 35 mph and 61%-91% under 25 mph
3.High visibility signs and painted road markings on high speed road. Yield rate 7%
4. Median Refuge Islands Yield rate 29%-34%
5. Rectangular Rapid- Flash Beacon (RRFB) Yield Rate 81%-84%
6. HAWK Beacon System Yield Rate 97%-99%

Staff has attached several examples of work sheets that we use to help determine if a crosswalk is needed and if the location is suitable for a crosswalk. The first work sheet "Pedestrian Level of Service" (LOS) and can be used to evaluate how a crossing is functioning or could be used to determine if a crossing is actually needed in a certain location.

The second work sheet is used to collect data at the crossing, such as sight distances, vehicle stopping distance, traffic counts for both vehicles and pedestrians, vehicle speeds, lighting, street width, etc. This work sheet helps staff determine if the location is suitable for a pedestrian crossing and if so what type of crossing treatment would be most effective.

Funding Source:

General fund cost center 0260 traffic engineering

Recommendation:

Informational only

Action:

None at this time. Crosswalk requests and evaluations would be brought back on an individual basis for review and approval.

Attachments

The COR
Standard Residential
Armstrong Blvd
Round About
RRFB
HAWK
LOS Ratings
LOS Variolite
LOS Armstrong
Data Collection Armstrong
Crossing Treatment Yield Rates
Data collection Variolite St

Form Review

Inbox	Reviewed By	Date
Kurt Ulrich	Kurt Ulrich	06/15/2017 08:54 AM
Form Started By: Grant Riemer		Started On: 06/09/2017 08:32 AM
Final Approval Date: 06/15/2017		


STOP
Stonewood Dr
Stanton St


Savannah Oaks


ARMSTRONG RANCH
KENNEL
STATE LAW
STOP FOR
PEDESTRIAN
IN CROSSWALK
STATE LAW
STOP FOR
PEDESTRIAN
IN CROSSWALK


ONE WAY
COSCO


ONE WAY

HAWK PEDESTRIAN SYSTEM

Presented
By
Thomas Dumont

What is a "HAWK" Pedestrian Signal

High-intensity Activated crossWalK (HAWK)
is a combination of a beacon flasher and traffic control *signaling* technique…

FHWA MUTCD Chapter 4.F (2009)

- Pedestrian Hybrid Beacon (HAWK)
  - Special type of hybrid beacon used to warn and control traffic at an un-signalized location to assist pedestrians in crossing a street or highway at a marked crosswalk
  - May be considered at locations to facilitate pedestrians where signal warrants are not met or where signal warrants are met but decision made not to install a signal system



HAWK Beacon at 12th Ave in St. Cloud WB



HAWK Beacon at 12th Ave in St. Cloud EB



HAWK indication design

Operation of Pedestrian Hybrid Beacons

- Shall be dark during periods between actuations
- Upon ped activation shall display a flashing yellow ball, followed by solid yellow ball, followed by solid red ball during the walk period and a flashing (wig-wag) red ball during the pedestrian clearance interval
- Upon termination of the pedestrian clearance interval the vehicle indications shall be dark
- Should be placed midblock or at least 100 ft. intersection
- Additional criteria in Federal MUTCD

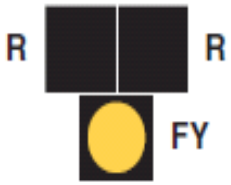
Sequence of Operation

- Traffic signal dark/Don't walk active
- Ped pushbutton activated
- Flashing yellow begins (7 seconds)
- Solid yellow (4.0 seconds)
- All red (3.0 seconds) prior to walk indication
- Walk indication (10 seconds)
- Flashing Don't Walk/Flashing red traffic signal
- Dark signal/Don't walk

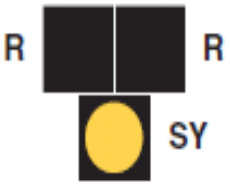
Figure 4F-3. Sequence for a Pedestrian Hybrid Beacon



1. Dark Until Activated



2. Flashing Yellow Upon Activation



3. Steady Yellow



4. Steady Red During Pedestrian Walk Interval





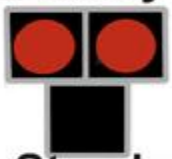
5. Alternating Flashing Red During Pedestrian Clearance Interval



6. Dark Again Until Activated

Legend

SY Steady yellow
FY Flashing yellow
SR Steady red
FR Flashing red

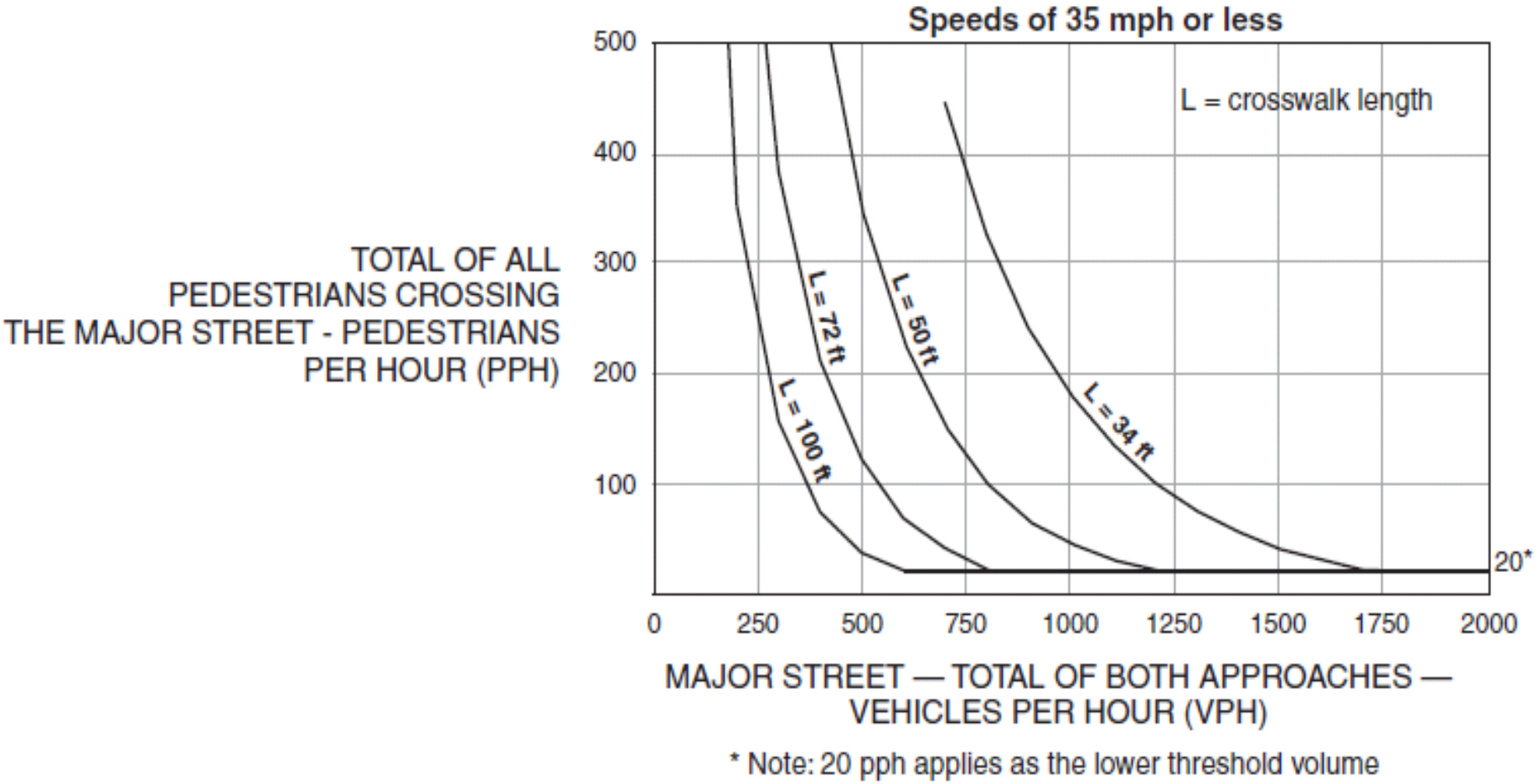
What Drivers See:	What Pedestrians See:
 Dark	 push the button
 Flashing	
 Steady	
 Steady	 Start Crossing
 Alternating (like RxR) Stop then go if clear	 Flashing Continue Crossing
 Dark	



HAWK SYSTEM STC_PowerPoint_Lg.wmv

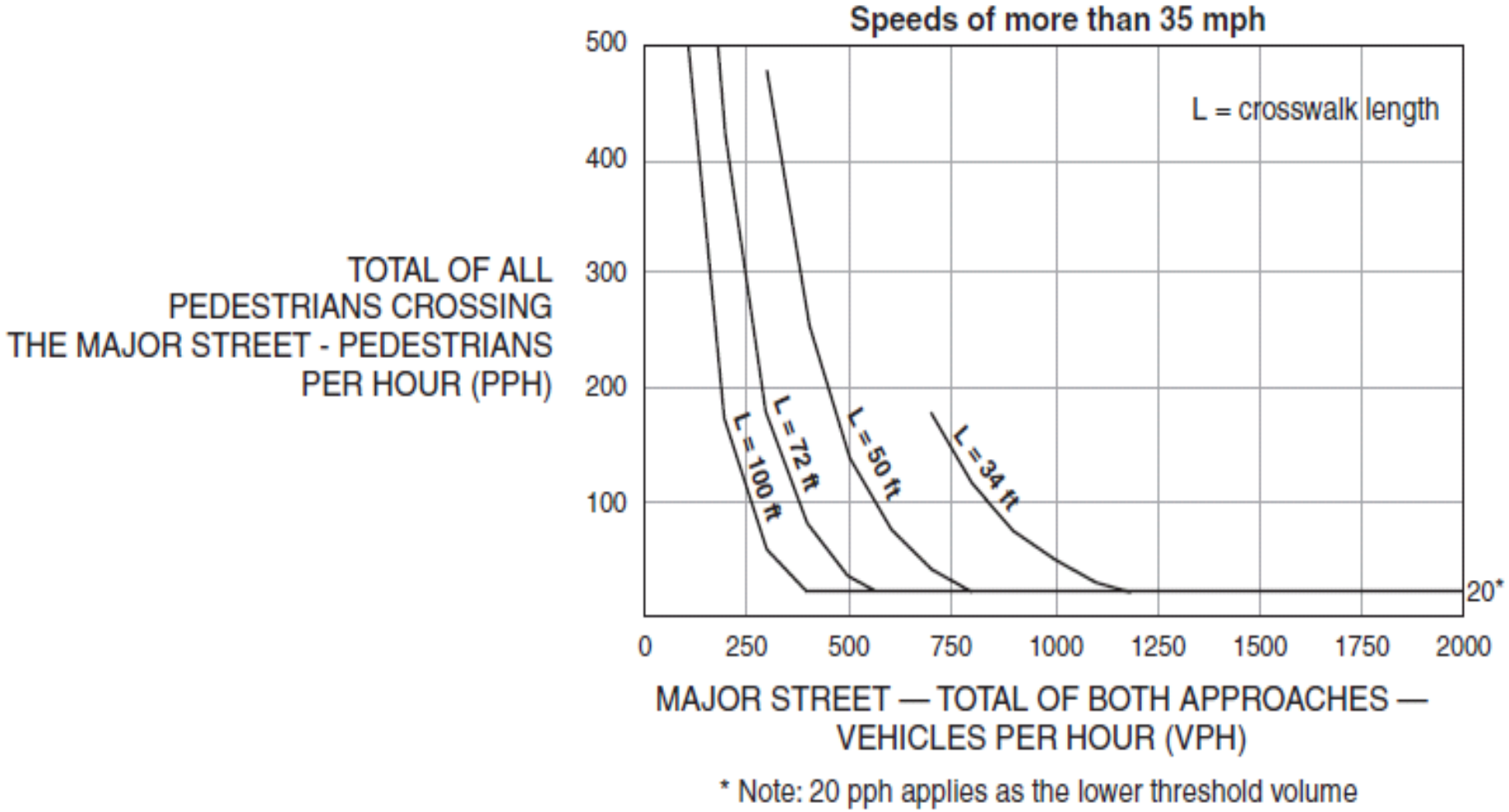
VIDEO

Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways



* Note: 20 pph applies as the lower threshold volume

Figure 4F-2. Guidelines for the Installation of Pedestrian Hybrid Beacons on High-Speed Roadways

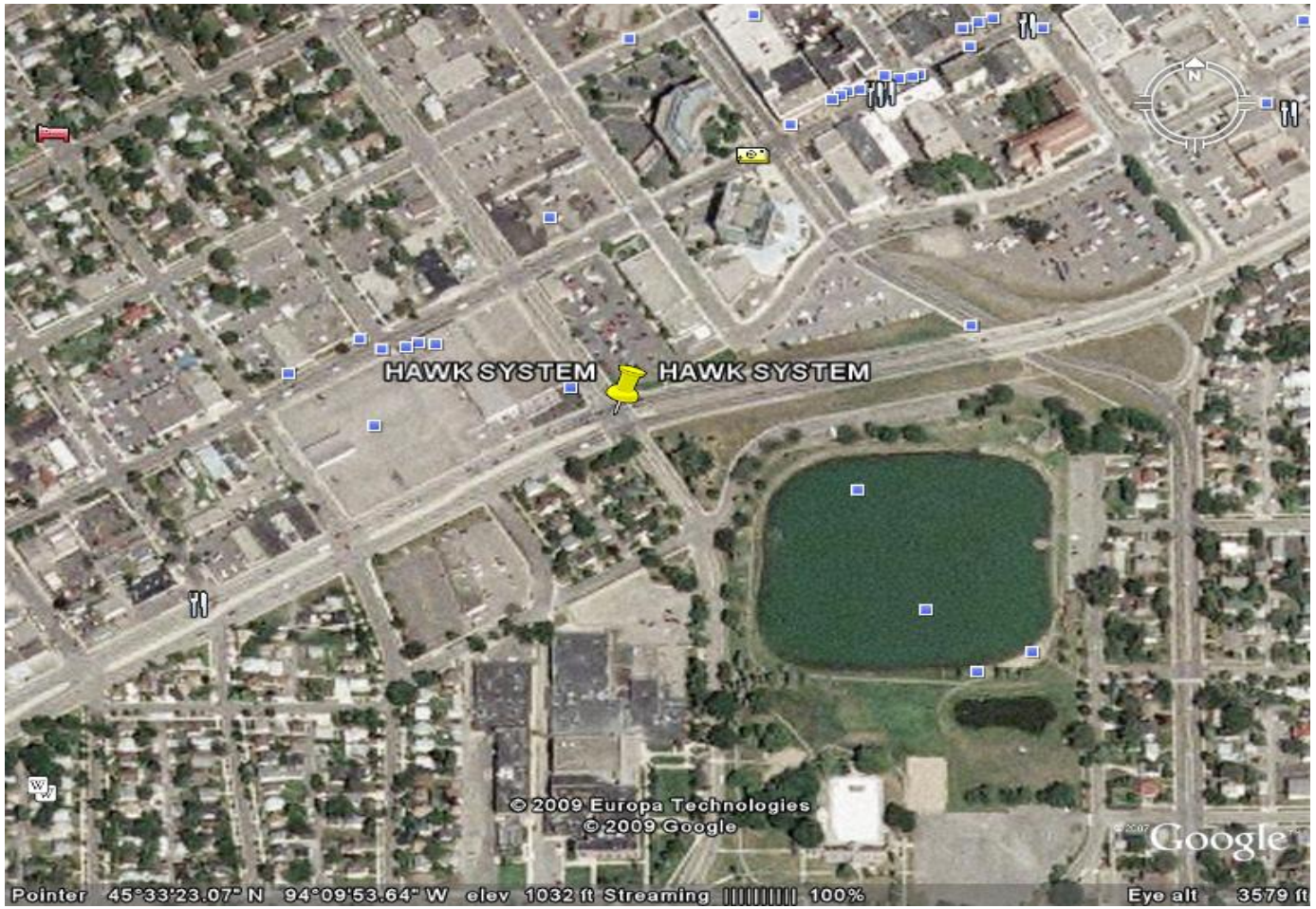


* Note: 20 pph applies as the lower threshold volume

History of HAWK in St. Cloud

- Map – Lake George/High School/Library
- State reconstruct Hwy 23
- City built new library near intersection
- Entrance to new library at 14th Ave.
- Prior signal at 12th Ave removed
- Relocated signal to 14th Ave
- City desired a controlled ped crossing at 12th
- MnDOT concerned with 2 signals/2 blocks

Area Map of HAWK location



Solution?

- HAWK Signal System
  - Needed experimental approval FHWA
  - Requested and received approval June 3, 2009
  - Activated in Fall of 2009
  - Since then FHWA has approved use of Hybrid Pedestrian Beacons in 2009 Federal MUTCD
  - MnDOT working to establish policy and guidelines for installation
  - Not part of MN MUTCD as of Jan 2010

HAWK Justification

- ADT – 34,000 vpd – Hwy 23
- Peak hour over 2000 vehicles per hour
- Ped count – over 20 children in hour
- Gap study showed insufficient gaps peak hour to allow safe crossing without control
- School Signal Warrant
- Additional ped traffic expected due to new library and improvement to Lake George Recreational Area

Design

- Immediate west side of 12th Ave intersection
- 2 poles and overhead mast arms for Hwy 23
- 2 overhead indications each direction
- Pedestrian count down indications w/ADA
- Stop signs on side street
- Interconnected with corridor signal/not part of system to date
- Simultaneous flashing of red indications - will be changed to wig/wag red flash
- Cost – approx. $80,000 total cost

Concerns/Observations

- Concerns
  - Vehicles would stop for a dark indication
  - Learning curve
  - Issues with side street vehicles
- Observations
  - Vehicles did not stop for a dark signal
  - Pedestrians no learning curve
  - Some vehicles had tendency to drive thru beginning red
  - Some driver confusion during flashing red period

Questions ?

Contact

Tom Dumont
District 3 Traffic Engineer
tom.dumont@state.mn.us
320-223-6540

Crossing treatment yield rate sources:

(1) Fitzpatrick, K., S.M. Turner, M. Brewer, P.J. Carlson, B. Ullman, N.D. Trout, E.S. Park, J. Whitacre, N. Lalani, and D. Lord. NCHRP Report 562: Improving Pedestrian Safety at Unsignalized Crossings. Transportation Research Board of the National Academies, Washington D.C., 2006.

(2) Lewis, R., J.R. Ross, D.S. Serpico : Assessment of Driver Yield Rates Pre- and Post-RRFB Installation, Bend, Oregon. Oregon Department of Transportation, Washington D.C., 2011.

(3) Bolton & Menk Field Data Collection

(4) Transportation Research Board, HCM 2010 Highway Capacity Manual, Washington D.C.: National Academy of Sciences, 2010.

(5) Brewer, Marcus A., Kay Fitzpatrick. Before-and-After Study of the Effectiveness of Rectangular Rapid-Flashing Beacons Used with School Sign in Garland, Texas. Texas Transportation Institute, College Station, TX, April 2012.

(6) Kipp, Wendy M.E., Jennifer M. V. Fitch. Evaluation of SmartStud In-Pavement Crosswalk Lighting System and BlinkerSign Interim Report. Vermont Agency of Transportation, Report 2011-3, Montpelier, VT, February 2011. (Rate Normalized to High Visibility Markings and Signs at 35 mph)

Step 6: Calculate Average Pedestrian Delay and Determine LOS

Sum the delay for each stage of a two stage crossing or use the delay from a one-stage crossing and use the following table to determine the level of service (LOS) for the crossing movement. [12]

LOS	Control Delay (sec/pedestrian)	Comments
A	0-5	Usually no conflicting traffic
B	5-10	Occasionally some delay due to conflicting traffic
C	10-20	Delay noticeable to pedestrians, but not inconveniencing
D	20-30	Delay noticeable and irritating, increased likelihood of risk taking
E	30-45	Delay approaches tolerance level, risk-taking behavior likely
F	>45	Delay exceeds tolerance level, high likelihood of pedestrian risk-taking

Table 6.3 Pedestrian Mode Level of Service

LOS F indicates that there are not enough gaps of suitable size to allow pedestrians to cross through traffic on the major street safely. LOS F may result in pedestrians selecting smaller than usual gaps, indicating a safety concern that warrants further study.

Evaluation Worksheets are provided on the following pages.

2010 Highway Capacity Manual (HCM)

Pedestrian Level of Service (LOS) at Uncontrolled Crossing Locations

Intersection and Mid-Block Crossings

Introduction:

The Worksheets provide a procedure for evaluating the Level of Service (LOS) at uncontrolled pedestrian crossings according to the methodology presented in Chapter 19 of the 2010 Highway Capacity Manual. Uncontrolled pedestrian crossings include: marked crossings at mid-block locations; marked crossings at intersections; and unmarked crossings at intersections, that are not controlled by a traffic control device such as signals and stop or yield signs.

Use of these Worksheets in Microsoft Excel results in an automated procedure. While this automated procedure has been checked for accuracy using multiple examples, no warranty is made by the developers as to the accuracy, completeness, or reliability of the equations and results. No responsibility is assumed for incorrect results or damages resulting from the use of these worksheets.

This process is not for use at signalized crossings and has not been verified to be accurate for unsignalized pedestrian crossings within a signalized corridor.

The equations and methodology presented through this process is contained within the 2010 Highway Capacity Manual (HCM). Any questions on the approach, assumptions, and limitations of the procedure or for verification of equations are directed to the 2010 HCM.

This material was developed by Bolton & Menk, Inc. in coordination with the Local Road Research Board (LRRB) for the use by practicioners. These Worksheets are made without charge and under no circumstances shall be sold by third parties for profit.

Submitted for Approval: May 12, 2014
Updated June 6, 2014

178

2010 Highway Capacity Manual (HCM)

Pedestrian Level of Service (LOS) at Uncontrolled Crossing Locations

Intersection and Mid-Block Crossings

Crossing Location:	Variolite/161st Ave	Date:	5/4/2017
City, State:	Ramsey, Mn	Scenario:	
Reviewer(s):	Grant Riemer	Agency:	City of Ramsey
Project Number:		ID #:	

The following is the base information needed to complete the analysis.
If this is a one-stage crossing, use only Crossing 1.
If this is a two-stage crossing, each stage must be evaluated separately using Crossing 1 and Crossing 2.

Crossing 1:

Evaluation Inputs:

	defaults:		Input Table:	
L = crosswalk length (ft)			L =	52
S_p = average pedestrian walking speed (ft/s)	S_p =	3.5	S_p =	3.5
t_s = pedestrian start-up and end clearance time (s)	t_s =	3.0	t_s =	3
V = vehicular hourly volume (veh/hr)			V =	74
v_p = pedestrian flow rate (ped/s)	v_p =	0*	v_p =	3.00
v = vehicular flow rate (veh/s) = V/3600	v =	V/3600	v =	0.020
W_c = crosswalk width (ft)	W_c =	8.0	W_c =	10.0
N = number of through lanes crossed (Integer)	N =	INT(L/11)	N =	2

*no platooning observed

Crossing 2: (only used for two-stage crossings)

Evaluation Inputs:

	defaults:		Input Table:	
L = crosswalk length (ft)			L =	
S_p = average pedestrian walking speed (ft/s)	S_p =	3.5	S_p =	
t_s = pedestrian start-up and end clearance time (s)	t_s =	3.0	t_s =	
V = vehicular hourly volume (veh/hr)			V =	
v_p = pedestrian flow rate (ped/s)	v_p =	0*	v_p =	
v = vehicular flow rate (veh/s) = V/3600	v =	V/3600	v =	
W_c = crosswalk width (ft)	W_c =	8.0	W_c =	
N = number of through lanes crossed (Integer)	N =	INT(L/11)	N =	

*no platooning observed

Crossing Treatment Yield Rate

	Input Table:	
M_y = motorist yield rate (decimal)	M_y =	7%

Entering data into the tables above will populate the evaluation tables in Microsoft Excel.

Results:

Average Delay	4.3	sec/ped
LOS	A	

2010 Highway Capacity Manual (HCM)

Pedestrian Level of Service (LOS) at Uncontrolled Crossing Locations

Intersection and Mid-Block Crossings

Introduction:

The Worksheets provide a procedure for evaluating the Level of Service (LOS) at uncontrolled pedestrian crossings according to the methodology presented in Chapter 19 of the 2010 Highway Capacity Manual. Uncontrolled pedestrian crossings include: marked crossings at mid-block locations; marked crossings at intersections; and unmarked crossings at intersections, that are not controlled by a traffic control device such as signals and stop or yield signs.

Use of these Worksheets in Microsoft Excel results in an automated procedure. While this automated procedure has been checked for accuracy using multiple examples, no warranty is made by the developers as to the accuracy, completeness, or reliability of the equations and results. No responsibility is assumed for incorrect results or damages resulting from the use of these worksheets.

This process is not for use at signalized crossings and has not been verified to be accurate for unsignalized pedestrian crossings within a signalized corridor.

The equations and methodology presented through this process is contained within the 2010 Highway Capacity Manual (HCM). Any questions on the approach, assumptions, and limitations of the procedure or for verification of equations are directed to the 2010 HCM.

This material was developed by Bolton & Menk, Inc. in coordination with the Local Road Research Board (LRRB) for the use by practicioners. These Worksheets are made without charge and under no circumstances shall be sold by third parties for profit.

Submitted for Approval: May 12, 2014
Updated June 6, 2014

2010 Highway Capacity Manual (HCM)

Pedestrian Level of Service (LOS) at Uncontrolled Crossing Locations

Intersection and Mid-Block Crossings

Crossing Location:	Armstrong Blvd/161st Ave	Date:	7/1/2014
City, State:	Ramsey, Mn	Scenario:	
Reviewer(s):	Grant Riemer	Agency:	City of Ramsey
Project Number:		ID #:	

The following is the base information needed to complete the analysis.
If this is a one-stage crossing, use only Crossing 1.
If this is a two-stage crossing, each stage must be evaluated separately using Crossing 1 and Crossing 2.

Crossing 1:

Evaluation Inputs:

	defaults:		Input Table:	
L = crosswalk length (ft)			L =	55
S_p = average pedestrian walking speed (ft/s)	S_p =	3.5	S_p =	3.5
t_s = pedestrian start-up and end clearance time (s)	t_s =	3.0	t_s =	3
V = vehicular hourly volume (veh/hr)			V =	224
v_p = pedestrian flow rate (ped/s)	v_p =	0*	v_p =	3.00
v = vehicular flow rate (veh/s) = V/3600	v =	V/3600	v =	0.060
W_c = crosswalk width (ft)	W_c =	8.0	W_c =	10.0
N = number of through lanes crossed (Integer)	N =	INT(L/11)	N =	2

*no platooning observed

Crossing 2: (only used for two-stage crossings)

Evaluation Inputs:

	defaults:		Input Table:	
L = crosswalk length (ft)			L =	
S_p = average pedestrian walking speed (ft/s)	S_p =	3.5	S_p =	
t_s = pedestrian start-up and end clearance time (s)	t_s =	3.0	t_s =	
V = vehicular hourly volume (veh/hr)			V =	
v_p = pedestrian flow rate (ped/s)	v_p =	0*	v_p =	
v = vehicular flow rate (veh/s) = V/3600	v =	V/3600	v =	
W_c = crosswalk width (ft)	W_c =	8.0	W_c =	
N = number of through lanes crossed (Integer)	N =	INT(L/11)	N =	

*no platooning observed

Crossing Treatment Yield Rate

	Input Table:	
M_y = motorist yield rate (decimal)	M_y =	7%

Entering data into the tables above will populate the evaluation tables in Microsoft Excel.

Results:

Average Delay	19.9	sec/ped
LOS	C	

Uncontrolled Pedestrian Crossing
Data Collection Worksheet

Location:	ArmStrong Blvd/161st Ave	Date:	July 1st 2014
City, State:	Ramsey, Mn	Scenario:	
Reviewer(s):	Grant Riemer	Agency:	City of Ramsey
Project #:		ID #:	

The first step in understanding the pedestrian needs at a potential crossing location is completing a review of the location and adjacent facilities.

Geometrics

Crossing Length: Measure the crossing distance from curb to curb. Fill in Crossing 1 distance if there is no median. If there is a median at the crossing location, fill in Crossing 1 and 2 distances.

Crossing 1	50	ft.
Crossing 2		ft.

Median: width of median at crossing location — ft.

Crossing Width: effective crossweld width — 10 ft.

Raised Median Available?	☐ Yes	☑ No
ADA Compliant Median Available (minimum 4' x 4' landing)?	☐ Yes	☑ No
Curb Ramps Available?	☑ Yes	☐ No
ADA Compliant Curb Ramp Available (width, grades, truncated domes)?	☑ Yes	☐ No

Speed: Posted or 85th percentile speed — 50 mph

Roadway Curvature and Sight Distances: Average walking speed — 3.5 ft/s

Is the crossing location within a horizontal or vertical curve? ☐ Yes ☑ No

Equations to calculate the following are located on the next page

Direction 1:	Stopping Sight Distance (SSD)	424	ft.	provided?	☑ Yes ☐ No
Direction 2:	Stopping Sight Distance (SSD)	424	ft.	provided?	☑ Yes ☐ No
Direction 1:	Pedestrian Sight Distance (PedSD)	1270	ft.	provided?	☑ Yes ☐ No
Direction 2:	Pedestrian Sight Distance (PedSD)	1270	ft.	provided?	☑ Yes ☐ No

Traffic and Pedestrian Data

Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed.

Attach Counts	**vehicles:**		Daily		**pedestrians:**		Daily	
AM Peak	Hourly		Pk 15-min		Hourly		Pk 15-min	
PM Peak	Hourly	224	Pk 15-min	65	Hourly	12	Pk 15-min	8

Additional Site Characteristics

Lighting:

Is street lighting present and does it light the crosswalk location? ☑ Yes ☐ No

Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? ☑ Yes ☐ No

What is the condition of the markings? ☐ Excellent ☑ Good ☐ Fair ☐ Poor

Are the markings easily defined? ☑ Yes ☐ No

Do they need replacement? ☐ Yes ☑ No

What is the crosswalk marking pattern? Continental

Signing: Currently signed at crosswalk? ☑ Yes ☐ No

Currently signed in advance of crosswalk? ☑ Yes ☐ No

Distances? direction 1: 975 ft. direction 2: 975 ft.

Enhancements: What enhancements are currently at the crossing location? None

Adjacent Facilities: Distance to nearest marked crosswalk? N/A ft.

What pedestrian control devices are present at the nearest adjacent marked crosswalk? None

Distance to nearest all-way stop, roundabout or signalized intersection — N/A ft.

Could another location serve the same pedestrian crossing movement? ☐ Yes ☑ No

Could another location serve the the movement more effectively? ☐ Yes ☑ No

Developed by Bolton & Menk, Inc. in coordination with the Local Road Research Board. Worksheets made without charge and under no circumstances shall be sold by third parties for profit.

Uncontrolled Pedestrian Crossing
Data Collection Worksheet

Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations .

draw or insert map of location being studied

Notes:

Sight Distance Calculations:

Stopping sight distance (SSD), ft = $1.47St + 1.075S^2/a$

Pedestrian sight distance (PedSD), ft = $1.47S(L / S_p + t_s)$

where: S = design speed, mph
L = length of crossing, ft

where:

	defaults:
t = brake reaction time, s	2.5
a = deceleration rate, ft/s^2	11.2
S_p = average pedestrian walking speed, ft/s	3.5
t_s = pedestrian start-up and end clearance time, s	3.0

Crossing Treatment	Staged Pedestrian Motorist Yield Rate	Unstaged Pedestrian Motorist Yield Rate
Crosswalk Markings and Signs Only [1]	7%	7%
Median Refuge Islands [1]	34%	29%
Pedestal Mounted Flashing Beacon (2-Lane, 35 mph) [3]	N/A	57%
Overhead Flashing Beacon (push-button activation) [1]	47%	49%
Overhead Flashing Beacon (passive activation) [1]	31%	67%
Pedestrian Crossing Flags [1]	65%	74%
School Crossing Guards [5]	N/A	86%
In-street Crossing Signs (25-30 mph) [1]	87%	90%
Warning Sign with Edge Mounted LEDs [6]	N/A	28%
In-road warning lights [1]	N/A	66%
High-visibility Signs and Markings (35 mph) [1]	17%	20%
High-visibility Signs and Markings (25 mph) [1]	61%	91%
Rectangular Rapid-Flash Beacon (RRFB) [2][4]	84%	81%
School Crossing Guards with RRFB [5]	N/A	91%
Pedestrian Hybrid Beacon (HAWK) [1]	97%	99%
	N/A: No Research Found on Effect to Yielding Rate	

Crossing treatment motorist yield rate sources provided on the next page.

Table 6.2 Crossing Treatment Yield Rates

Uncontrolled Pedestrian Crossing
Data Collection Worksheet

Location:	Variolite St/ 161st Ave	Date:	May 4th 2017
City, State:	Ramsey, Mn	Scenario:	
Reviewer(s):	Grant Riemer	Agency:	City of Ramsey
Project #:		ID #:	

The first step in understanding the pedestrian needs at a potential crossing location is completing a review of the location and adjacent facilities.

Geometrics

Crossing Length: Measure the crossing distance from curb to curb. Fill in Crossing 1 distance if there is no median. If there is a median at the crossing location, fill in Crossing 1 and 2 distances.

Crossing 1	52	ft.
Crossing 2		ft.

Median: width of median at crossing location — ft.

Crossing Width: effective crosswalk width — 10 ft.

Raised Median Available?	☐ Yes	☑ No
ADA Compliant Median Available (minimum 4' x 4' landing)?	☐ Yes	☑ No
Curb Ramps Available?	☐ Yes	☑ No
ADA Compliant Curb Ramp Available (width, grades, truncated domes)?	☐ Yes	☑ No

Speed: Posted or 85th percentile speed: 65 mph

Roadway Curvature and Sight Distances: Average walking speed: 3.5 ft/s

Is the crossing location within a horizontal or vertical curve? ☑ Yes ☐ No

Equations to calculate the following are located on the next page

Direction 1:	Stopping Sight Distance (SSD)	644 ft.	provided?	☐ Yes	☑ No
Direction 2:	Stopping Sight Distance (SSD)	644 ft.	provided?	☑ Yes	☐ No
Direction 1:	Pedestrian Sight Distance (PedSD)	1657 ft.	provided?	☐ Yes	☑ No
Direction 2:	Pedestrian Sight Distance (PedSD)	1657 ft.	provided?	☑ Yes	☐ No

Traffic and Pedestrian Data

Measure traffic and pedestrian volume in 15-minute increments on the roadway to be crossed.

Attach Counts

	vehicles:	Daily		**pedestrians:**	Daily	2	
AM Peak	Hourly		Pk 15-min		Hourly		Pk 15-min	
PM Peak	Hourly	179	Pk 15-min	45	Hourly	0	Pk 15-min	0

Additional Site Characteristics

Lighting:

Is street lighting present and does it light the crosswalk location? ☑ Yes ☐ No

Crosswalk Pavement Markings: Is the pedestrian crossing currently marked? ☐ Yes ☑ No

What is the condition of the markings? ☐ Excellent ☐ Good ☐ Fair ☐ Poor

Are the markings easily defined? ☐ Yes ☐ No

Do they need replacement? ☐ Yes ☑ No

What is the crosswalk marking pattern?

Signing:

Currently signed at crosswalk? ☐ Yes ☑ No

Currently signed in advance of crosswalk? ☐ Yes ☑ No

Distances? direction 1: ft. direction 2: ft.

Enhancements: What enhancements are currently at the crossing location? None

Adjacent Facilities: Distance to nearest marked crosswalk? N/A ft.

What pedestrian control devices are present at the nearest adjacent marked crosswalk? None

Distance to nearest all-way stop, roundabout or signalized intersection: N/A ft.

Could another location serve the same pedestrian crossing movement? ☐ Yes ☑ No

Could another location serve the the movement more effectively? ☐ Yes ☑ No

Developed by Bolton & Menk, Inc. in coordination with the Local Road Research Board. Worksheets made without charge and under no circumstances shall be sold by third parties for profit.

Uncontrolled Pedestrian Crossing
Data Collection Worksheet

Mark the following: site distances and potential conflicts, pavement markings (crosswalk, edge lines, center lines, lane lines, stop lines, and any other markings), signing, location of lighting units, curb ramps, truncated domes, presence of any other crosswalks or crossing locations parallel to and nearby the location being studied, adjacent intersection traffic control, parking, intersection width, lane lengths, shoulder widths, sign placement, and nearby orgins and destinations .

draw or insert map of location being studied

Notes:

Sight Distance Calculations:

Stopping sight distance (SSD), ft = $1.47St + 1.075S^2/a$

Pedestrian sight distance (PedSD), ft = $1.47S(L / S_p + t_s)$

where: S = design speed, mph
L = length of crossing, ft

where:

	defaults:
t = brake reaction time, s	2.5
a = deceleration rate, ft/s^2	11.2
S_p = average pedestrian walking speed, ft/s	3.5
t_s = pedestrian start-up and end clearance time, s	3.0

Public Works Committee **5. 2.**

Meeting Date: 06/20/2017

By: Bruce Westby, Engineering/Public Works

Title:

Consider Recommending City Council Approval of Plans and Specifications for Riverdale Drive Extension - Traprock Street to Ramsey Boulevard, Improvement Project #16-20

Purpose/Background:

Purpose:

The purpose of this case is to consider recommending City Council approval of plans and specifications for the extension of Riverdale Drive between Traprock Street and Ramsey Boulevard, City Improvement Project #16-20.

Background:

In September of 2014, the Cities of Ramsey and Anoka, in partnership with the Minnesota Department of Transportation (MnDOT), the Anoka County Highway Department, and the Metropolitan Council, completed the Highway 10 Access Planning Study. This Study includes an Implementation Plan that identifies 21 proposed improvement projects along the Highway 10 corridor through Anoka and Ramsey. These projects are prioritized as immediate, short-term, mid-term, or opportunity/development/safety driven projects. The extension of Riverdale Drive from Traprock Street to Ramsey Boulevard is prioritized as an immediate need, the highest priority.

On October 28th, 2014, the City Council adopted the Highway 10 Access Planning Study, thereby supporting the mutual goals and objectives of the various agencies to improving the operations and safety of Highway 10 in balance with local community values. In support of these goals and objectives, City staff submitted an application on January 2, 2015 for $750,000 in grant funding from the Routes of Regional Significance Account, administered through the Local Road Improvement Program, for extending Riverdale Drive between Traprock Street and Ramsey Boulevard south of U.S. Highway 10, which was subsequently denied.

On May 26th, 2015, the City Council authorized applying for up to $710,000 in funding through MnDOT's Metro Municipal Agreement Program for Improvement Project #16-20. On September 21st, 2015, the City was notified the project was awarded up to $584,280 in funding through the Metro Municipal Agreement Program.

On October 13th, 2015 the City Council adopted a resolution accepting the awarded MnDOT Metro Municipal Agreement Program funds for the Riverdale Drive extension project in the maximum amount of $584,280. This obligated the City to moving forward with the project including preparation of final plans and specifications, as well as executing a Cooperative Construction Agreement and letting the project by June 30, 2017. If the City does not follow through with any of these items, funding could be withdrawn.

On November 24th, 2015 the City Council adopted a resolution authorizing the preparation of final plans and specifications.

On May 24th, 2017, the City submitted a $200,000 payment to Anoka County in exchange for a deed for 5.31 acres of roadway right-of-way in the Mississippi West Regional Park. This then allowed MnDOT to wrap up their final review of the plans and specifications, and to sign the title sheet of the plans, allowing the project to be bid. As of the date this case was prepared, Staff had still not received approval from MnDOT to bid the project. However, Staff is anticipating this any day and hopes to request City Council approval of plans and specifications and authorization to advertise for bids on June 27th.

Timeframe:

Staff estimates 10 minutes will be required to present this case and respond to questions.

Observations/Alternatives:

Observations:
Attached are draft plans for Improvement Project #16-20, which were not yet approved by MnDOT when this case was prepared. However, Staff will present an update on the status of MnDOT's approvals during the meeting.

Overall, this project proposes to construct a new street using the same general design as the section of Riverdale Drive that was extended to Traprock Street in 2015.

Alternatives:
Alternative #1 – Motion recommending City Council approval of plans and specifications for Riverdale Drive Extension - Traprock Street to Ramsey Boulevard, Improvement Project #16-20.

Alternative #2 – Motion recommending that the City Council deny approval of plans and specifications at this time for Riverdale Drive Extension - Traprock Street to Ramsey Boulevard, Improvement Project #16-20, for the following reasons; _____.

Funding Source:
The engineer's estimate for construction costs is $1,082,192.50. The total project cost, including 23% indirect costs, is estimated at $1,331,096.78.

The City's estimated cost share is then $746,816.78 after municipal agreement funds are applied. Municipal State Aid dollars are proposed to cover the City's cost share as noted in the current CIP.

Recommendation:
Staff recommends alternative #1.

Action:
Motion recommending City Council approval of plans and specifications for Riverdale Drive Extension - Traprock Street to Ramsey Boulevard, Improvement Project #16-20.

Attachments

IP1620 Draft Plans

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	06/15/2017 12:39 PM
Kurt Ulrich	Kurt Ulrich	06/15/2017 01:07 PM
Form Started By: Bruce Westby		Started On: 06/15/2017 04:58 AM
Final Approval Date: 06/15/2017		

MINNESOTA DEPARTMENT OF TRANSPORTATION
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS, SP 0202-101

CONSTRUCTION PLAN FOR SITE GRADING, BITUMINOUS SURFACING AND WATER MAIN

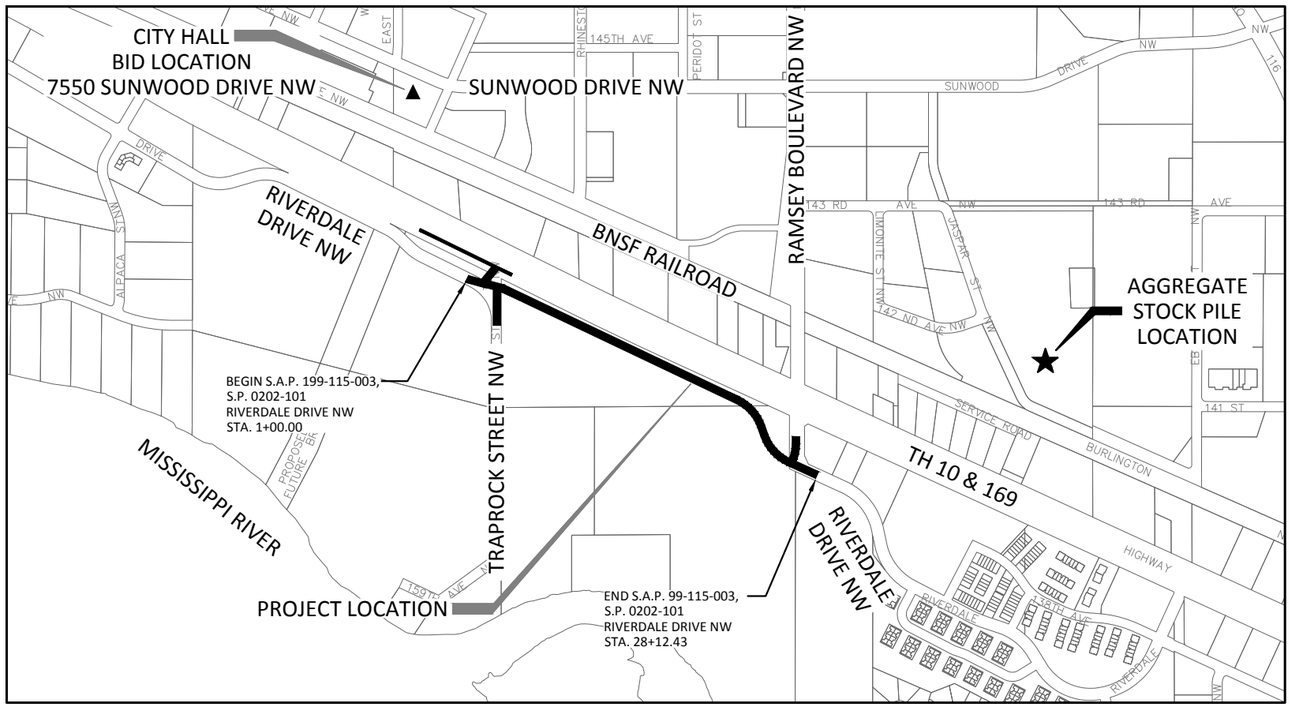
LOCATED ON: RIVERDALE DRIVE FROM: 300' WEST OF TRAPROCK STREET NW TO: 200' EAST OF RAMSEY BOULEVARD NW

RIVERDALE DRIVE NW

STATE PROJ. NO. S.A.P. 199-115-003, SP 0202-101

GROSS LENGTH	2712.43	FEET	0.514	MILES
BRIDGES-LENGTH		FEET		MILES
EXCEPTIONS-LENGTH		FEET		MILES
NET LENGTH	2712.43	FEET	0.514	MILES

REF. POINT 221+00.064 TO REF. POINT 221+00.449



AGREEMENT NO. 1002020
CITY OF RAMSEY
S.P. 0202-101 (TH 10=003)
LOCAL FUNDS
METRO DISTRICT



MAP LEGEND

- PROJECT LIMITS
- BID LOCATION

TYPICAL PLAN SCALE UNLESS OTHERWISE NOTED:

HORZ. 0 50 100 SCALE FEET

VERT. 0 5 10 SCALE FEET

DESIGN DESIGNATION

ADT (2017) = 2,000
ADT (2037) = 4,000
HCADT (2036) = 6.3%
$\Sigma N18_{20}$ 421,000
R VALUE 40
STRUCTURAL DESIGN STRENGTH = 10 TON
DESIGN SPEED ..... 30 MPH
FUNCTIONAL CLASSIFICATION: ... URBAN-COLLECTOR

TRAFFIC LANES: ..... 2 - 12'
SHOULDER: ..... 8'
PARKING LANES: 2
BASED ON: ..... STOPPING SIGHT DISTANCE
HEIGHT OF EYE: ..... 3.5'
HEIGHT OF OBJECT: ..... 2.0'

BIKE TRAIL DESIGN DESIGNATION OFF-ROAD TRAIL

STA. 1+07.00 TO STA. 5+16.00 RT
STA. 1+07.00 TO STA. 2+70.26 LT

FUNCTIONAL CLASSIFICATION — BIKE TRAIL
DESIGN SPEED — 20 MPH

DESIGN SPEED FOR BIKEWAY BASED ON STOPPING SIGHT DISTANCE:
HEIGHT OF EYE = 4.5 FT
HEIGHT OF OBJECT = 0 FT



PROJECT LOCATION

DISTRICT : METRO
COUNTY : ANOKA
SECTION : 28, 33, & 34
TOWNSHIP : 32N
RANGE : 25W

MINN. PROJ. NO. STATE FUNDS

GOVERNING SPECIFICATIONS
THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MOST RECENT EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS."

INDEX

SHEET NO.	DESCRIPTION
1	TITLE
2	LEGEND
3	ESTIMATED QUANTITES/STANDARD PLATES
4 - 5	TABULATIONS
6	ALIGNMENT PLAN & TABULATION
7	TYPICAL SECTIONS
8 - 11	CONSTRUCTION DETAILS
12 - 17	MnDOT PEDESTRIAN CURB RAMP DETAILS
18 - 21	MnDOT DRIVEWAY AND SIDEWALK DETAILS
22 - 23	INTERSECTION & PEDESTRIAN RAMP DETAILS
24 - 26	STORM WATER POLLUTION PREVENTION PLAN
27	EROSION & SEDIMENT CONTROL
28	EXISTING CONDITIONS & REMOVALS
29	POND GRADING
30 - 31	RIVERDALE DRIVE PLAN & PROFILE - WATERMAIN
32 - 33	RIVERDALE DRIVE PLAN & PROFILE - STREET & STORM SEWER
34	TRAPROCK STREET PLAN & PROFILE - STREET & STORM SEWER
35	STORM SEWER LEADS
36	SIGNING & STRIPING
37 - 44	CROSS SECTIONS

THIS SET OF PLANS CONTAINS 44 SHEETS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb LIC. NO. 23211 DATE:

APPROVED: CITY ENGINEER, CITY OF RAMSEY DATE

RECOMMENDED FOR APPROVAL: DISTRICT TRANSPORTATION ENGINEER DATE

RECOMMENDED FOR APPROVAL: DISTRICT TRAFFIC ENGINEER DATE

RECOMMENDED FOR APPROVAL: STATE PRE-LETTING ENGINEER DATE

OFFICE OF LAND MANAGEMENT APPROVAL: DIRECTOR, LAND MANAGEMENT DATE

APPROVED: STATE DESIGN ENGINEER DATE

DISTRICT STATE AID ENGINEER: REVIEWED FOR COMPLIANCE WITH STATE AID RULES/POLICY DATE

APPROVED FOR STATE AID FUNDING: STATE AID ENGINEER

PROJECT DATUM:
HORIZONTAL: ANOKA COUNTY COORDINATES NAD83, 1996 ADJUSTMENT
VERTICAL: NAVD88 DATUM

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
TITLE SHEET

SHEET 1 OF 44

H:\RAMS\R16111092\CAD\C3D\111092_TTL.dwg 3/17/16 2:17 pm

EXISTING

- IRON PIPE MONUMENT SET
- MONUMENT FOUND
- CAST IRON MONUMENT FOUND
- STONE MONUMENT FOUND
- POST SET
- BENCH MARK
- AUTO SPRINKLER
- ANTENNA
- AIR CONDITIONER
- ANCHOR
- AIR PUMP
- APRON
- BASKETBALL HOOP
- BIRD FEEDER
- BENCH
- BRACE POLE
- CATCH BASIN
- CLOTHES LINE POLE
- CONTROL POINT
- CLEAN OUT
- COMMUNICATION PEDESTAL
- CURB STOP VALVE
- DITCH TOP
- DRINKING FOUNTAIN
- DOWN SPOUT
- ELECTRIC MANHOLE
- ELECTRIC METER
- ELECTRIC PEDESTAL
- ELECTRIC TRANSFORMER
- EXHAUST VENT
- FLAG POLE
- FILL PIPE
- GAS MANHOLE
- GAS REGULATOR
- GAS VALVE
- GAS METER
- ACCESS GRATE
- HANDICAPPED PARKING
- HAND HOLE
- HYDRANT
- IRRIGATION CONTROL VALVE
- LIGHT DECORATIVE
- LIGHT POLE
- MAILBOX
- METER
- POST
- MANHOLE
- LIFT STATION MANHOLE
- MONITORING WELL
- ORDER MICROPHONE
- PARK GRILL
- GAS PUMP
- POST INDICATOR VALVE
- PARKING METER
- SANITARY MANHOLE
- SATELLITE DISH
- SEMAPHORE TRAFFIC LIGHT
- SIGNAL BOX
- SIGNAL POLE - RR
- SOIL BORING
- SIREN
- SPRINKLER HEAD
- STORM MANHOLE
- TELEPHONE MANHOLE
- PUBLIC TELEPHONE
- TILE INLET
- TILE RISER
- TRAFFIC ARM BARRIER
- TRAFFIC SIGN
- TRANSMISSION TOWER
- UTILITY POLE
- VACUUM
- VENT PIPE
- DECIDUOUS TREE
- CONIFEROUS TREE
- STUMP
- BUSH
- WELL
- WATER MANHOLE
- WATER METER
- WATER SPIGOT
- WATER VALVE
- WETLAND / MARSH
- WETLAND - DELINEATED

PROPOSED

- ALIGNMENT/CENTERLINE (22+00)
- RIGHT-OF-WAY LINE
- TEMPORARY EASEMENT
- CONSTRUCTION LIMITS
- CURB & GUTTER (B618)
- CURB & GUTTER (B624)
- BITUMINOUS EDGE
- CONCRETE EDGE
- GRAVEL EDGE
- SILT FENCE-PREASSEMBLED
- SILT FENCE-HEAVY DUTY
- EROSION PROTECTION AT INLET
- MANHOLE
- CATCH BASIN
- STORM INLET
- APRON
- STORM SEWER
- PERFORATED PIPE DRAIN
- STORM DRAIN TILE
- CULVERT W/APRON
- STORM MANHOLE NUMBER (1)
- SANITARY SEWER
- SANITARY FORCEMAIN
- SANITARY SEWER SERVICE
- SANITARY LIFT STATION
- SANITARY MANHOLE
- SANITARY MANHOLE NUMBER (A)
- WATERMAIN
- WATERMAIN SERVICE
- WATER SYSTEM MANHOLE
- HYDRANT
- HYDRANT W/ VALVE
- VALVE
- CURBSTOP
- BEND
- REDUCER
- CROSS
- TEE
- CAP
- SLEEVE
- SIGN
- LIGHT POLE
- GUARD RAIL
- SOIL BORING (B-?)
- WETLAND
- BUSH
- CONIFEROUS TREE
- DECIDUOUS TREE

- OVERHEAD ELECTRIC LINE (EO)
- UNDERGROUND ELECTRIC LINE (EU)
- GAS LINE (G)
- FIBER OPTIC LINE (FO)
- UNDERGROUND COMMUNICATIONS LINE (CU)
- OVERHEAD UTILITY LINE (OU)
- WATER SYSTEM
- STORM SEWER
- TILE LINE
- SANITARY SEWER
- SANITARY FORCEMAIN
- CULVERT
- INTERMEDIATE CONTOURS
- INDEX CONTOURS
- COUNTY LINE
- CITY LIMITS
- SIXTEENTH LINE
- QUARTER LINE
- SECTION LINE
- ADJACENT LINES
- EASEMENT LINE
- BUILDING SETBACK LINE
- FENCE LINE
- GUARD RAIL
- ACCESS CONTROL LINE
- CENTERLINE
- PROPERTY / LOT LINE
- ROAD RIGHT-OF-WAY LINE
- RAILROAD RIGHT-OF-WAY LINE
- GRAVEL EDGE
- BITUMINOUS EDGE
- CONCRETE EDGE
- CURB & GUTTER
- WATER EDGE
- WATER CENTERLINE
- HIGHWATER LINE
- WETLAND EDGE
- SWALE CENTERLINE
- RAILROAD TRACKS

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_TTL.dwg 3/17/16 2:17 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb

LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

LEGEND

SHEET 2 OF 44

STATEMENT OF ESTIMATED QUANTITIES (A)

TAB INDEX	NOTES	ITEM NUMBER	SPEC NO.	ITEM	UNIT	TOTAL	PARTICIPATING S.A.P. 199-115-003 & S.P. 0202-101	NON-PARTICIPATING QUANTITY
		1	2021.501	MOBILIZATION	LUMP SUM	1	1	
F		2	2101.511	CLEARING AND GRUBBING	LUMP SUM	1	1	
F		3	2102.501	PAVEMENT MARKING REMOVAL	SQ FT	123	123	
F		4	2104.501	REMOVE FENCE	LIN FT	115	115	
F		5	2104.501	REMOVE CURB AND GUTTER	LIN FT	1640	1640	
F		6	2104.501	REMOVE SEWER PIPE (STORM)	LIN FT	100	100	
F		7	2104.501	REMOVE PIPE CULVERTS	LIN FT	125	125	
F		8	2104.505	REMOVE BITUMINOUS PAVEMENT	SQ YD	5760	5760	
F		9	2104.505	REMOVE CONCRETE PAVEMENT	SQ YD	185	185	
F		10	2104.509	REMOVE DRAINAGE STRUCTURE	EACH	3	3	
F		11	2104.509	REMOVE WOOD POST	EACH	3	3	
F		12	2104.509	REMOVE SIGN	EACH	17	17	
F		13	2104.511	SAWING CONCRETE PAVEMENT (FULL DEPTH)	LIN FT	80	80	
F		14	2104.513	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	940	940	
F	1	15	2104.601	RELOCATE MISCELLANEOUS STRUCTURE	LUMP SUM	1	1	
G		16	2105.501	COMMON EXCAVATION (P)	CU YD	9905	9905	
G		17	2105.507	SUBGRADE EXCAVATION	CU YD	200	200	
G		18	2105.511	CHANNEL AND POND EXCAVATION	CU YD	3215	3215	
G		19	2105.521	GRANULAR BORROW (CV)	CU YD	200	200	
H	2	20	2211.501	AGGREGATE BASE CLASS 5	TON	6575	6575	
J		21	2360.501	TYPE SP 9.5 WEARING COURSE MIXTURE (3,A)	TON	1653	1653	
J		22	2360.502	TYPE SP 12.5 NON WEARING COURSE MIXTURE (3,B)	TON	1950	1950	
K	3	23	2501.515	18" RC PIPE APRON	EACH	1	1	
K		24	2503.541	15" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	1709	1709	
K		25	2503.541	18" RC PIPE SEWER DESIGN 3006 CLASS III	LIN FT	260	260	
K		26	2503.602	CONNECT TO EXISTING STORM SEWER	EACH	2	2	
M		27	2504.602	ADJUST VALVE BOX	EACH	3		3
M		28	2504.602	ADJUST HYDRANT AND VALVE	EACH	1		1
M		29	2504.602	CONNECT TO EXISTING WATER MAIN	EACH	2		2
M		30	2504.602	HYDRANT	EACH	1		1
M		31	2504.602	6" GATE VALVE & BOX	EACH	1		1
M		32	2504.602	12" GATE VALVE & BOX	EACH	2		2
M		33	2504.603	6" WATERMAIN DUCTILE IRON CLASS 52	LIN FT	97		97
M		34	2504.603	12" WATERMAIN DUCTILE IRON CLASS 52	LIN FT	2360		2360
M		35	2504.608	WATERMAIN FITTINGS	POUND	1040		1040
K		36	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN 48-4020	LIN FT	5.2	5.2	
K	4	37	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1	LIN FT	6.1	6.1	
K	5	38	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 2	LIN FT	43.6	43.6	
K		39	2506.501	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	LIN FT	3.0	3.0	
L		40	2506.516	CASTING ASSEMBLY	EACH	14	14	
K		41	2506.522	ADJUST FRAME AND RING CASTING	EACH	2	2	
O		42	2511.502	RANDOM RIPRAP CLASS III	TON	24	24	
I		43	2521.501	6" CONCRETE WALK	SQ FT	750	750	
I		44	2531.501	CONCRETE CURB & GUTTER DES B618	LIN FT	5900	5900	
I		45	2531.501	CONCRETE CURB & GUTTER DES B624	LIN FT	20	20	
I		46	2531.507	8" CONCRETE DRIVEWAY PAVEMENT	SQ YD	110	110	
I		47	2531.618	TRUNCATED DOMES	SQ FT	90	90	
		48	2563.601	TRAFFIC CONTROL	LUMP SUM	1	1	
		49	2563.601	TRAFFIC CONTROL SUPERVISOR	LUMP SUM	1	1	
N		50	2564.531	SIGN PANELS TYPE C	SQ FT	58	58	
O		51	2573.502	SILT FENCE, TYPE MS	LIN FT	1126	1126	
O		52	2573.530	STORM DRAIN INLET PROTECTION	EACH	20	20	
O		53	2573.533	SEDIMENT CONTROL LOG TYPE COMPOST	LIN FT	100	100	
O		54	2573.535	STABILIZED CONSTRUCTION EXIT	LUMP SUM	1	1	
P		55	2574.508	FERTILIZER, TYPE 3	POUND	1610	1610	
P		56	2575.501	SEEDING	ACRE	4.6	4.6	
P		57	2575.502	SEED, MIXTURE 25-121	POUND	230	230	
P		58	2575.502	SEED, MIXTURE 33-262	POUND	26	26	
P		59	2575.502	SEED, MIXTURE 35-221	POUND	95	95	
P		60	2575.505	SODDING TYPE SALT TOLERANT	SQ YD	545	545	
O		61	2575.523	EROSION CONTROL BLANKET CATEGORY 3N	SQ YD	8095	8095	
P		62	2575.560	HYDRAULIC BONDED FIBER MATRIX	POUND	13750	13750	
N		63	2582.501	PAVEMENT MESSAGE EPOXY	SQ FT	60	60	
N		64	2582.502	4" SOLID LINE EPOXY	LIN FT	6800	6800	
N		65	2582.502	4" DOUBLE SOLID LINE EPOXY	LIN FT	3130	3130	
N		66	2582.502	24" SOLID LINE EPOXY	LIN FT	210	210	

1. ITEM INCLUDES RELOCATING TRAIL GATE TO NEW TRAIL ALIGNMENT
2. ITEM INCLUDES AGGREGATE MATERIAL FROM CITY STOCKPILE
3. ITEM INCLUDES TRASH GUARD
4. DESIGN 48-4020 WITH 2'X3' OPENING
5. 2' x 3' CATCH BASIN

TABULATION INDEX (B)

TABLE		SHEET NO.
A	STATEMENT OF ESTIMATED QUANTITIES	3
B	TABULATION INDEX	3
C	BASIS OF ESTIMATED QUANTITES	3
D	PRIVATE UTILITY OWNERS TABULATION	3
D-1	EXISTING PRIVATE UTILITIES	3
E	STANDARD PLATES	3
F	MISCELLANEOUS REMOVAL TABULATION	4
G	EARTHWORK TABULATION	4
H	AGGREGATE TABULATION	4
I	CONCRETE TABULATION	4
J	BITUMINOUS TABULATION	4
K	STORM SEWER TABLE	5
L	CASTING ASSEMBLY TABULATION	5
M	WATER MAIN TABLE	5
N	STRIPING & STRIPING TABULATION	5
O	EROSION CONTROL TABULATION	5
P	TURF ESTABLISHMENT TABULATION	5

BASIS OF ESTIMATED QUANTITES (C)

MATERIAL	CONVERSION FACTORS
AGGREGATE BASE CLASS 5	1.8 TON/CU YD
NON WEARING BITUMINOUS COURSE MIXTURE	110 LBS/SY-IN
WEARING BITUMINOUS COURSE MIXTURE	110 LBS/SY-IN
BITUMINOUS MATERIAL FOR TACK COAT	0.05 GAL/SY
FERTILIZER TYPE 3	350 LBS/ACRE
HYDRAULIC MATRIX, TYPE (BFM)	3500 LBS/ACRE

PRIVATE UTILITY OWNERS TABULATION (D)

UTILITY	OWNER
ELECTRIC	CONNEXUS ENERGY
GAS	CENTERPOINT ENERGY MINNESOTA GAS
CABLE	WINDSTREAM COMMUNICATIONS
TELEPHONE	CENTURY LINK
PUBLIC	CITY OF RAMSEY

EXISTING PRIVATE UTILITIES (D–1)

NOTES	STATION	OFFSET	ITEM INPLACE	OWNER	REMARKS
	1+33.66	25.4' RT	LIGHT POLE	CONNEXUS ENERGY	NO CONFLICT
	1+67.56	32.4' LT	LIGHT POLE	CONNEXUS ENERGY	RELOCATE TO STA. 2+59.09, OS 26.7' LT
	2+07.80'	111.3 LT	MnDOT VAULT	MnDOT	NO CONFLICT
	2+17.39	86.3' RT	LIGHT POLE	CONNEXUS ENERGY	RELOCATE TO STA 2+75.65, OS 34.2' RT
	3+12.29'	68.3' LT	PEDESTAL	MnDOT	NO CONFLICT
	3+73.97'	2.2' RT	POWER POLE	CONNEXUS ENERGY	REMOVE POLE, RELOCATE UTILITY POLE ANCHOR TO STA. 3+73.97, OS 33.0' LT
	22+80.69'	36.1' RT	MONITORING WELL	CITY OF RAMSEY	NO CONFLICT
	27+38.73'	25.7 LT	LIGHT POLE	CONNEXUS ENERGY	NO CONFLICT

NOTES:

EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL, 1-800-252-1166 OR 651-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

STANDARD PLATES (E)

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT

PLATE NO.	DESCRIPTION
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3007E	SHEAR REINFORCEMENT FOR PRECAST DRAINAGE STRUCTURES
3100G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3133D	RIPRAP AT RCP OUTLETS
3145G	CONCRETE PIPE OR PRECAST BOX CULVERT TIES
4006L	MANHOLE OF CATCH BASIN PRECAST - DESIGNS G & H
4011E	PRECAST CONCRETE BASE
4020J	MANHOLE OR CATCH BASIN (FOR USE WITH OR WITHOUT TRAFFIC LOADS) (2 SHEETS)
4022A	MANHOLE OR CATCH BASIN COVER - 3' X 2' OPENING - FOR USE WITH OR WITHOUT TRAFFIC LOADS
4026A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4101D	RING CASTING FOR MANHOLE OR CATCH BASIN
4108F	ADJUSTING RINGS FOR CATCH BASINS AND MANHOLES
4160D	CURB BOX CASTING FOR CATCH BASIN
4180J	MANHOLE OR CATCH BASIN STEP
7038A	DETECTABLE WARNING SURFACE TRUNCATED DOMES
7100H	CONCRETE CURB AND GUTTER (DESIGN B & V)
7111J	INSTALLATION OF CATCH BASIN CASTINGS (CONCRETE CURB AND GUTTER)
8000J	CHANNELIZERS (3 SHEETS)

©Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_TAB.dwg 3/10/16 4:43 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
ESTIMATED QUANTITIES

SHEET 3 OF 44

MISCELLANEOUS REMOVAL TABULATION (F)

STATION	OFFSET	CLEARING & GRUBBING	PAVEMENT MARKING REMOVAL	REMOVE CURB & GUTTER	REMOVE SEWER PIPE (STORM)	REMOVE PIPE CULVERTS	REMOVE BITUMINOUS PAVEMENT	REMOVE CONCRETE PAVEMENT	REMOVE DRAINAGE STRUCTURE	SAWING BITUMINOUS PAVEMENT (FUL DEPTH)	SAWING CONCRETE PAVEMENT (FUL DEPTH)	REMOVE SIGN	REMOVE FENCE	REMOVE WOOD POST	RELOCATE MISCELLANEOUS STRUCTURE
		LUMP SUM	SQ FT	LIN FT	LIN FT	LIN FT	SQ YD	SQ YD	EACH	LIN FT	LIN FT	EACH	LF	EACH	EACH
-3+23 TO 3+62	LT		115				400								
1+00 TO 28+13	LT & RT	1													
1+00 TO 5+15	LT & RT			1075	100	125	3360	65	3	790		13			1
3+60	40' LT													3	
26+02	LT & RT												115		
24+93 TO 28+13	LT & RT		8	565			2000	120		150	80	4			
	TOTALS:	1	123	1640	100	125	5760	185	3	940	80	17	115	3	1

EARTHWORK SUMMARY (G)

NOTES	ITEMS	UNIT	PROJECT TOTAL	RIVERDALE DRIVE STA 1+00 - STA 12+50 [1]	RIVERDALE DRIVE STA 12+50 - STA 28+13 [2]	TRAPROCK STREET STA 50+50 - STA 52+80	PROPOSED POND (3)
	UNADJUSTED VOLUMES BASED ON CROSS SECTIONS						
	EXCAVATION						
1,2,3	TOPSOIL (EV)	CY	6611	1160	3310		2141
4	REGULAR EXCAVATION (EV)	CY	3294	2214	830	250	
5	POND EXCAVATION (EV)	CY	3215				3215
	EMBANKMENT						
6	TOPSOIL REQUIRED (CV)	CY	1430	491	554	60	325
7	EMBANKMENT MATERIAL REQUIRED (CV) (UNDER ROADWAY)	CY	3155	215	2930	10	0
8	EMBANKMENT MATERIAL REQUIRED (CV) (IN BLVD)	CY	1660	109	1311	0	240
	EARTHWORK BALANCE						
	TOPSOIL BALANCE						
9	TOPSOIL REQUIRED (EV)	CY	2145	737	831	90	488
	TOPSOIL GENERATED (EV)	CY	6611	1160	3310	0	2141
10	EXCESS TOPSOIL (EV)	CY	4466	423	2479	-90	1654
	GRADING MATERIAL BALANCE						
11	MATERIAL GENERATED (EV)	CY	6509	2214	830	250	3215
12	EMBANKMENT MATERIAL REQUIRED (EV)	CY	6260	421	5513	13	312
13	EXCESS EMBANKMENT MATERIAL (EV)	CY	249	1793	-4683	237	2903
	EARTHWORK QUANTITIES TO SEQ						
	POND EXCAVATION (EV)	CY	3215				3215
14	COMMON EXCAVATION (EV)	CY	9905	3374	4140	250	2141
15	SUBGRADE EXCAVATION (EV)	CY	200				
15	GRANULAR BORROW (CV)	CY	200				

1 CUT VOLUMES FROM CROSS SECTIONS. ASSUMES AN AVERAGE OF 8 INCHES OF TOPSOIL THICKNESSS FROM STA 1+00 TO STA 12+50.
2 CUT VOLUMES FROM CROSS SECTIONS. ASSUMES AN AVERAGE OF 16 INCHES OF TOPSOIL THICKNESS FROM STA 12+50 TO STA 28+13.
3 CUT VOLUMES FROM CROSS SECTIONS. ASSUMES AN AVERAGE OF 18 INCHES OF TOPSOIL THICKNESS IN POND AREA.
4 EXCAVATION REQUIRED BELOW EXISTING TOPSOIL AND BELOW PROPOSED AGGREGATE BASE COURSE.
5 EXCAVATION REQUIRED BELOW TOPSOIL.
6 MINIMUM 4 INCHES OF TOPSOIL PLACED IN ALL VEGETATED AREAS DISTURBED DURING CONSTRUCTION.
7 FILL VOLUMES FROM CROSS SECTIONS.
8 FILL VOLUMES FROM CROSS SECTIONS (LESS TOPSOIL).
9 MINIMUM 4 INCHES OF TOPSOIL PLACED WITH A SHRINKAGE FACTOR OF 1.5 APPLIED FROM CV TO EV.
10 MATERIAL TO BE LOADED ONTO CITY TRUCKS BY CONTRACTOR & HAULED OFF-SITE BY OWNER.
11 REGULAR EXCAVATION AND POND EXCAVATION BELOW TOPSOIL.
12 MATERIAL REQUIRED UNDER ROADWAY AGGREGATE BASE MATERIAL AND UNDER TOPSOIL IN BOULEVARD AND POND AREAS. SHRINKAGE FACTOR OF 1.3 FROM EV TO CV APPLIED.
13 CONTRACTOR TO SEPARATE TOPSOIL, GRANULAR MATERIAL AND SUITABLE GRADING MATERIAL. GRANULAR MATERIAL TO BE USED UNDER ROADWAY. SUITABLE MATERIAL TO BE USED IN BOULEVARD AREAS.
14 INCLUDES TOPSOIL EXCAVATION AND REGULAR EXCAVATION.
15 QUANTITIES TO BE USED AS DIRECTED BY ENGINEER IF POOR SOILS ARE ENCOUNTERED.

AGGREGATE TABULATION (H)

STATION	OFFSET	AGGREGATE BASE, CL 5
		TON
1+00 TO 28+13	LT & RT	6400
1+08 TO 2+71	29' LT	50
1+09 TO 2+62	29' RT	50
3+68 TO 5+14	40' RT	45
26+65 TO 27+60	LT & RT	30
	TOTALS:	6575

NOTES
1) AGGREGATE BASE CLASS 5 BASED ON 1.8 TON/CY
2) FOR ROADWAY AND TRAIL ONLY
3) AGGREGATE BASED ON 8" DEPTH FOR ROAD SECTIONS
4) AGGREGATE BASED ON 4" DEPTH FOR TRAIL SECTIONS
5) AGGREGATE TO BE SALVAGED FROM CITY STOCKPILE. LOCATION SHOWN ON TITLE PAGE.

CONCRETE TABULATION (I)

STATION	OFFSET	6" CONCRETE WALK	CONCRETE CURB & GUTTER DESIGN B618	CONCRETE CURB & GUTTER DESIGN B624	8" CONCRETE DRIVEWAY PAVEMENT	TRUNCATED DOMES
		SQ FT	LIN FT	LIN FT	SQ YD	SQ FT
1+00 TO 28+13	LT & RT		5900			
2+61 TO 2+71	20' LT	90				20
2+61 TO 2+97	20' RT	460				40
3+56 TO 3+68	30' RT	200				30
25+40	LT			5		
26+34 TO 28+13	LT			15	110	
	TOTALS:	750	5900	20	110	90

BITUMINOUS TABULATION (J)

STATION	OFFSET	BITUMINOUS MATERIAL FOR TACKCOAT (INCIDENTAL)	TYPE SP 9.5 WEARING COURSE MIXTURE SPWEA340B	TYPE SP 12.5 NON WEARING COURSE MIXTURE SPNWB340B
		GAL	TON	TON
1+00 TO 28+13	LT & RT	710	1560	1950
1+08 TO 2+71	29' LT		25	
1+09 TO 2+62	29' RT		26	
3+68 TO 5+14	40' RT		25	
26+65 TO 27+60	LT & RT		17	
	TOTALS:	710	1653	1950

NOTES
1) WEARING BITUMINOUS COURSE MIXTURE BASED ON 110 LBS/SY-IN
2) NON WEARING BITUMINOUS COURSE MIXTURE BASED ON 110 LBS/SY-IN
3) BITUMINOUS MATERIAL FOR TACK COAT BASED ON .05 GAL/SY (INCIDENTAL)

©Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_TAB.dwg 3/10/16 4:43 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
TABULATIONS

SHEET 4 OF 44

STORM SEWER TABLE (K)

STRUCTURE	STATION, OFFSET	RIM ELEV	OUTLET ELEV	ASSEMBLY	DRAINS TO	DOWNSTREAM ELEV	PIPE GRADE (%)	18" RCP APRON EACH	15" RCP STORM LIN FT	18" RCP STORM LIN FT	DESIGN 48-4020 LIN FT	DESIGN SPECIAL 1 LIN FT	DESIGN SPECIAL 2 LIN FT	DESIGN G LIN FT	CONNECT TO EXISTING STM EACH	ADJUST CASTING EACH	NOTES
FES 1	22+33.50, 65.88' LT	NA	858.00	NA	NA	NA	NA	1									INCLUDES TRASH GUARD
CB 2	20+00.00, 20.67' LT	862.69	858.58	R-3246AR	FES 1	858.00	0.22%			260		6.11					SUMP ELEV = 856.58
CB 3	19+94.00, 20.67' LT	862.70	858.70	R-3246AR	CB2	858.68	0.28%		6				4.00				
CB 4	20+00.00, 20.67' RT	862.69	858.70	R-3246AR	CB 2	858.58	0.29%		41				3.99				
CB 5	19+94.00, 20.67' RT	862.70	858.72	R-3246AR	CB 4	858.70	0.30%		6				3.98				
EOF 6	20+00.00, 35.0' RT	861.80	858.80	R-2560E	CB 4	858.70	0.70%		14					3.00			
CB 7	14+75.93, 20.67' LT	865.17	860.65	R-3246AR	CB 3	858.80	0.36%		518				4.52				
CB 8	14+75.93, 20.67' RT	865.17	861.17	R-3246AR	CB 7	860.75	1.02%		41				4.00				
CB 9	9+50.46, 20.67' LT	866.22	862.22	R-3246AR	CB 7	860.75	0.28%		525				4.00				
CB 10	9+50.49, 20.67' RT	866.22	862.72	R-3246AR	CB 9	862.32	0.97%		41				3.50				
CB 11	5+50.00, 20.67' LT	868.09	864.09	R-3246AR	CB 9	862.32	0.44%		400				4.00				
CB 12	5+50.00, 20.67' RT	868.09	864.59	R-3246AR	CB 11	864.19	0.97%		41				3.50				
MH 13	2+10.48, 51.92' RT	870.33	865.16	R-2560E	EX MH	NA	NA				5.17				1		
CB 14	52+54.41, 21.25' LT	869.14	865.39	R-3246AR	MH 13	865.16	0.30%		76				3.75				
CB 15	1+67.81, 20.67' LT	870.00	865.68	R-3246AR	EX MH	NA	NA						4.32		1		
EX MH	1+15.58, 15.14' RT	870.48	NA	NA	NA	NA	NA									2	SALVAGE AND REINSTALL EX CASTING
							TOTALS:	1	1709	260	5.17	6.11	43.56	3.00	2	2	

WATER MAIN TABLE (M)

STATION, OFFSET	ADJUST GV & BOX EACH	ADJUST HYDRANT & VALVE EA	CONNECT TO EXISTING WMN EACH	HYDRANT EACH	6" GV & BOX EACH	12" GV & BOX EACH	6" DIP WATERMAIN LIN FT	12" DIP WATERMAIN LIN FT	WMN FITTINGS POUNDS
2+55, 32' RT		1							
2+97, 74' RT	1		1						172
2+97 TO 26+62								2360	430
8+00, 10' RT							40		126
11+20, 10' RT				1	1		17		110
11+23, 10' RT	1					1			
18+00, 10' RT							40		126
26+62	1		1			1			76
TOTALS:	3	1	2	1	1	2	97	2360	1040

CASTING ASSEMBLY TABULATION (L)

ASSEMBLY	DESCRIPTION (CASTING NO.)	QUANTITY
R-2560E	SERIES BEEHIVE GRATES WITH FRAMES	2
R-3246AR	CASTING TYPE: NEENAH R-3246AR; EAST JORDAN IRON WORKS 7030Z1/7030T4/7030M5 COMBINATION; D&L FOUNDRY MODEL NO 1-3519; OR EQUAL	12

EROSION CONTROL TABULATION (O)

STATION	OFFSET	STORM DRAIN INLET PROTECTION EACH	EROSION CONTROL BLANKET CATEGORY 3N SQ YD	RANDOM RIPRAP CLASS III TON	SEDIMENT CONTROL LOG TYPE COMPOST LIN FT	SILT FENCE TYPE MS LIN FT	STABILIZED CONSTRUCTION EXIT (1) LUMP SUM
		20					1
1+00 TO 3+80	100' LT		3680				
1+07 TO 2+96	LT					180	
2+00 TO 3+00	LT				60		
14+00 TO 23+76	40' RT					946	
21+90 TO 25+53	60' LT		4415				
22+32	65' LT			24			
19+95	65' RT				40		
	TOTALS:	20	8095	24	100	1126	1

1. TWO LOCATIONS REQUIRED (MINIMUM)

TURF ESTABLISHMENT TABULATION (P)

STATION	OFFSET	SEEDING ACRE	SEED, MIXTURE 25-121 POUND	SEED, MIXTURE 33-262 POUND	SEED, MIXTURE 35-221 POUND	SODDING TYPE SALT TOLERANT SQ YD	FERTILIZER TYPE 3 POUND	HYDRAULIC BONDED FIBER MATRIX POUND
1+00 TO 28+13	LT	2.5	230				875	6400
1+00 TO 28+13	RT	1.7			95		595	5950
22+33 TO 24+93	65' LT	0.4		26			140	1400
26+60 TO 27+60	LT					545		
	TOTALS:	4.60	230	26	95	545	1610	13750

NOTES
1) SEED, MIXTURE 25-121 BASED ON 92 LBS/ACRE
2) SEED, MIXTURE 33-262 BASED ON 66 LBS/ACRE
3) SEED, MIXTURE 35-221 BASED ON 55 LBS/ACRE
4) FERTILIZER TYPE 3 BASED ON 350 LBS/ACRE
5) HYDRAULIC MATRIX, TYPE (BFM) BASED ON 3500 LBS/ACRE

SIGNING & STRIPING TABULATION (N)

STATION	OFFSET	SIGN PANEL TYPE C SQ FT	PAVEMENT MESSAGE EPOXY WHITE SQ FT	4" SOLID LINE EPOXY WHITE LIN FT	4" DOUBLE SOLID LINE EPOXY YELLOW LIN FT	24" SOLID LINE EPOXY WHITE LIN FT	24" SOLID LINE EPOXY YELLOW LIN FT
-3+23 TO 3+62	LT			750			
1+00 TO 28+13	LT & RT		60	6050	3130		110
3+14	LT	8.00					
3+55	RT	6.25				22	
4+20	LT	8.25					
23+65	RT	9.00					
25+58	RT	6.25				18	
25+60	LT	6.25				40	
26+00	RT	8.00					
26+83	LT	6.25				20	
	TOTALS:	58	60	6800	3130	100	110

©Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_TAB.dwg 3/10/16 4:43 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin P. Kielb

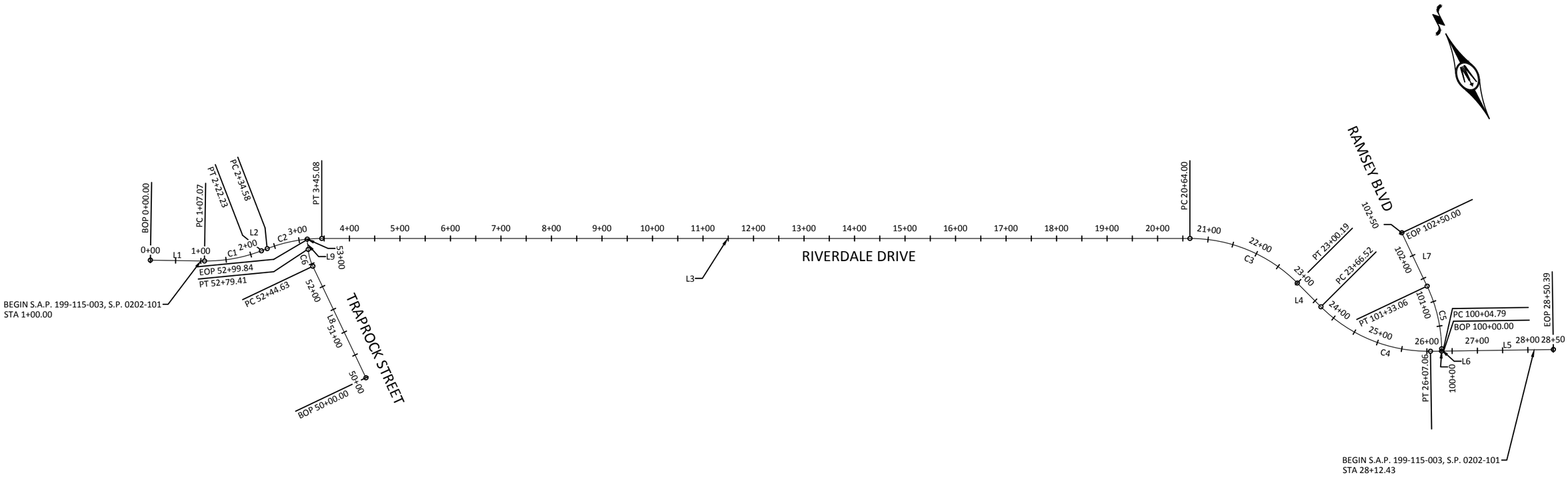
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
TABULATIONS



RIVERDALE DRIVE											
NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L1	0+00	1+07.07	107.07				170699.80	450575.68	170652.28	450671.63	S63° 39' 17"E
C1	1+07.07	2+22.23	115.16	21°59'36"	300.00	114.45	170652.28	450671.63	170621.99	450782.00	S74° 39' 05"E
L2	2+22.23	2+34.58	12.35				170621.99	450782.00	170621.05	450794.31	S85° 38' 53"E
C2	2+34.58	3+45.08	110.50	21°06'15"	300.00	109.88	170621.05	450794.31	170592.79	450900.49	S75° 05' 46"E
L3	3+45.08	20+64	1718.92				170592.79	450900.49	169853.97	452452.53	S64° 32' 38"E
C3	20+64	23+00.19	236.20	45°06'38"	300.00	230.15	169853.97	452452.53	169682.91	452606.49	S41° 59' 19"E
L4	23+00.19	23+66.52	66.33				169682.91	452606.49	169620.35	452628.56	S19° 26' 00"E
C4	23+66.52	26+07.06	240.53	45°56'19"	300.00	234.14	169620.35	452628.56	169447.46	452786.45	S42° 24' 09"E
L5	26+07.06	28+50.39	243.33				169447.46	452786.45	169346.05	453007.65	S65° 22' 19"E

TRAPROCK STREET											
NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L8	50+00	52+44.63	244.63				170306.01	450860.82	170550.64	450860.92	N0° 01' 17"E
C6	52+44.63	52+79.41	34.77	19°55'27"	100.00	34.60	170550.64	450860.92	170584.72	450866.91	N9° 59' 01"E
L9	52+79.41	52+99.84	20.43				170584.72	450866.91	170603.92	450873.88	N19° 56' 44"E

RAMSEY BOULEVARD											
NUMBER	START STATION	END STATION	LENGTH	DELTA	RADIUS	CHORD	START N	START E	END N	END E	LINE / CHORD DIRECTION
L6	100+00	100+04.79	4.79				169438.22	452806.60	169442.58	452808.60	N24° 37' 41"E
C5	100+04.79	101+33.06	128.26	24°29'48"	300.00	127.29	169442.58	452808.60	169566.91	452835.89	N12° 22' 47"E
L7	101+33.06	102+50	116.94				169566.91	452835.89	169683.85	452836.16	N0° 07' 53"E

0 100 200
SCALE FEET

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_AT.dwg 3/9/2017 4:00 PM

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

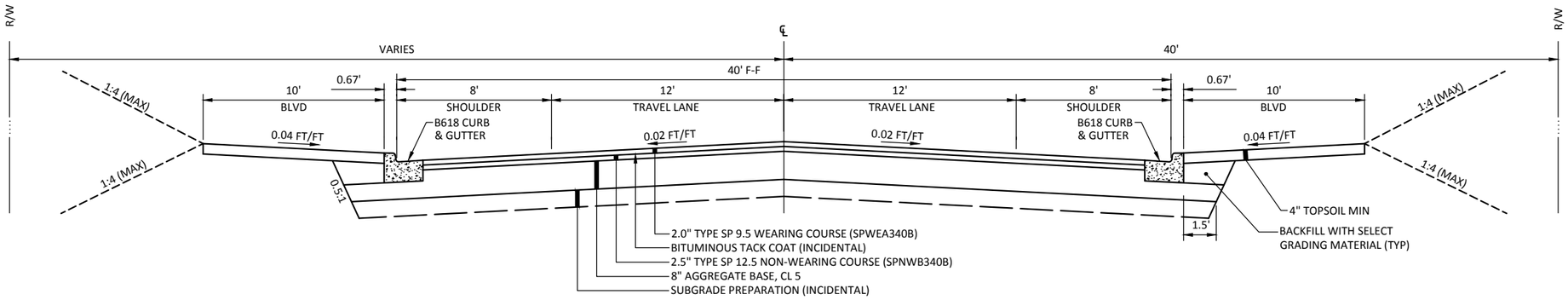
BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
ALIGNMENT PLAN & TABULATION

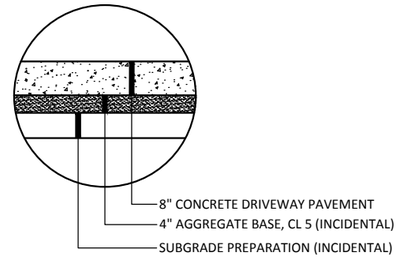
SHEET 6 OF 44



TYPICAL SECTION - RIVERDALE DRIVE STA. 5+16.00 TO 25+36.36

NOT TO SCALE

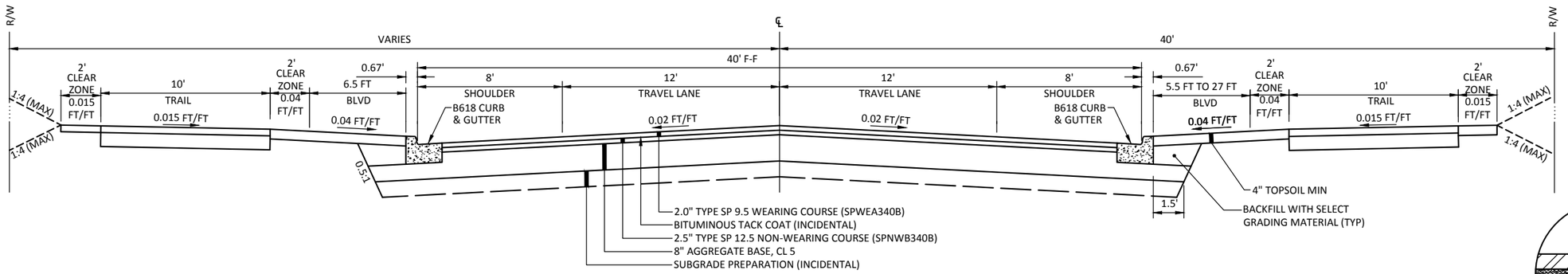
NOTE: AGGREGATE BASE CL 5 TO BE SALVAGED FROM CITY STOCKPILE SHOWN ON THE TITLE PAGE OF THIS PLAN



FULL SECTION IN UNIT BID PRICE

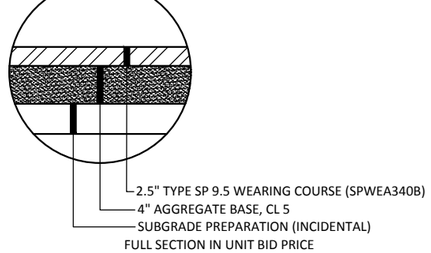
CONCRETE DRIVEWAY PAVEMENT

NOT TO SCALE



TYPICAL SECTION - RIVERDALE DRIVE STA. 1+00 TO STA. 5+16.00

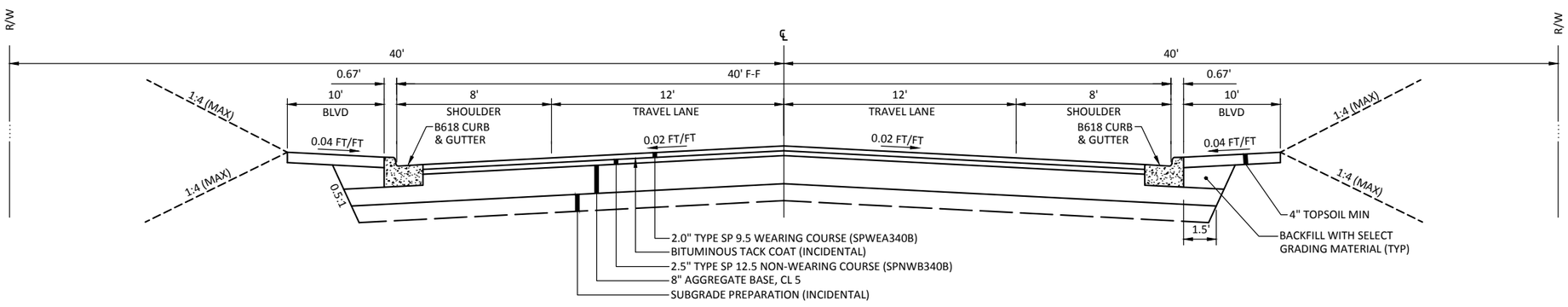
NOT TO SCALE



FULL SECTION IN UNIT BID PRICE

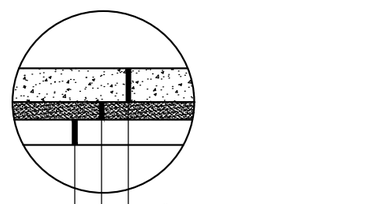
BITUMINOUS TRAIL PAVEMENT

NOT TO SCALE



TYPICAL SECTION - TRAPROCK STREET

NOT TO SCALE



FULL SECTION IN UNIT BID PRICE

CONCRETE WALK

NOT TO SCALE

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_TYP.dwg 3/22/16 3:35 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb

Kevin. P. Kielb

LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

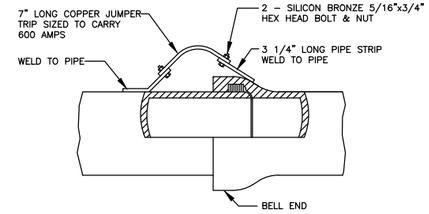
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

TYPICAL SECTIONS

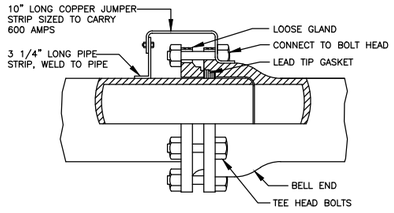
SHEET 7 OF 44



PUSH ON JOINT

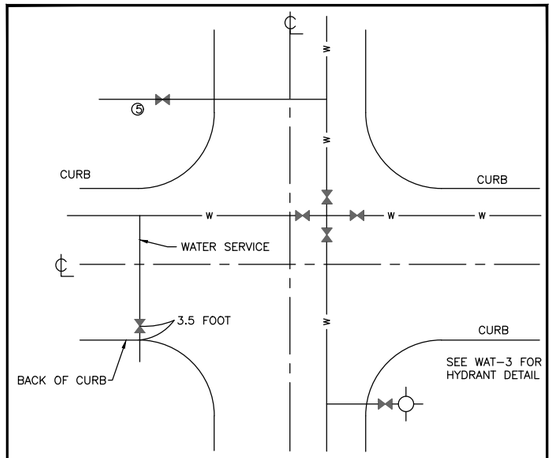
NOTE: DO NOT PASS CURRENT THROUGH PIPE UNLESS PIPE IS FULL OF WATER.

ALTERNATE METHOD BY AMERICAN CAST –IRON USING 4 COPPER CONTACT STRIPS IS AN APPROVED EQUAL TO ABOVE



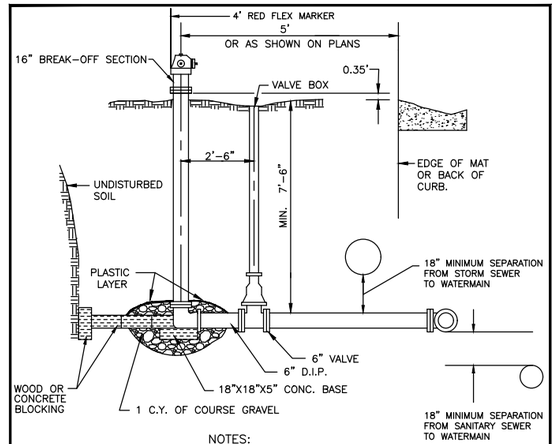
MECHANICAL JOINT

APPROVED		
DATE 7–93	City of RAMSEY	**STANDARD DETAILS** JOINT CONNECTION FOR ELECTRICAL CONDUCTIVITY
		CITY PLATE No. **WAT–1**



1) VALVES TO BE CLUSTERED AT CROSS ON THE TEE BY PLACING IMMEDIATELY ADJACENT TO FITTING
2) VALVE EXTENSIONS SHALL BE REQUIRED SUCH THAT VALVE OPERATOR NUT IS WITHIN 1 FOOT OF FINISHED GRADE
3) WATERMAIN TO BE LOCATED ON NORTH AND EAST SIDES OF STREET 10 FEET FROM CENTERLINE
4) ALL SERVICE VALVES IN ROAD WAY SHALL BE 3.5 FOOT FROM BACK OF CONCRETE CURB
5) ALL VALVES NOT IN BITUMINOUS PAVEMENT SHALL BE MARKED WITH A BLUE 5 FOOT CARSONITE MARKER

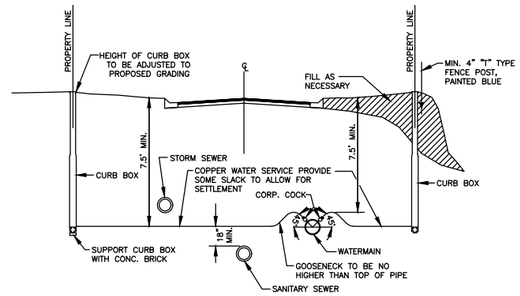
APPROVED		
DATE 3–2004	City of RAMSEY	**STANDARD DETAILS** GENERAL WATERMAIN VALVE LOCATION
		CITY PLATE No. **WAT–2**



NOTES:

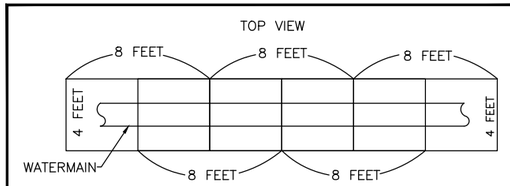
1. HYDRANTS TO BE ORDERED FOR 8'–0" BURY. IN AREAS OF EXTRA DEPTH ON THE WATERMAIN, HYDRANT EXTENSIONS MAY BE REQUIRED.
2. HYDRANT SHALL BE BLOCKED OR TIED TO THE TEE AT MAIN WITH 2–3/4" DIAMETER TIE RODS. ALL TIE RODS TO BE COAL TAR COATED AFTER INSTALLATION. RESTRAINED JOINT PIPE AND RETAINING GLANDS MAY BE USED.
3. TOP NUT OF HYDRANT 2.5' ABOVE TOP BACK OF CURB OR BITUMINOUS SURFACE
4. HYDRANTS BURIED BELOW WATER TABLE, DRAIN HOLES NEED TO BE PLUGGED AND HYDRANT MARKED BY PAINTING 5" CAP YELLOW
5. ALL VALVE BOXES SHALL HAVE A VALVE NUT EXTENSION TO WITHIN 1' OF FINISHED GRADE
6. BRUSH PAINT ALL HYDRANTS AFTER INSTALLATION IS COMPLETE

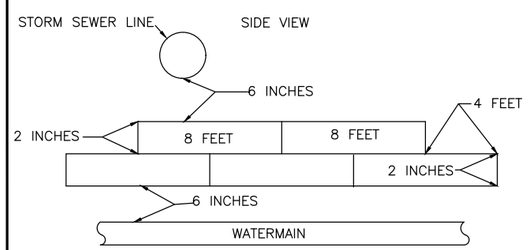
APPROVED		
DATE 4–2005	City of RAMSEY	**STANDARD DETAILS** HYDRANT
		CITY PLATE No. **WAT–3**



WATER SERVICE
NTS

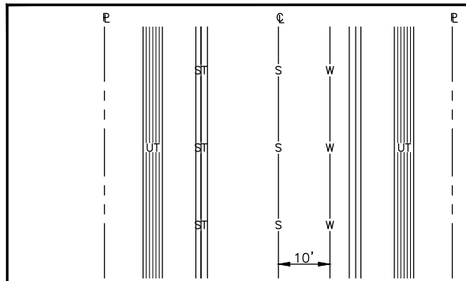
APPROVED		
DATE 7–93	City of RAMSEY	**STANDARD DETAILS** WATER SERVICE
		CITY PLATE No. **WAT–4**





NOTES: 1) SHEETS ARE 2 INCHES BY 4 FEET BY 8 FEET
2) SURFACE PREPARATION SHALL BE SMOOTH AND ROCK FREE
3) JOINTS WILL BE OVERLAPPED BY 4 FEET
4) POLYSTYRENE INSULATION OR APPROVED EQUAL

APPROVED		
DATE 4–2005	City of RAMSEY	**STANDARD DETAILS** UTILITY INSULATION
		CITY PLATE No. **WAT–5**



LEGEND

— S — SANITARY SEWER
— ST — STORM SEWER
— W — WATERMAIN
UT UTILITY TRENCH
℄ PROPERTY LINE
℄ CENTERLINE OF STREET

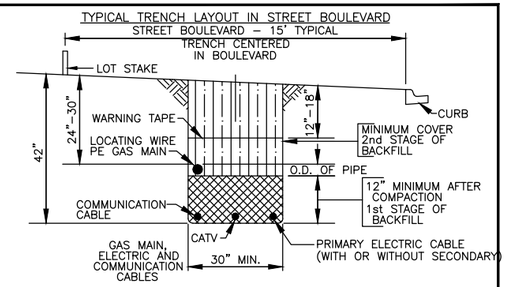
NOTES:

- WATERMAIN SHALL BE LOCATED NORTH & EAST OF CENTERLINE.
- UTILITY TRENCH SHALL BE A COMMON BURY FOR ELECTRIC, GAS, COMMUNICATIONS & CABLE TV.
- THE COMMON BURY TRENCH SHALL BE LOCATED IN THE CENTER OF THE BOULEVARD BETWEEN BACK OF CURB & THE PROPERTY LINE.
- STORM SEWER SHALL BE LOCATED BENEATH THE CURB, PREFERABLY PLACED ON THE STREET SIDE OPPOSITE TO THE WATERMAIN.
- SEE DETAILS FOR MINIMUM DEPTH LOCATIONS.

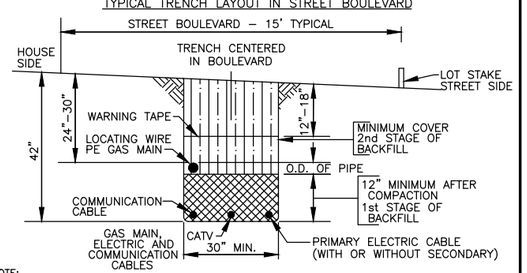
UTILITY LOCATIONS
N.T.S.

APPROVED		
DATE 7–96	City of RAMSEY	**STANDARD DETAILS** UTILITY LOCATIONS
		CITY PLATE No. **UTL–1**

TYPICAL TRENCH LAYOUT IN STREET BOULEVARD
STREET BOULEVARD – 15' TYPICAL
TRENCH CENTERED IN BOULEVARD



TYPICAL TRENCH LAYOUT IN STREET BOULEVARD
STREET BOULEVARD – 15' TYPICAL
TRENCH CENTERED IN BOULEVARD



NOTE:
TRENCH AND UTILITY LOCATIONS SHALL CORRESPOND WITH STREET SERIES LAYOUT AND CONNEXUS PLANS.

TYPICAL TRENCH LOCATIONS
N.T.S.

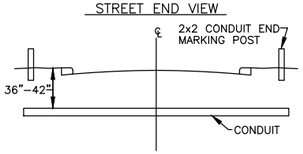
APPROVED		
DATE 7–96	City of RAMSEY	**STANDARD DETAILS** TYPICAL TRENCH LOCATIONS
		CITY PLATE No. **UTL–2**

CONDUIT INSTALLATION GUIDE

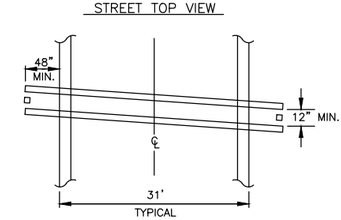
REQUIREMENTS:

1. Conduit(s) shall be 4" PVC Schedule 40 unless otherwise noted.
2. Depth of conduit(s) shall be 36" to 42".
3. Extend conduit(s) a minimum of 48" beyond curb and mark ends with a 2x2 marking post.
4. If multiple conduit(s) are needed, they shall be separated by a minimum of 12".
5. At street intersections, install the conduit(s) in line with utility trench line which is 7' from lot line (See drawing of street intersection on back of this spec).

STREET END VIEW



STREET TOP VIEW



CONDUIT INSTALLATION
N.T.S.

APPROVED		
DATE 7–96	City of RAMSEY	**STANDARD DETAILS** CONDUIT INSTALLATION
		CITY PLATE No. **UTL–3**

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Kevin. P. Kielb
Kevin. P. Kielb LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

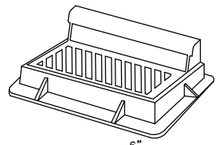
BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

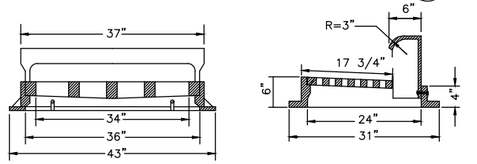
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
WATERMAIN DETAILS

SHEET 8 OF 44

NOTE:
1. CATCH BASIN CASTING SHALL BE NEENAH R-3246R APPROVED EQUAL





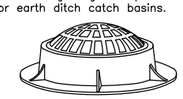
STANDARD CATCHBASIN CASTING
N.T.S.

APPROVED		STANDARD DETAILS
DATE 2-2007	City of RAMSEY	STORMWATER CASTINGS
		CITY PLATE No. STO-2

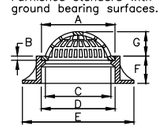
R-2560 Series
Beehive Grates with Frames

Suitable for drainage in circumstances where clogging of a flat grating is a problem. Excellent for roadside or earth ditch catch basins.

Furnished standard with ground bearing surfaces.

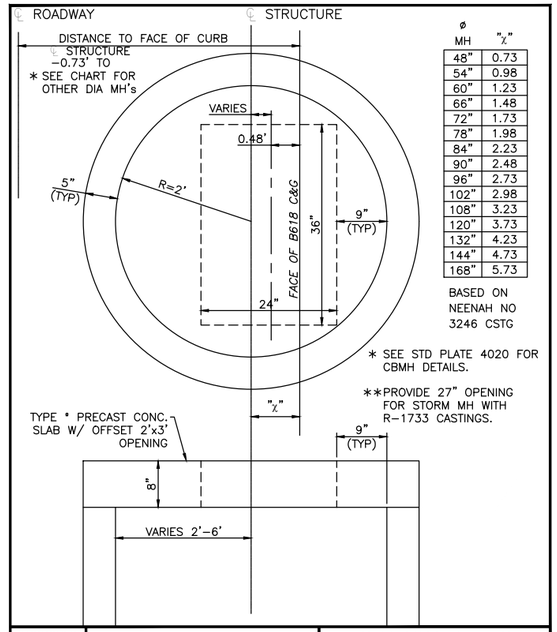


Illustrating R-2560-E



Catalog No.	Dimensions in inches							Wt. LBS
	A	B	C	D	E	F	G	
R-2560-A	12	1	11	12 1/2	19	4	4	80
R-2560-B	15 1/2	1 1/4	15	15	21	5	3	120
R-2560-C	18	1 1/4	16 1/2	20 1/2	30	8	4	190
R-2560-C1	22	1 1/2	20	23	28	4	4 1/2	195
R-2560-C2	22	1 1/2	20 1/2	24	28 1/4	6	4 1/2	270
R-2560-D	22	1 1/2	20	24 1/2	35	9	4 1/2	315
R-2560-D1	22	1 1/2	20	23	28 1/4	4	7	210
R-2560-D2	22	1 1/2	20 1/2	24	35	6	7	285
R-2560-D3	22	1 1/2	20	24 1/2	36	9	7	345
R-2560-E	23	1 1/2	21	25 1/2	35 1/2	9	7	340
R-2560-EA	25 3/4	7/8	24 1/8	26 1/2	35 1/2	4	6	235
R-2560-EB	25 3/4	7/8	24 1/8	26 1/2	35 1/2	4	9	255
R-2560-E1	25 3/4	7/8	24 1/8	26 1/2	35 1/2	7	6	285
R-2560-E2	25 3/4	7/8	24 1/8	26 1/2	35 1/2	7	9	300
R-2560-E5	25 3/4	7/8	24 1/8	26 1/2	35 1/2	8	6	345
R-2560-E6	25 3/4	7/8	24 1/8	26 1/2	35 1/2	8	9	365
R-2560-E7	25 3/4	7/8	24 1/8	26 1/2	35 1/2	9	6	350
R-2560-E8	25 3/4	7/8	24 1/8	26 1/2	35 1/2	9	9	365
R-2560-E9	25 3/4	7/8	24 1/8	26 1/2	35 1/2	10	6	360
R-2560-E10	25 3/4	7/8	24 1/8	26 1/2	35 1/2	10	9	385
R-2560-G	32	1 1/2	30	36	46	7	4	535

APPROVED		STANDARD DETAILS
DATE 2-2007	City of RAMSEY	STORMWATER CASTINGS
		CITY PLATE No. STO-2



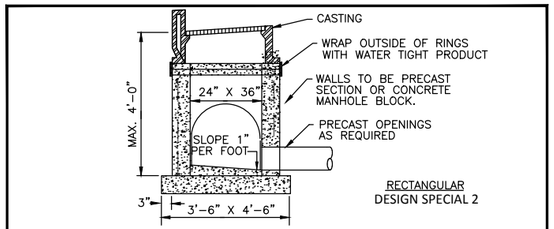
Ø MH	"X"
48"	0.73
54"	0.98
60"	1.23
66"	1.48
72"	1.73
78"	1.98
84"	2.23
90"	2.48
96"	2.73
102"	2.98
108"	3.23
120"	3.73
132"	4.23
144"	4.73
168"	5.73

BASED ON NEENAH NO 3246 CSTG

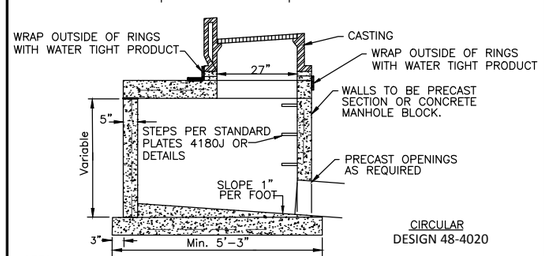
* SEE STD PLATE 4020 FOR CBMH DETAILS.

**PROVIDE 27" OPENING FOR STORM MH WITH R-1733 CASTINGS.

APPROVED		STANDARD DETAILS
DATE 4-2005	City of RAMSEY	SLAB TOP MANHOLE DESIGN SPECIAL 1
		CITY PLATE No. STO-5



RECTANGULAR
DESIGN SPECIAL 2

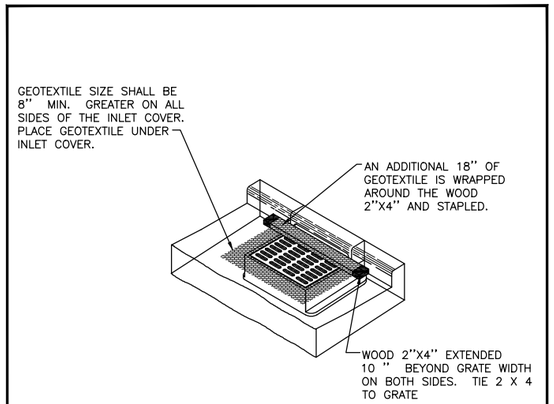


CIRCULAR
DESIGN 48-4020

NOTES:

1. MANHOLE INVERT SHALL SLOPED TO PROVIDE A SMOOTH FLOW FROM INLET TO OUTLET
2. CONCRETE BASE SHALL BE 6" POURED IN PLACE OR 5" PRECAST SLAB.
3. CONCRETE ADJUSTING RINGS TO BE INSTALLED MAX.7-2" RINGS, MIN 2-2" RINGS
4. GROUT BETWEEN RINGS
5. SHIMS USED FOR LEVELING SHALL BE METAL OR CONCRETE
6. A 10 GAGE SOLID COPPER TRACER WIRE IS REQUIRED WITH ALL SEWER LINES
7. CONDUCTIVITY IS REQUIRED ON ALL TRACER WIRE
8. STEPS ARE REQUIRED IF STRUCTURE FROM THE CASTING TO THE INVERT IS GREATER THAN 4 FEET
9. TRACER WIRES ARE TO END IN STRUCTURES, AT FINISHED GRADE ON ALL SERVICES AND STUBS

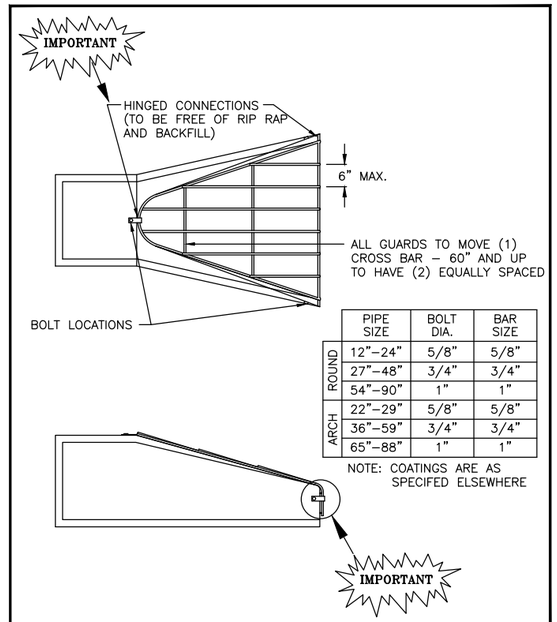
APPROVED		STANDARD DETAILS
DATE 4-2007	City of RAMSEY	CATCH BASIN
		CITY PLATE No. STO-7



GEOTEXTILE FILTER AT STREET INLET WITH CURB BOX
(TYPE III SPEC. 3733)

STREET INLET CONTROL DEVICE
N.T.S.

APPROVED		STANDARD DETAILS
DATE 10-2005	City of RAMSEY	STREET INLET CONTROL DEVICE
		CITY PLATE No. STO-11



	PIPE SIZE	BOLT DIA.	BAR SIZE
ROUND	12"-24"	5/8"	5/8"
	27"-48"	3/4"	3/4"
	54"-90"	1"	1"
ARCH	22"-29"	5/8"	5/8"
	36"-59"	3/4"	3/4"
	65"-88"	1"	1"

NOTE: COATINGS ARE AS SPECIFED ELSEWHERE

APPROVED		STANDARD DETAILS
DATE 2-2006	City of RAMSEY	TRASH GUARD
		CITY PLATE No. STO-8

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

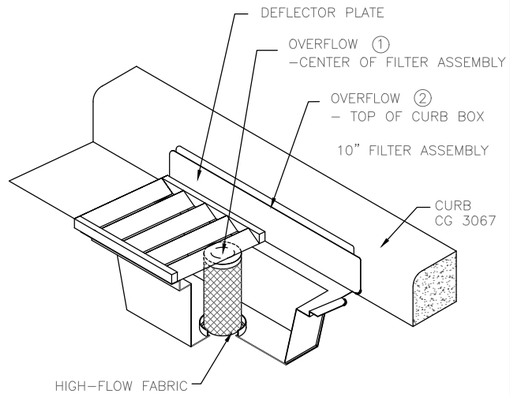
DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
STORM SEWER DETAILS

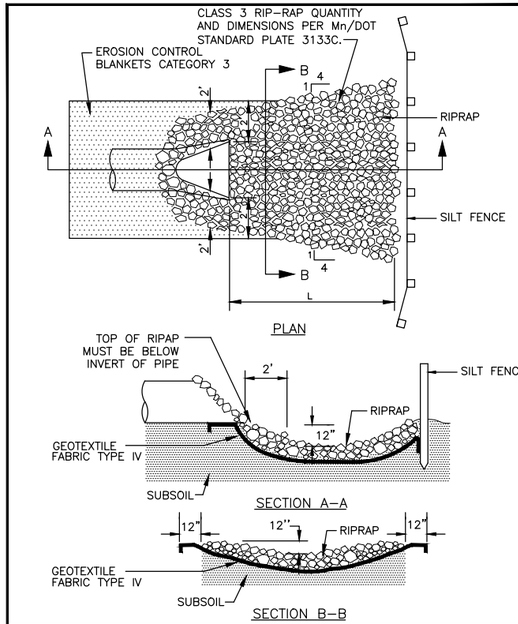


INLET PROTECTION
- WIMCO CURB AND GUTTER 3067
- LANGE INDUSTRIES STANDARD CURB IPD
- ADS FLEXSTORM CATCH–IT
- OR APPROVED EQUAL

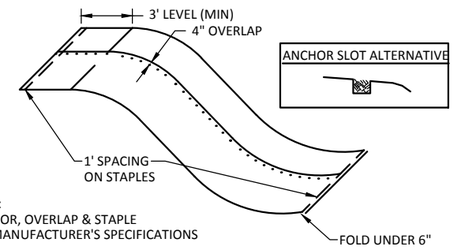
NOTE: N.T.S.

THIS INLET PROTECTION SHALL BE USED IMMEDIATELY FOLLOWING CURB & GUTTER CONSTRUCTION. INLET PROTECTION SHALL REMAIN INSTALLED AND MAINTAINTED UNTIL ALL HOME CONSTRUCTION IS COMPLETE.

APPROVED		STANDARD DETAILS
DATE 9–2011	City of RAMSEY	CITY PLATE No. STM–16

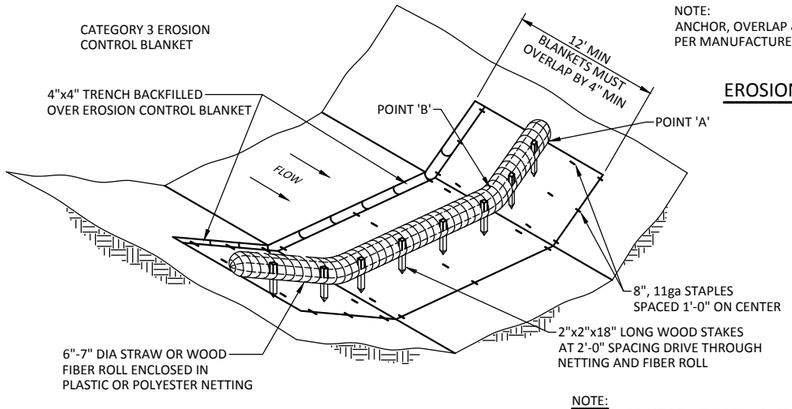


APPROVED		STANDARD DETAILS SEDIMENT CONTROL AT PIPE
DATE 2–2006	City of RAMSEY	CITY PLATE No. STO–9



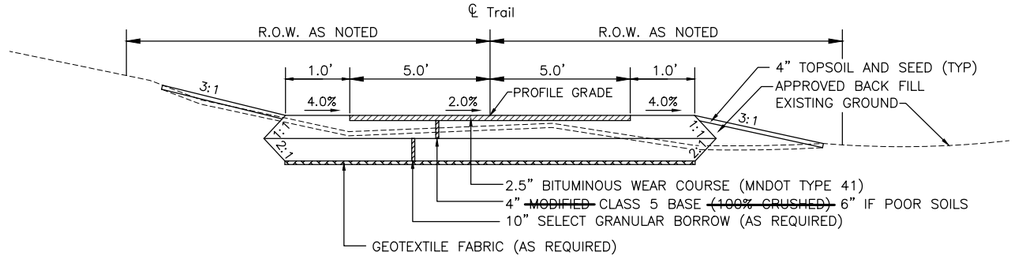
NOTE:
ANCHOR, OVERLAP & STAPLE PER MANUFACTURER'S SPECIFICATIONS

EROSION CONTROL BLANKET INSTALLATION
NOT TO SCALE

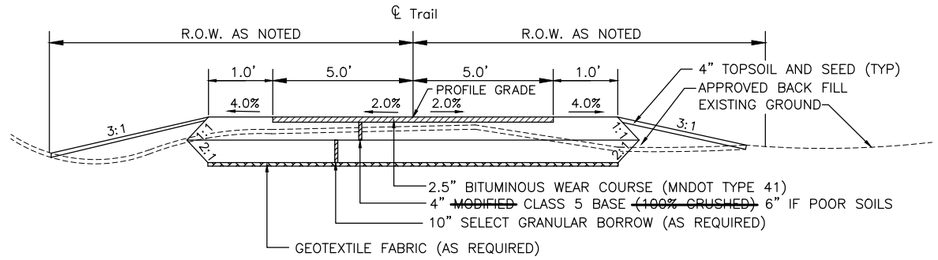


NOTE:
POINT 'A' MUST BE 1'-0" MIN HIGHER THAN POINT 'B' TO ENSURE THAT WATER FLOWS OVER THE DITCH CHECK AND NOT AROUND THE ENDS

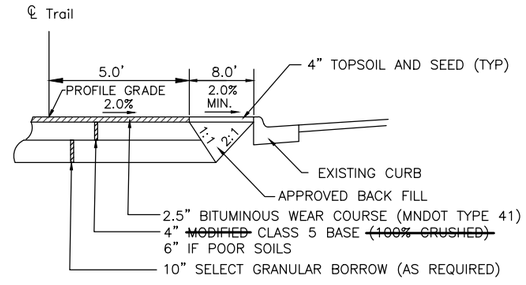
DITCH CHECK - BIOROLL
NOT TO SCALE



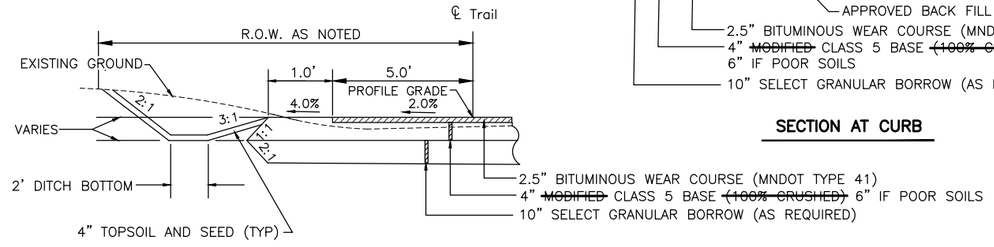
TYPICAL SECTION A



TYPICAL SECTION B



SECTION AT CURB



DITCH SECTION

NOTES:
APPROVED TOPSOIL MUST MEET ORGANIC CONTENT SPECIFICATIONS FOR ENTIRE BOULEVARD IN AREAS INCLUDING BOULEVARD TREES

APPROVED		STANDARD DETAILS TRAIL SPECIFICATIONS
DATE 1–2004	City of RAMSEY	CITY PLATE No. PARK 1

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

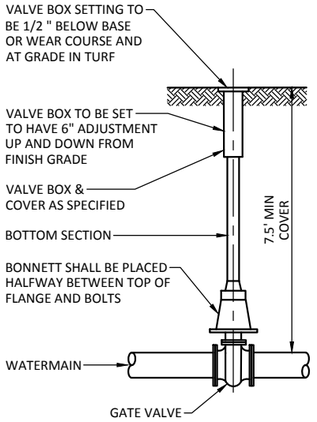
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

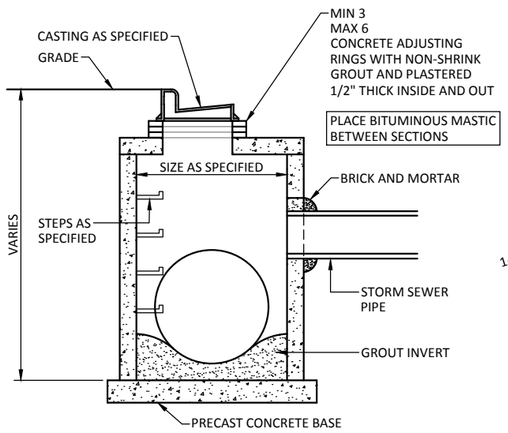
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
DETAILS

SHEET 10 OF 44

NOTES:
1. VALVE BOX SHALL BE CENTERED ON OPERATING NUTS, STRAIGHT, FREE FROM DEBRIS, AND ALL SECTIONS UNBROKEN
2. VALVES IN EASEMENTS SHALL HAVE CHANNEL POST WITNESS MARKERS WITH REFLECTIVE "GV" SIGN
3. DEEP VALVES SHALL HAVE NUT EXTENSIONS INSTALLED TO ELEVATION TO ACCOMMODATE STANDARD 10' KEY; BOTTOM NUT SHALL BE BOLTED TO VALVE NUT AND ONLY ONE SECTION
4. COMPACTION WITH MECHANICAL TAMPER AROUND VALVE BOX SHALL BE PLACED AND COMPACTED WITH 2' LIFTS TO ACHIEVE 95% COMPACTION
5. GATE VALVES LOCATED WITHIN THE CONCRETE SIDEWALK SHALL INCLUDE A METAL SEPARATOR BETWEEN THE VALVE BOX AND THE CONCRETE

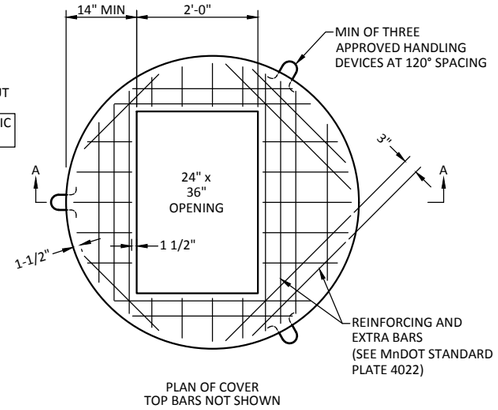


GATE VALVE BOX INSTALLATION
NOT TO SCALE

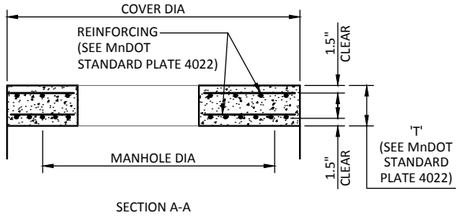


TYPICAL DESIGN 4022 CATCH BASIN

NOTES:
1. AASHTO HS 25 LOADING MAX FILL HEIGHT 15'
2. THE # 4022 SHALL BE PERMANENTLY MARKED ON THE TOP COVER
3. EQUIVALENT STEEL AREAS IN WIRE MESH MAY BE USED
4. REINFORCEMENT PER SPEC 3301, GRADE 60 A SINGLE HOOP OF 8ga STEEL WIRE



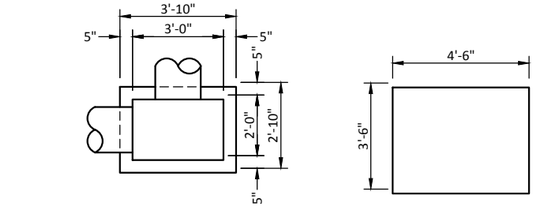
PLAN OF COVER
TOP BARS NOT SHOWN

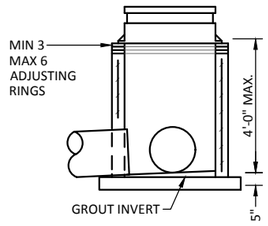


SECTION A-A

DESIGNATION:
DESIGN DIAMETER - STANDARD PLATE #
DESIGN 48-4020

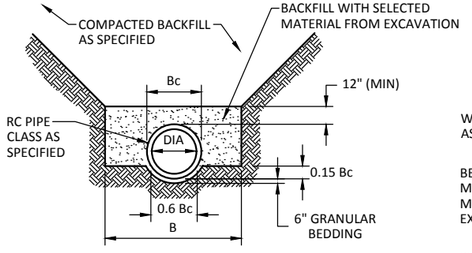
DRAINAGE STRUCTURE DESIGN SPECIAL 1
NOT TO SCALE





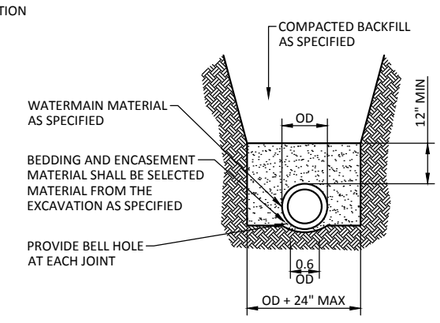
NOTES:
1. CASTING PER CONSTRUCTION DOCUMENTS
2. PIPE CUT-OUTS PER CONSTRUCTION DOCUMENTS
3. ALTERNATE CAST-IN-PLACE BASE CAN BE USED
4. MIN REINFORCING SHALL BE WIRE FABRIC HAVING AN AREA OF NOT LESS THAN 0.12 SQ IN PER FOOT IN BOTH DIRECTIONS

DRAINAGE STRUCTURE DESIGN SPECIAL 2
NOT TO SCALE

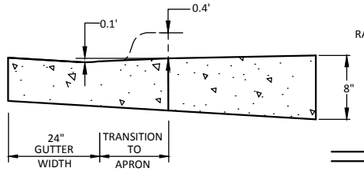


PIPE DIA	B
36" OR LESS	B + 24"$_C$
42" TO 54"	1.5 X Bc
60" OR OVER	B + 36"$_C$

RC PIPE CLASS "B" BEDDING
NOT TO SCALE

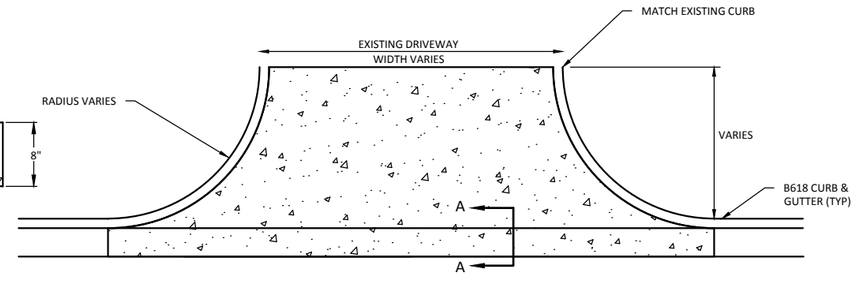


DIP WATERMAIN TRENCH
NOT TO SCALE

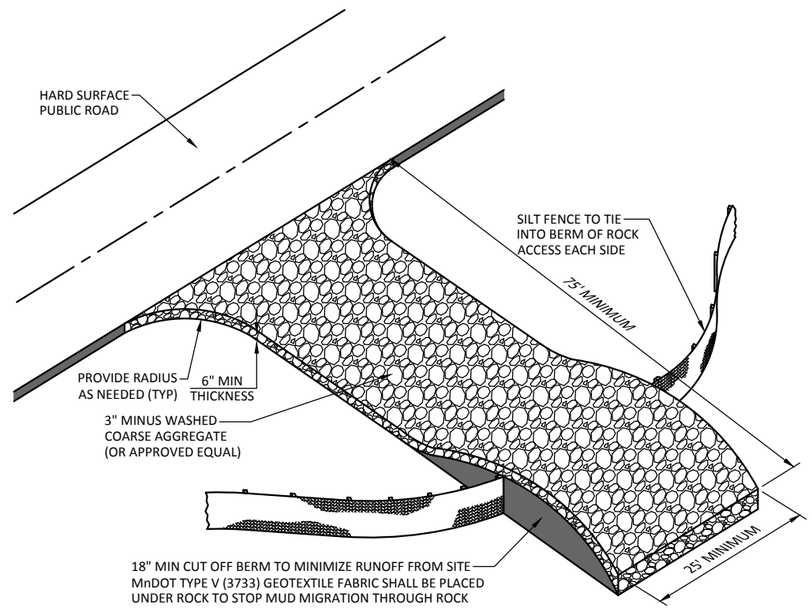


SECTION A-A
NOT TO SCALE

NOTE:
1. 8" CONCRETE W/4" CL. 5 BASE SHALL MAKE UP THE DRWY SECTION



CONCRETE DRIVEWAY APRON
NOT TO SCALE



STABILIZED CONSTRUCTION EXIT
NOT TO SCALE

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

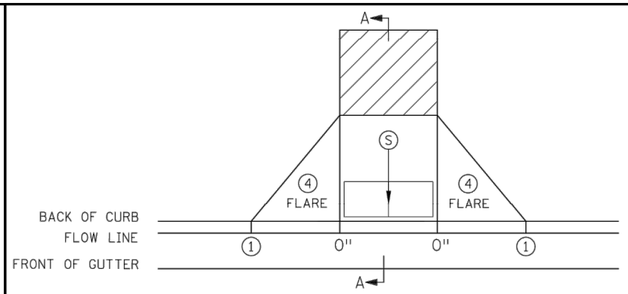
BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

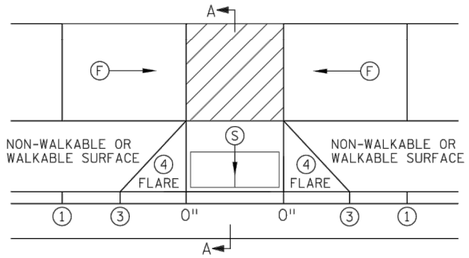
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
DETAILS

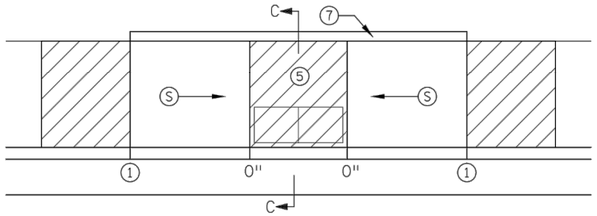
SHEET 11 OF 44



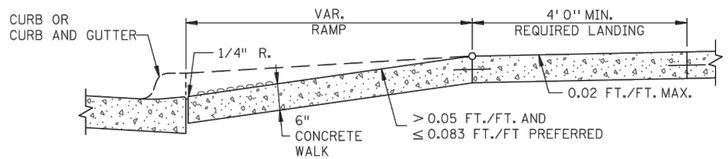
PERPENDICULAR



TIERED PERPENDICULAR

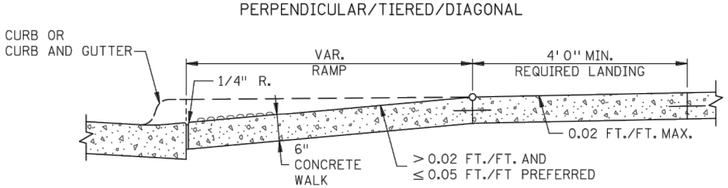


PARALLEL



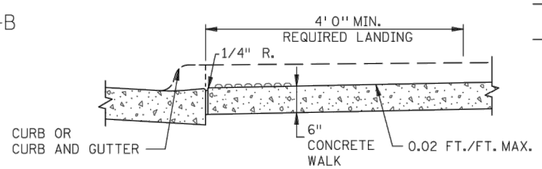
SECTION A-A

PERPENDICULAR/TIERED/DIAGONAL



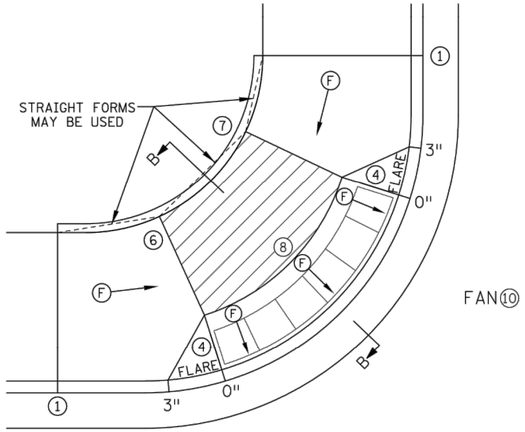
SECTION B-B

FAN

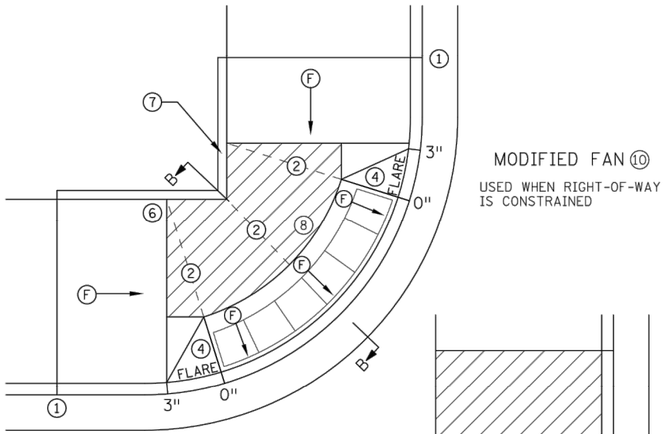


SECTION C-C

PARALLEL/DEPRESSED CORNER

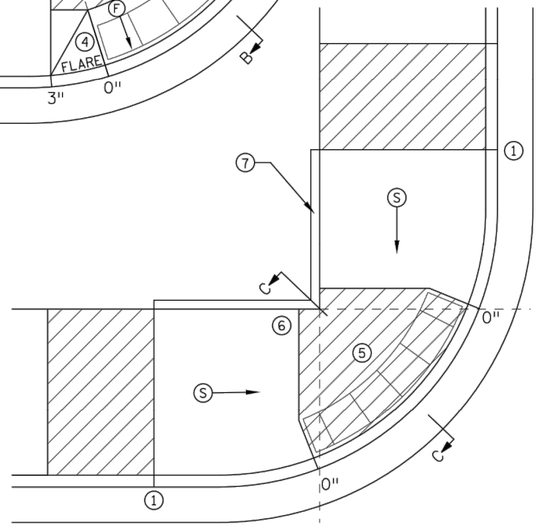


FAN (10)

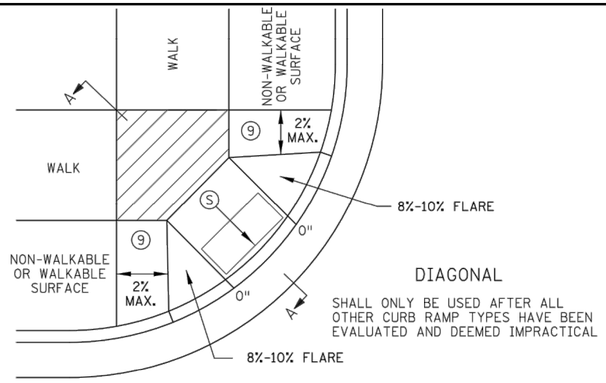


MODIFIED FAN (10)

USED WHEN RIGHT-OF-WAY IS CONSTRAINED



DEPRESSED CORNER



DIAGONAL

SHALL ONLY BE USED AFTER ALL OTHER CURB RAMP TYPES HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE GREATER THAN 2%.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL RUNNING SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH. (EXCEPT AS STATED IN (6) BELOW.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISIONS - PROSECUTION OF WORK (ADA).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATHS AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/TRAIL WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RECTANGULAR DETECTABLE WARNINGS SHALL BE SETBACK 3" FROM THE BACK OF CURB. RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB.

(1) MATCH FULL HEIGHT CURB.
(2) 4' MINIMUM DEPTH LANDING REQUIRED ACROSS TOP OF RAMP.
(3) 3" HIGH CURB WHEN USING A 3' LONG RAMP, 4" HIGH CURB WHEN USING A 4' LONG RAMP.
(4) SEE SHEET 4 OF 6, TYPICAL SIDE TREATMENT OPTIONS, FOR DETAILS ON FLARES AND RETURNED CURBS, WHEN INITIAL LANDING IS AT FULL CURB HEIGHT.
(5) DETECTABLE WARNINGS MAY BE PART OF THE 4' X 4' MIN. LANDING AREA IF IT IS NOT FEASIBLE TO CONSTRUCT THE LANDING OUTSIDE OF THE DETECTABLE WARNING AREA.
(6) THE GRADE BREAK SHALL BE PERPENDICULAR TO THE BACK OF WALK. THIS WILL ENSURE THAT THE GRADE BREAK IS PERPENDICULAR TO THE DIRECTION OF TRAVEL. (TYPICAL FOR ALL)
(7) WHEN ADJACENT TO GRASS, GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.
(8) A 7' MIN TOP RADIUS GRADE BREAK REQUIRED TO BE CONSTRUCTIBLE.
(9) PAVE FULL WALK WIDTH.
(10) "S" SLOPES ON FANS SHALL ONLY BE USED WHEN ALL OTHER FEASIBLE OPTIONS HAVE BEEN EVALUATED AND DEEMED IMPRACTICAL.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

REVISED:

STATE DESIGN ENGINEER

APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 1 OF 6

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

DESIGNED	DRAWN	CHECKED
JWC	ZFL	JWC

City of RAMSEY

BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

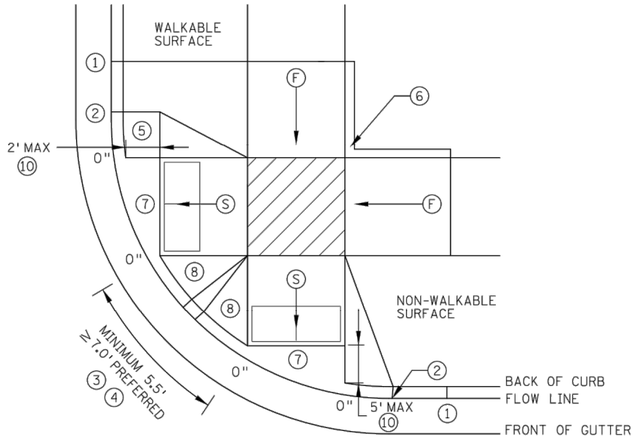
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

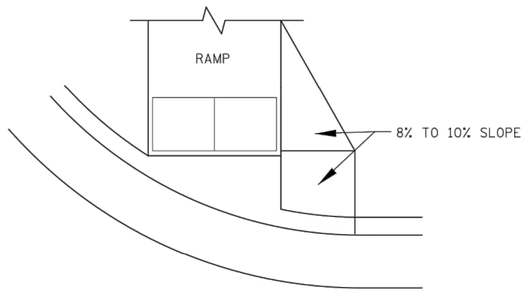
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

PEDESTRIAN CURB RAMP DETAILS

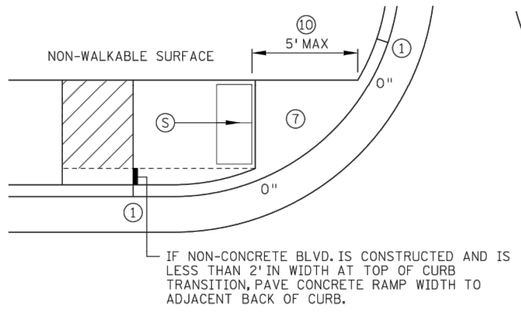
SHEET 12 OF 44



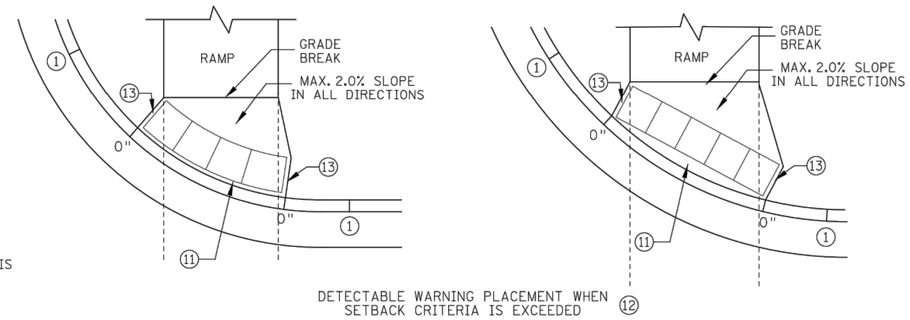
COMBINED DIRECTIONAL ⑨



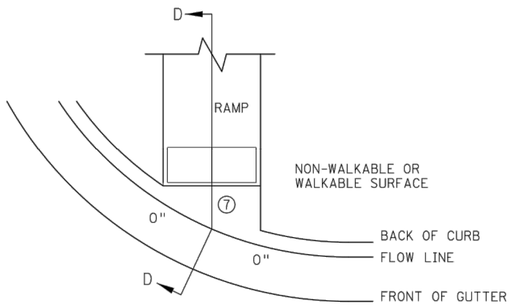
DIRECTIONAL RAMP WALKABLE FLARE



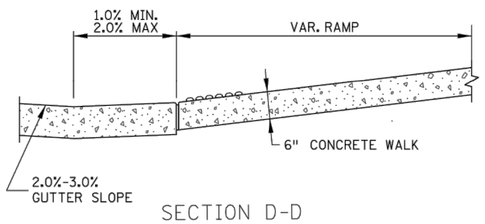
STANDARD ONE-WAY DIRECTIONAL ⑨



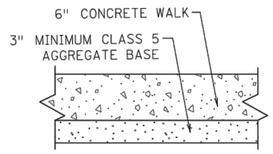
ONE-WAY DIRECTIONAL WITH DETECTABLE WARNING AT BACK OF CURB



CURB FOR DIRECTIONAL RAMPS ⑭



SECTION D-D



TYPICAL SIDEWALK SECTION WITHIN INTERSECTION CORNER

NOTES:

LANDINGS SHALL BE LOCATED ANYWHERE THE PEDESTRIAN ACCESS ROUTE (PAR) CHANGES DIRECTION, AT THE TOP OF RAMPS THAT HAVE RUNNING SLOPES GREATER THAN 5.0%, AND IF THE APPROACHING WALK IS INVERSE GRADE.

INITIAL CURB RAMP LANDINGS SHALL BE CONSTRUCTED WITHIN 15' FROM THE BACK OF CURB, WITH 6' FROM THE BACK OF CURB BEING THE PREFERRED DISTANCE, ONLY APPLICABLE WHEN THE INITIAL RAMP RUNNING SLOPE IS OVER 5.0%.

SECONDARY CURB RAMP LANDINGS ARE REQUIRED FOR EVERY 30" OF VERTICAL RISE WHEN THE LONGITUDINAL SLOPE IS GREATER THAN 5.0%.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PAR. 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOP GRADE BREAK OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

ALL GRADE BREAKS WITHIN THE PAR SHALL BE PERPENDICULAR TO THE PATH OF TRAVEL. THUS BOTH SIDES OF A SLOPED WALKING SURFACE MUST BE EQUAL LENGTH.

TO ENSURE INITIAL RAMPS AND INITIAL LANDINGS ARE PROPERLY CONSTRUCTED, LANDINGS SHALL BE CAST SEPARATELY. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON SHEET 6 AND THE ADA SPECIAL PROVISION (PROSECUTION OF WORK).

TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

WHEN THE BOULEVARD IS 4' WIDE OR LESS, THE TOP OF CURB TAPER SHALL MATCH THE RAMP SLOPES TO REDUCE NEGATIVE BOULEVARD SLOPES FROM THE TOP BACK OF CURB TO THE PAR.

ALL RAMP TYPES SHOULD HAVE A MINIMUM 3' LONG RAMP LENGTH.

4' MINIMUM WIDTH OF DETECTABLE WARNING IS REQUIRED FOR ALL RAMPS. DETECTABLE WARNINGS SHALL CONTINUOUSLY EXTEND FOR A MIN. OF 24" IN THE PATH OF TRAVEL. DETECTABLE WARNING TO COVER ENTIRE WIDTH OF SHARED-USE PATH AND THE ENTIRE PAR WIDTH OF THE WALK. DETECTABLE WARNING SHOULD BE 6" LESS THAN THE PAR/PATH WIDTH. ARC LENGTH OF RADIAL DETECTABLE WARNINGS SHOULD NOT BE GREATER THAN 20 FEET.

RADIAL DETECTABLE WARNINGS SHALL BE SETBACK 3" MINIMUM TO 6" MAXIMUM FROM THE BACK OF CURB. SEE NOTES ⑩ & ⑪ FOR INFORMATION REGARDING RECTANGULAR DETECTABLE WARNING PLACEMENT.

① MATCH FULL CURB HEIGHT.

② 3" HIGH CURB WHEN USING A 3' LONG RAMP
4" HIGH CURB WHEN USING A 4' LONG RAMP.

③ 3" MINIMUM CURB HEIGHT (5.5' MIN. DISTANCE REQUIRED BETWEEN DOMES)
4" PREFERRED (7' MIN. DISTANCE REQUIRED BETWEEN DOMES).

④ THE "BUMP" IN BETWEEN THE RAMPS SHOULD NOT BE IN THE PATH OF TRAVEL FOR COMBINED DIRECTIONAL RAMPS. IF THIS OCCURS MODIFY THE RAMP LOCATION OR SWITCH RAMP TO A FAN/DEPRESSED CORNER.

⑤ WHEN USING CONCRETE PAVED FLARES ON THE OUTSIDE OF DIRECTIONAL RAMPS, AND ADJACENT TO A WALKABLE SURFACE, DIRECTIONAL RAMP FLARES SHOULD BE USED. SEE THE DETAIL ON THIS SHEET.

⑥ GRADING SHALL ALWAYS BE USED WHEN FEASIBLE. V CURB, IF USED, SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS. WHEN ADJACENT TO PARKING LOTS, CONCRETE OR BITUMINOUS TAPERS SHOULD BE USED OVER V CURB TO REDUCE TRIPPING HAZARDS AND FACILITATE SNOW & ICE REMOVAL.

⑦ MAX. 2.0% SLOPE IN ALL DIRECTIONS IN FRONT OF GRADE BREAK AND DRAIN TO FLOW LINE. SHALL BE CONSTRUCTED INTEGRAL WITH CURB AND GUTTER.

⑧ 8% TO 10% WALKABLE FLARE.

⑨ PLACE DOMES AT THE BACK OF CURB WHEN ALLOWABLE SETBACK CRITERIA IS EXCEEDED.

⑩ FRONT EDGE OF DETECTABLE WARNING SHALL BE SET BACK 2' MAXIMUM WHEN ADJACENT TO WALKABLE SURFACE, AND 5' MAXIMUM WHEN ADJACENT TO NON-WALKABLE SURFACE WITH ONE CORNER SET 3" FROM BACK OF CURB. A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

⑪ RECTANGULAR DETECTABLE WARNINGS MAY BE SETBACK UP TO 9" FROM THE BACK OF CURB WITH CORNERS SET 3" FROM BACK OF CURB. IF 9" SETBACK IS EXCEEDED USE RADIAL DETECTABLE WARNINGS.

⑫ FOR DIRECTIONAL RAMPS WITH THE DETECTABLE WARNINGS PLACED AT THE BACK OF CURB, THE DETECTABLE WARNINGS SHALL COVER THE ENTIRE WIDTH OF THE WALK/PATH. THIS ENSURES A DETECTABLE EDGE AND HELPS ELIMINATE THE CURB TAPER OBSTRUCTING THE PATH OF PEDESTRIAN TRAVEL.

⑬ THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE BACK OF CURB. MAINTAIN 3" BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑭ TO BE USED FOR ALL DIRECTIONAL RAMPS, EXCEPT WHERE DOMES ARE PLACED ALONG THE BACK OF CURB.

LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

(F) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

X" CURB HEIGHT

REVISION:

APPROVED: JANUARY 23, 2017
OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION
STATE DESIGN ENGINEER

REVISED:

APPROVED: 1-23-2017

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 2 OF 6

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

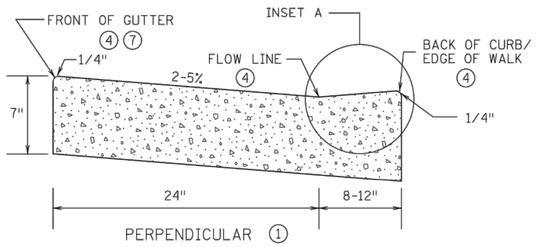
BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

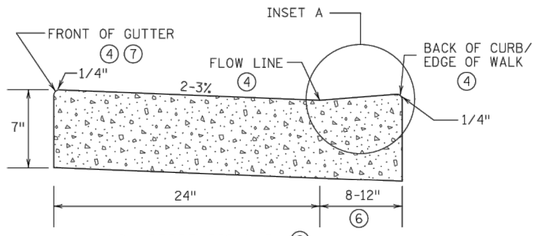
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
PEDESTRIAN CURB RAMP DETAILS

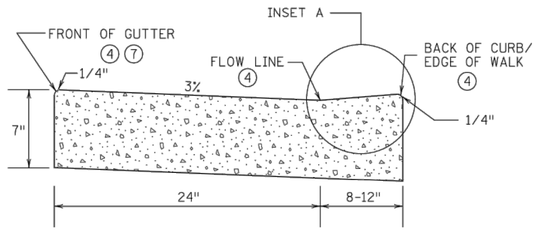
SHEET 13 OF 44



PERPENDICULAR ①

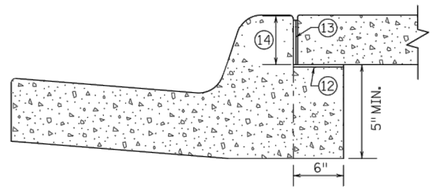


NON PERPENDICULAR ②



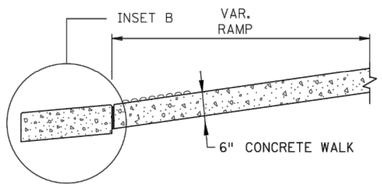
FOR CURB MACHINE PLACEMENT AROUND RADIUS ③
(REGARDLESS OF RAMP TYPE)

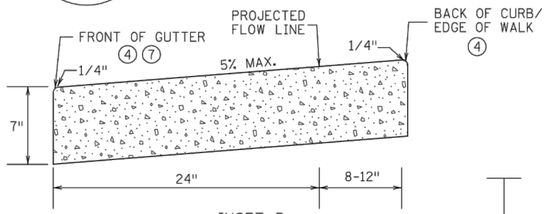
PEDESTRIAN ACCESS ROUTE CURB & GUTTER DETAIL



OPTIONAL SILL CURB WHEN SIDEWALK IS AT BACK OF CURB

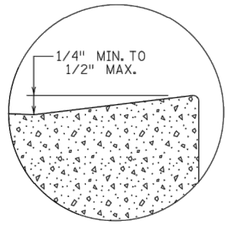
CONCRETE SILL TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.



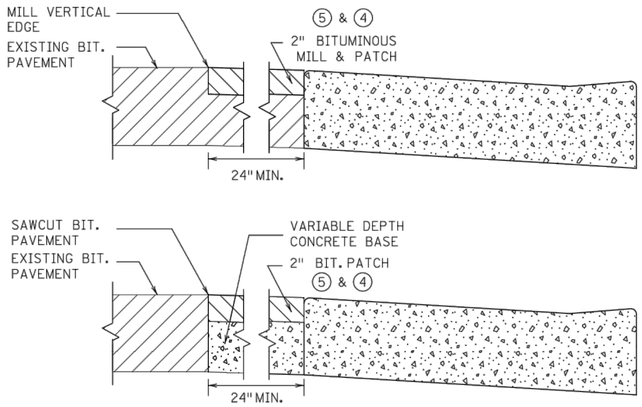


INSET B

OUTFLOW GUTTER ⑧



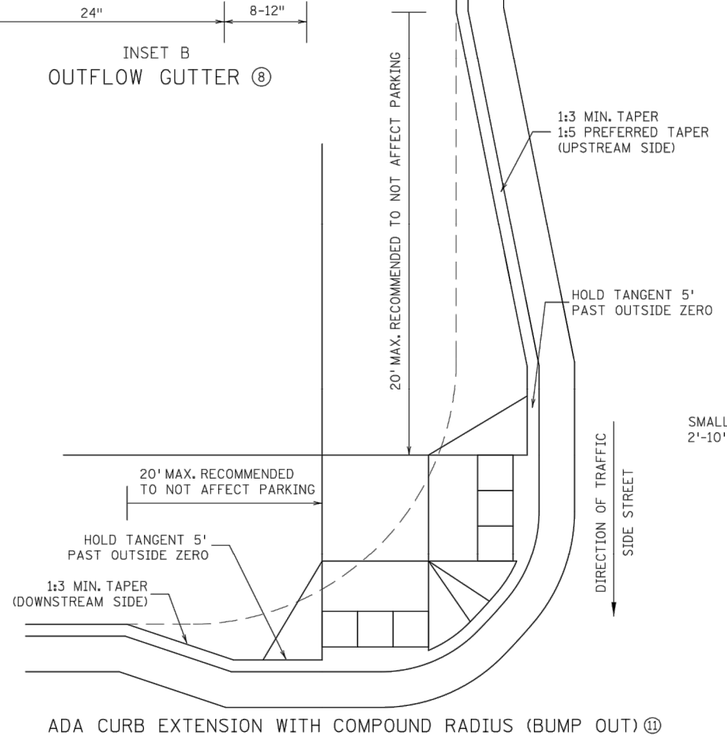
INSET A



ONLY ALLOWED PER ENGINEER'S APPROVAL

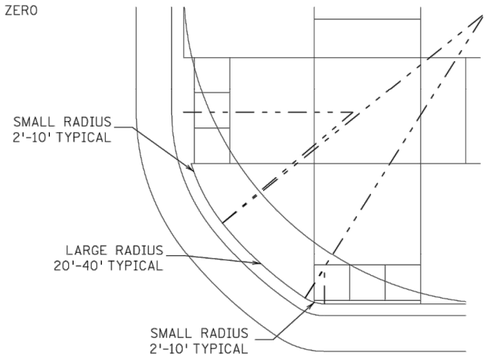
PAVEMENT TREATMENT OPTIONS IN FRONT OF CURB & GUTTER

FOR USE ON CURB RAMP RETROFITS



ADA CURB EXTENSION WITH COMPOUND RADIUS (BUMP OUT) ⑪

DIRECTION OF TRAFFIC
MAIN STREET



COMBINED DIRECTIONAL ⑩
(COMPOUND RADIUS)

NOTES:

POSITIVE FLOW LINE DRAINAGE SHALL BE MAINTAINED THROUGH THE PEDESTRIAN ACCESS ROUTE (PAR) AT A 2% MAXIMUM.

NO PONDING SHALL BE PRESENT IN THE PAR.

ANY VERTICAL LIP THAT OCCURS AT THE FLOW LINE SHALL NOT BE GREATER THAN 1/4 INCH.

① FOR USE AT CURB CUTS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: PERPENDICULAR, TIERED PERPENDICULAR, PARALLEL, AND DIAGONAL RAMPS.

② FOR USE AT CURB RAMPS WHERE THE PEDESTRIAN'S PATH OF TRAVEL IS ASSUMED NON PERPENDICULAR TO THE GUTTER FLOW LINE. RAMP TYPES INCLUDE: FANS & DEPRESSED CORNERS.

③ BEGIN GUTTER SLOPE TRANSITION 10' OUTSIDE OF ALL CURB RAMPS.

④ THERE SHALL BE NO VERTICAL DISCONTINUITIES GREATER THAN 1/4".

⑤ ELEVATION CHANGE TAKES PLACE FROM THE EXISTING TO NEW FRONT OF GUTTER. PATCH IS USED TO MATCH THE NEW GUTTER FACE INTO THE EXISTING ROADWAY.

⑥ VARIABLE WIDTH FOR DIRECTIONAL CURB APPLICATIONS. SEE SHEET 2 FOR DIRECTIONAL CURB SLOPE REQUIREMENTS.

⑦ TOP FRONT OF GUTTER SHALL BE CONSTRUCTED FLUSH WITH PROPOSED ADJACENT PAVEMENT ELEVATION. TOP 1.5" OF THE GUTTER FACE MUST BE A FORMED EDGE. PAR GUTTER SHALL NOT BE OVERLAID.

⑧ SHOULD BE USED AT VERTICALLY CONSTRAINED AREAS WHEN AT A DRAINAGE HIGH POINT OR SUPER ELEVATED ROADWAY SEGMENTS.

⑨ DRILL AND GROUT NO. 4 EPOXY-COATED 18" LONG TIE BARS AT 30" CENTER TO CENTER INTO EXISTING CONCRETE PAVEMENT 1' MINIMUM FROM ALL JOINTS.

⑩ HELPS PROVIDE TWO SEPARATE RAMPS, REDUCES THE DOME SETBACK LENGTH AND MINIMIZES DIRECTIONAL CURB. THIS RADIUS DESIGN CLOSELY FOLLOWS THE TURNING VEHICLE PATH WHILE OPTIMIZING CURB RAMP LENGTH.

⑪ CURB EXTENSIONS SHOULD BE USED IN VERTICALLY CONSTRAINED AREAS, USUALLY IN DOWNTOWN ROADWAY SEGMENTS WHERE ON-STREET PARKING IS AVAILABLE. CURB EXTENSIONS SHOULD BE CONSIDERED FOR APS INTERSECTIONS WHERE SPACE IS LIMITED. PUSH BUTTONS MUST MEET APS CRITERIA AS DESCRIBED IN THE PUSH BUTTON LOCATION DETAIL SHEET.

⑫ PLACE BOND BREAKER BETWEEN WALK AND TOP OF SILL.

⑬ 1/2" PREFORMED JOINT FILLER PER MNDOT SPEC. 3702.

⑭ DIMENSION TO BE SAME AS SIDEWALK THICKNESS, 4" MIN.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED:
1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 3 OF 6

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

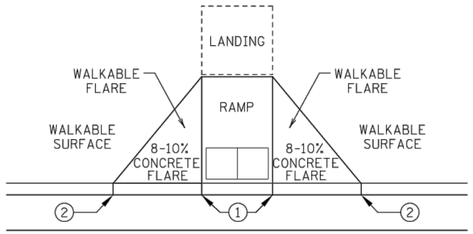
DESIGNED JWC
DRAWN ZFL
CHECKED JWC

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

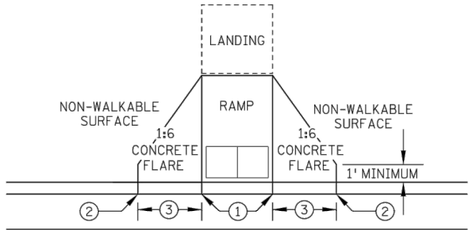
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
PEDESTRIAN CURB RAMP DETAILS

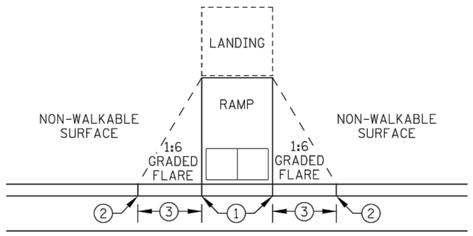
SHEET 14 OF 44



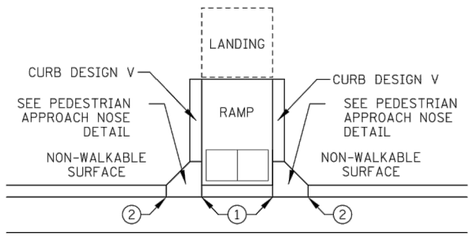
PAVED FLARES
ADJACENT TO WALKABLE SURFACE



PAVED FLARES
ADJACENT TO NON-WALKABLE SURFACE

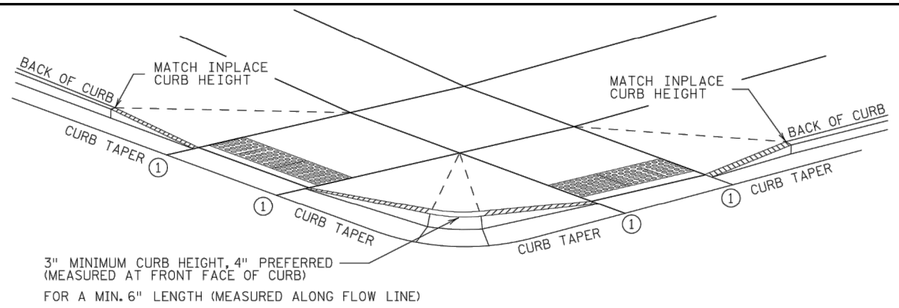


GRADED FLARES

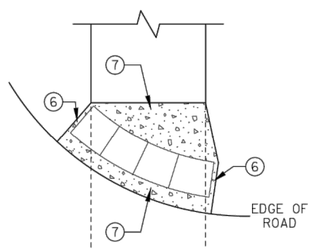


RETURNED CURB ⑤

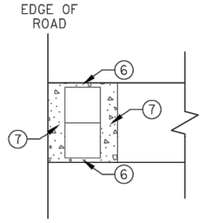
TYPICAL SIDE TREATMENT OPTIONS ④ ⑪



DETECTABLE EDGE WITH ⑧
CURB AND GUTTER

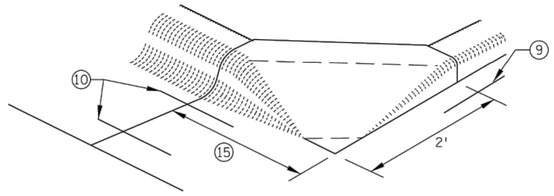


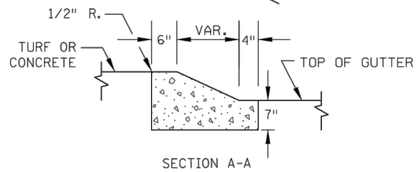
RADIAL DETECTABLE WARNING



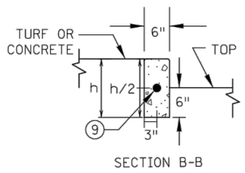
RECTANGULAR DETECTABLE WARNING

DETECTABLE EDGE WITHOUT CURB AND GUTTER

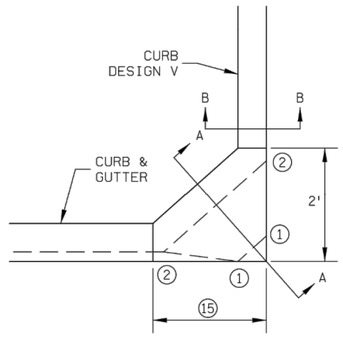




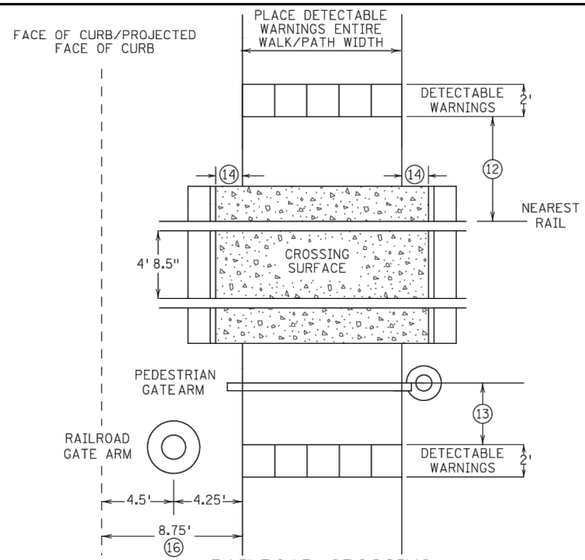
SECTION A-A



SECTION B-B



PEDESTRIAN APPROACH
NOSE DETAIL
(FOR RETURNED CURB
SIDE TREATMENT)



RAILROAD CROSSING
PLAN VIEW

NOTES:

SEE STANDARD PLATE 7038 AND THIS SHEET FOR ADDITIONAL DETAILS ON DETECTABLE WARNING.

A WALKABLE SURFACE IS DEFINED AS A PAVED SURFACE ADJACENT TO A CURB RAMP WITHOUT RAISED OBSTACLES THAT COULD MISTAKENLY BE TRAVERSED BY A USER WHO IS VISUALLY IMPAIRED.

CONCRETE FLARE LENGTHS ADJACENT TO NON-WALKABLE SURFACES SHOULD BE LESS THAN 8' LONG MEASURED ALONG THE RAMPS FROM THE BACK OF CURB.

① 0" CURB HEIGHT.

② FULL CURB HEIGHT.

③ 2' FOR 4" HIGH CURB AND 3' FOR 6" HIGH CURB.

④ SIDE TREATMENTS ARE APPLICABLE TO ALL RAMP TYPES AND SHOULD BE IMPLEMENTED AS NEEDED AS FIELD CONDITIONS DICTATE. THE ENGINEER SHALL DETERMINE THE RAMP SIDE TREATMENTS BASED ON MAINTENANCE OF BOTH ROADWAY AND SIDEWALK, ADJACENT PROPERTY CONSIDERATIONS, AND MITIGATING CONSTRUCTION IMPACTS.

⑤ TYPICALLY USED FOR MEDIANS AND ISLANDS.

⑥ WHEN NO CONCRETE FLARES ARE PROPOSED, THE CONCRETE WALK SHALL BE FORMED AND CONSTRUCTED PERPENDICULAR TO THE EDGE OF ROADWAY. MAINTAIN 3" MAX. BETWEEN EDGE OF DOMES AND EDGE OF CONCRETE.

⑦ IF NO CURB AND GUTTER IS PLACED IN RURAL SECTIONS, DETECTABLE WARNINGS SHALL BE PLACED 1' FROM THE EDGE OF BITUMINOUS ROADWAY AND/OR BITUMINOUS SHARED-USE PATH TO PROVIDE VISUAL CONTRAST.

⑧ ALL CONSTRUCTED CURBS MUST HAVE A CONTINUOUS DETECTABLE EDGE FOR THE VISUALLY IMPAIRED. THIS DETECTABLE EDGE REQUIRES DETECTABLE WARNINGS WHEREVER THERE IS ZERO-INCH HIGH CURB. CURB TAPERS ARE CONSIDERED A DETECTABLE EDGE WHEN THE TAPER STARTS WITHIN 3" OF THE EDGE OF THE DETECTABLE WARNINGS AND UNIFORMLY RISES TO A 3-INCH MINIMUM CURB HEIGHT. ANY CURB NOT PART OF A CURB TAPER AND LESS THAN 3 INCHES IN HEIGHT IS NOT CONSIDERED A DETECTABLE EDGE AND THEREFORE IS NOT COMPLIANT WITH ACCESSIBILITY STANDARDS.

⑨ DRILL AND GROUT 1 - NO. 4 12" LONG REINFORCEMENT BAR (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE V CURB.

⑩ DRILL AND GROUT 2 - NO. 4 12" LONG REINFORCEMENT BARS (EPOXY COATED) WITH 3" MIN. COVER. REINFORCEMENT BARS ARE NOT NEEDED IF THE APPROACH NOSE IS POURED INTEGRAL WITH THE CURB AND GUTTER.

⑪ SIDE TREATMENT EXAMPLES SHOWN ARE WHEN THE INITIAL LANDING IS APPROXIMATELY LEVEL WITH THE FULL HEIGHT CURB (I.E. 6' LONG RAMP FOR 6" HIGH CURB). WHEN THE INITIAL LANDING IS MORE THAN 1" BELOW FULL HEIGHT CURB REFER TO SHEETS 1 & 2 TO MODIFY THE CURB HEIGHT TAPERS AND MAINTAIN POSITIVE BOULEVARD DRAINAGE.

⑫ NEAREST EDGE OF DETECTABLE WARNING SURFACES SHALL BE PLACED 12' MINIMUM TO 15' MAXIMUM FROM THE NEAREST RAIL. FOR SKEWED RAILWAYS IN NO INSTANCE SHALL THE DETECTABLE WARNING BE CLOSER THAN 12' MEASURED PERPENDICULAR TO THE NEAREST RAIL.

⑬ WHEN PEDESTRIAN GATES ARE PROVIDED, DETECTABLE WARNING SURFACES SHALL BE PLACED ON THE SIDE OF THE GATES OPPOSITE THE RAIL, 2' FROM THE APPROACHING SIDE OF THE GATE ARM. THIS CRITERIA GOVERNS OVER NOTE ⑫.

⑭ CROSSING SURFACE SHALL EXTEND 2' MINIMUM PAST THE OUTSIDE EDGE OF WALK OR SHARED-USE PATH.

⑮ 3' FOR MEDIANS AND SPLITTER ISLANDS. NOSE CAN BE REDUCED TO 2' ON FREE RIGHT ISLANDS.

⑯ SIDEWALK TO BE PLACED 8.75' MIN. FROM THE FACE OF CURB/PROJECTED FACE OF CURB. THIS ENSURES MIN. CLEARANCE BETWEEN THE SIDEWALK AND GATE ARM COUNTERWEIGHT SUPPORTS.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 4 OF 6

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

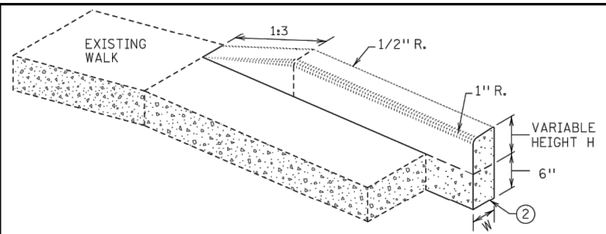
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

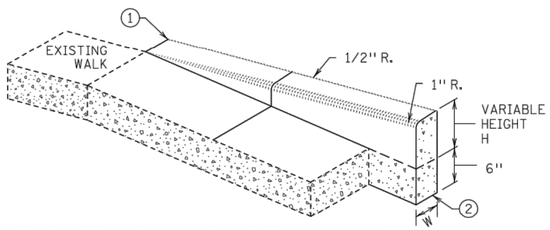
PEDESTRIAN CURB RAMP DETAILS

SHEET 15 OF 44



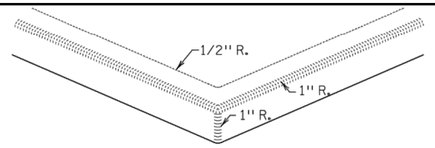
V CURB ADJACENT TO LANDSCAPE

CURB WITHIN SIDEWALK LIMITS

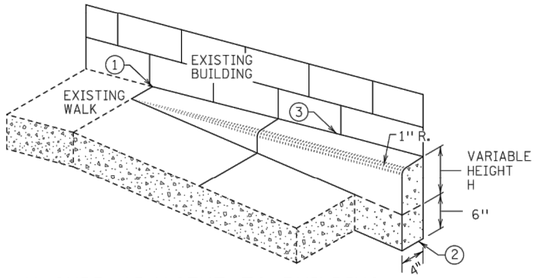


V CURB ADJACENT TO LANDSCAPE

CURB OUTSIDE SIDEWALK LIMITS

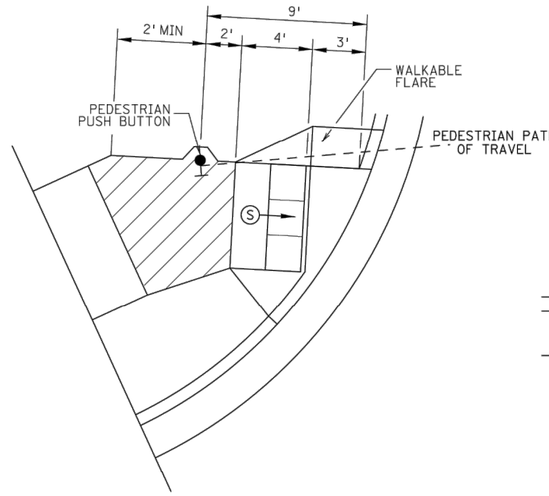


V CURB INTERSECTION



V CURB ADJACENT TO BUILDING OR BARRIER

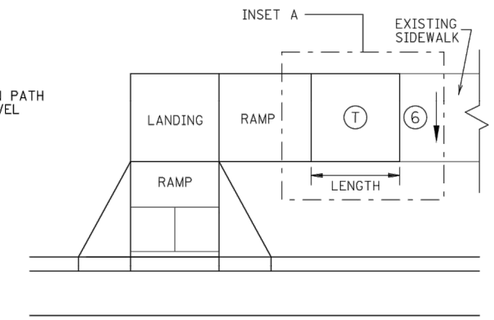
CONCRETE CURB DESIGN V	
CURB HEIGHT H	CURB WIDTH W
< 6"	4"
≥ 6"	6"

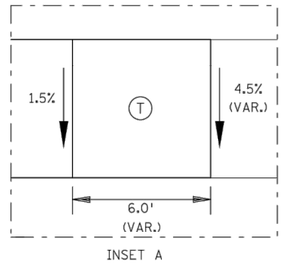


SEMI-DIRECTIONAL RAMP (3,4,9)

3' DOME SETBACK, 4' LONG RAMP AND PUSH BUTTON 9' FROM THE BACK OF CURB

PRIMARILY USED FOR APS APPLICATIONS WHERE THE PAR DOES NOT CONTINUE PAST THE PUSH BUTTON (DEAD-END SIDEWALK)





TRANSITION PANEL ④⑤

NOTES:

A WALKABLE FLARE IS AN 8-10% CONCRETE FLARE THAT IS REQUIRED WHEN THE FLARE IS ADJACENT TO A WALKABLE SURFACE, OR WHEN THE PEDESTRIAN PATH OF TRAVEL OF A PUSH BUTTON TRAVERSES THE FLARE.

ALL V CURB CONTRACTION JOINTS SHALL MATCH CONCRETE WALK JOINTS.

WHERE RIGHT-OF-WAY ALLOWS, USE OF V CURB SHOULD BE MINIMIZED. GRADING ADJACENT TURF OR SLOPING ADJACENT PAVEMENT IS PREFERRED.

V CURB SHALL BE PLACED OUTSIDE THE SIDEWALK LIMITS WHEN RIGHT OF WAY ALLOWS.

V CURB NEXT TO BUILDING SHALL BE A 4" WIDTH AND SHALL MATCH PREVIOUS TOP OF SIDEWALK ELEVATIONS.

(1) END TAPERS AT TRANSITION SECTION SHALL MATCH INPLACE SIDEWALK GRADES.

(2) ALL V CURB SHALL MATCH BOTTOM OF ADJACENT WALK.

(3) EDGE BETWEEN NEW V CURB AND INPLACE STRUCTURE SHALL BE SEALED AND BOND BREAKER SHALL BE USED BETWEEN EXISTING STRUCTURE AND PLACED V-CURB.

(4) THE MAX. RATE OF CROSS SLOPE TRANSITIONING IS 1' LINEAR FOOT OF SIDEWALK PER HALF PERCENT CROSS SLOPE. WHEN PAR WIDTH IS GREATER THAN 6' OR THE RUNNING SLOPE IS GREATER THAN 5%, DOUBLE THE CALCULATED TRANSITION LENGTH.

(5) TRANSITION PANELS ARE TO ONLY BE USED AFTER THE RAMP, OR IF NEEDED, LANDING ARE AT THE FULL CURB HEIGHT (TYPICAL SECTION).

(6) EXISTING CROSS SLOPE GREATER THAN 2.0%.

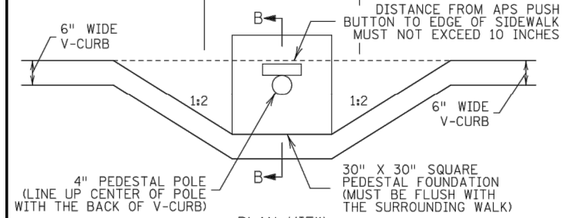
LEGEND

THESE LONGITUDINAL SLOPE RANGES SHALL BE THE STARTING POINT. IF SITE CONDITIONS WARRANT, LONGITUDINAL SLOPES UP TO 8.3% OR FLATTER ARE ALLOWED.

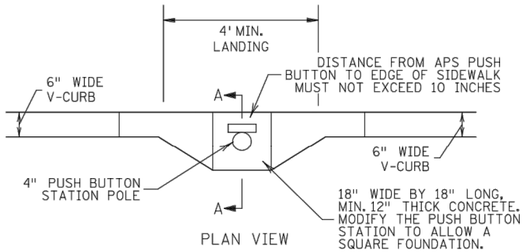
(S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND THE CROSS SLOPE SHALL NOT EXCEED 2.0%.

LANDING AREA - 4' X 4' MIN. (5' X 5' MIN. PREFERRED) DIMENSIONS AND MAX 2.0% SLOPE IN ALL DIRECTIONS. LANDING SHALL BE FULL WIDTH OF INCOMING PARS.

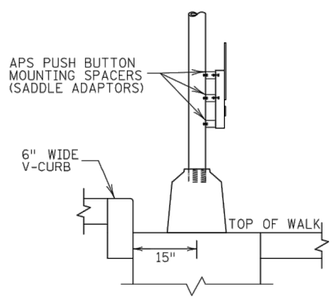
(T) TRANSITION PANEL(S) - TO BE USED FOR TRANSITIONING THE CROSS-SLOPE OF A RAMP TO THE EXISTING WALK CROSS-SLOPE. RATE OF TRANSITION SHOULD BE 0.5% PER 1 LINEAR FOOT OF WALK. SEE THIS SHEET FOR ADDITIONAL INFORMATION.



PLAN VIEW

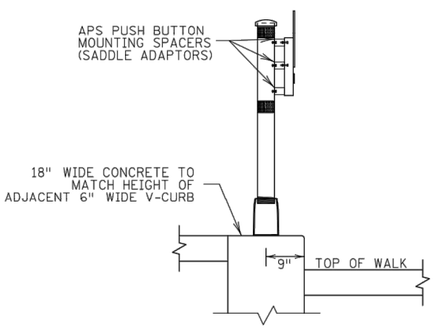


PLAN VIEW



SECTION B-B

SIGNAL PEDESTAL & PUSH BUTTON (V-CURB)



SECTION A-A

PUSH BUTTON STATION (V-CURB)

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 5 OF 6

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

DESIGNED JWC

DRAWN ZFL

CHECKED JWC

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

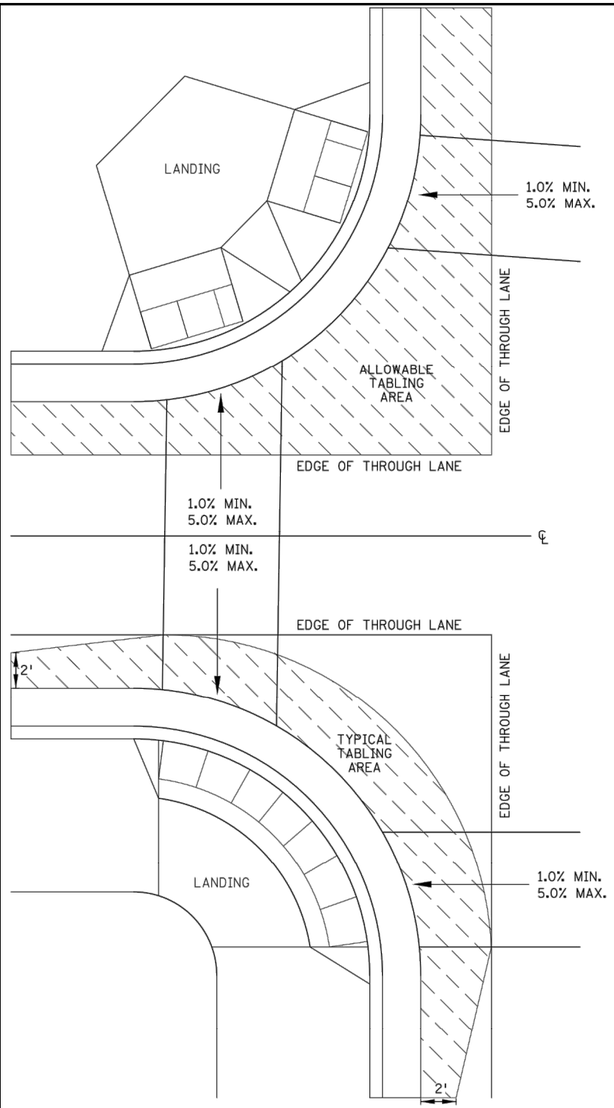
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

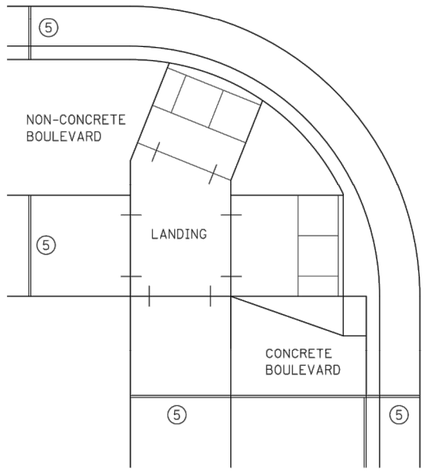
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

PEDESTRIAN CURB RAMP DETAILS

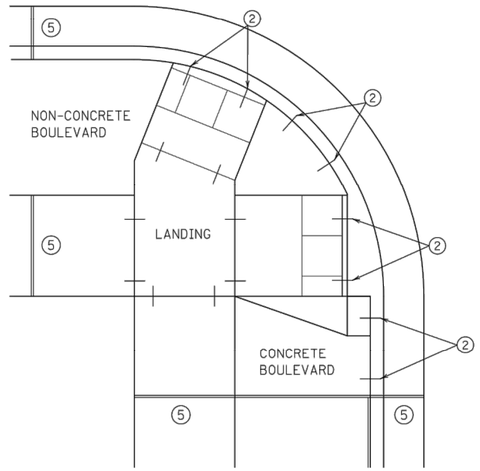
SHEET 16 OF 44



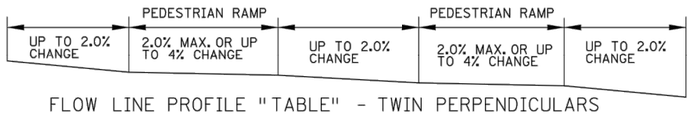
CURB LINE AND ROAD CROSSING ADJUSTMENTS



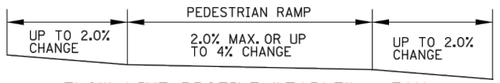
EXPANSION MATERIAL PLACEMENT FOR CONCRETE AND BITUMINOUS ROADWAYS



OPTIONAL CURB LINE REINFORCEMENT PLACEMENT ON BITUMINOUS ROADWAYS ④



FLOW LINE PROFILE "TABLE" - TWIN PERPENDICULARS



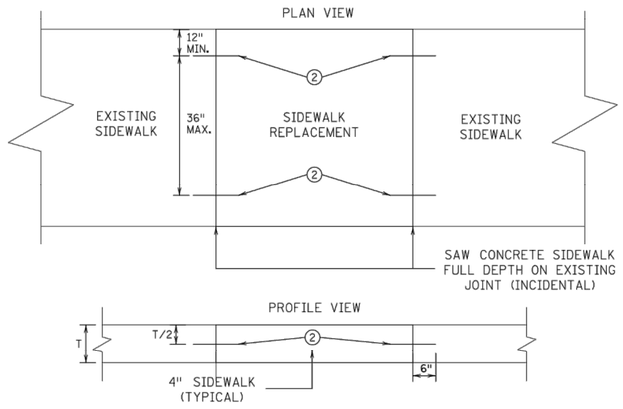
FLOW LINE PROFILE "TABLE" - FAN



FLOW LINE PROFILE RAISE - TWIN PERPENDICULARS

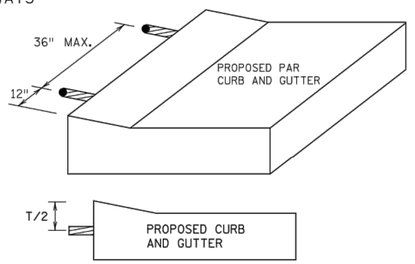


FLOW LINE PROFILE RAISE - FAN

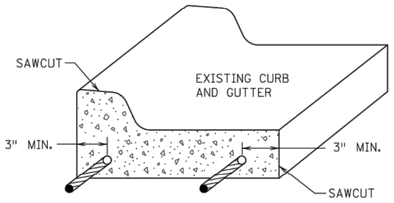


OPTIONAL SIDEWALK REINFORCEMENT

SIDEWALK REINFORCEMENT TO BE USED ONLY WHEN SPECIFIED IN THE PLAN.

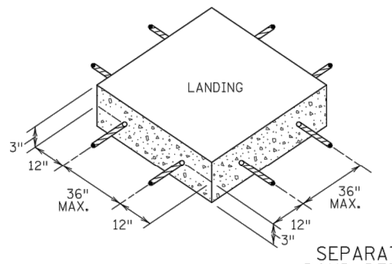


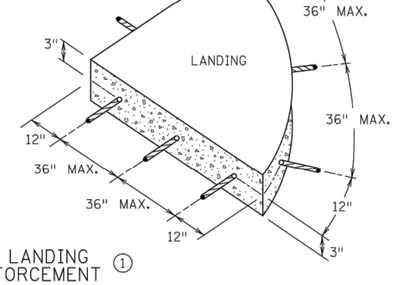
OPTIONAL CURB LINE REINFORCEMENT DETAILS ②④



FOR USE ON CURB RAMP RETROFITS

CURB AND GUTTER REINFORCEMENT ③





SEPARATE LANDING POUR REINFORCEMENT ①

"TABLING" OF CROSSWALKS MEANS MAINTAINING LESS THAN 2% CROSS SLOPE WITHIN A CROSSWALK, IS REQUIRED WHEN A ROADWAY IS IN A STOP OR YIELD CONDITION AND THE PROJECT SCOPE ALLOWS.

RECONSTRUCTION PROJECTS: ON FULL PAVEMENT REPLACEMENT PROJECTS "TABLING" OF ENTIRE CROSSWALK SHALL OCCUR WHEN FEASIBLE.

MILL & OVERLAY PROJECTS: "TABLING" OF FLOW LINES, IN FRONT OF THE PEDESTRIAN RAMP, IS REQUIRED WHEN THE EXISTING FLOW LINE IS GREATER THAN 2%. WARPING OF THE BITUMINOUS PAVEMENT CAN NOT EXTEND INTO THE THROUGH LANE. TABLE THE FLOW LINE TO 2% OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. CROSS-SLOPE OF THE ROAD
2) 5.0% MAX. CROSS-SLOPE OF THE ROAD
3) "TABLE" FLOW LINE UP TO 4% CHANGE FROM EXISTING SLOPE IN FRONT OF PEDESTRIAN RAMP
4) UP TO 2% CHANGE IN FLOW LINE FROM EXISTING SLOPE BEYOND THE PEDESTRIAN CURB RAMP

STAND-ALONE ADA RETROFITS: FOLLOW MILL & OVERLAY CRITERIA ABOVE HOWEVER ALL PAVEMENT WARPING IS DONE WITH BITUMINOUS PATCHING ON BITUMINOUS ROADWAYS AND FULL-DEPTH APRON REPLACEMENT ON CONCRETE ROADWAYS.

RAISING OF CURB LINES SHOULD OCCUR IN VERTICALLY CONSTRAINED AREAS. RAISE THE CURB LINES ENOUGH TO ALLOW COMPLIANT RAMPS OR AS MUCH AS POSSIBLE WHILE ADHERING TO THE FOLLOWING CRITERIA;

1) 1.0% MIN. AND 5.0% MAXIMUM CROSS-SLOPE OF THE ROAD
2) 1.0% MIN. FLOW LINE (ON EITHER SIDE OF PEDESTRIAN RAMP) TO MAINTAIN POSITIVE DRAINAGE
3) 5.0% RECOMMENDED MAX. FLOW LINE
4) LONGITUDINAL THROUGH LANE ROADWAY TAPERS SHOULD BE 1" VERTICAL PER 15' HORIZONTAL

NOTES:

1. TO ENSURE RAMPS AND LANDINGS ARE PROPERLY CONSTRUCTED, ALL INITIAL LANDINGS AT A TOP OF A RAMPED SURFACE (RUNNING SLOPE GREATER THAN 2%) SHALL BE FORMED AND PLACED SEPARATELY IN AN INDEPENDENT CONCRETE POUR. FOLLOW SIDEWALK REINFORCEMENT DETAILS ON THIS SHEET FOR ALL SEPARATELY POURED INITIAL LANDINGS.
2. DRILL AND GROUT NO. 4 12" LONG REINFORCEMENT BARS AT 36" MAXIMUM CENTER TO CENTER (EPOXY COATED). BARS TO BE ADJUSTED TO MATCH RAMP GRADE.
3. DRILL AND GROUT 2 - NO. 4 X 12" LONG REINFORCEMENT BARS (EPOXY COATED). REINFORCEMENT REQUIRED FOR ALL CONSTRUCTION JOINTS WITHIN RADIUS.
4. THIS OPTIONAL CURB LINE REINFORCEMENT DETAIL SHOULD ONLY BE USED ON BITUMINOUS ROADWAYS WHEN SPECIFIED IN THE PLAN.
5. 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MNDOT SPEC. 3702.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

PEDESTRIAN CURB RAMP DETAILS

STANDARD PLAN 5-297.250 | 6 OF 6

NOTE: DETAILS ARE NOT TO SCALE

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

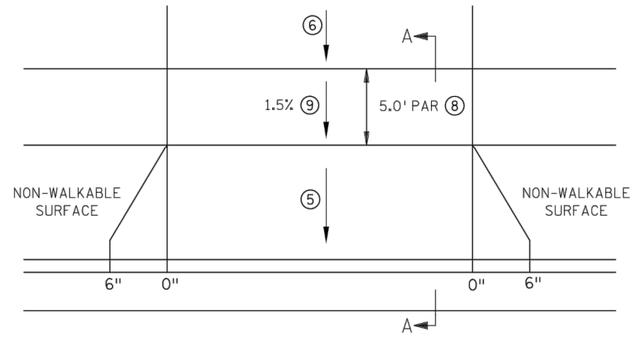
BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

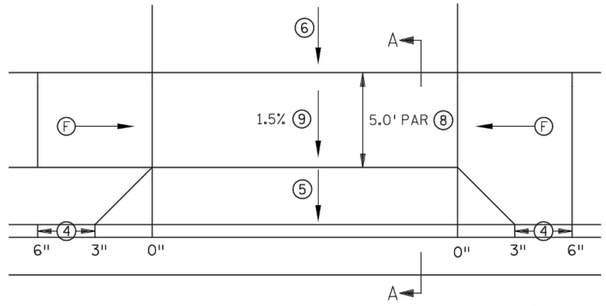
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
PEDESTRIAN CURB RAMP DETAILS

SHEET 17 OF 44

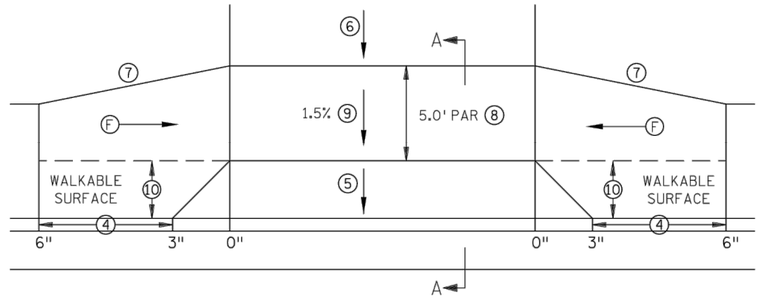
© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm



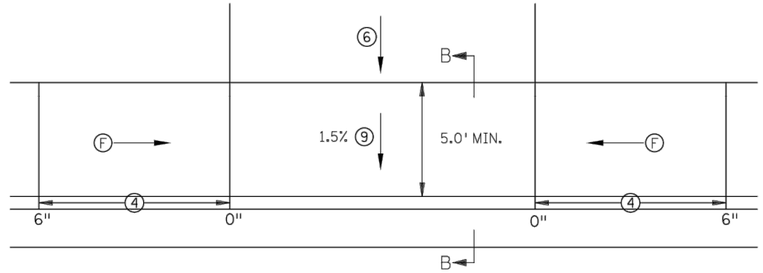
PERPENDICULAR DRIVEWAY ①



TIERED PERPENDICULAR DRIVEWAY ②



TIERED PERPENDICULAR OFFSET DRIVEWAY



PARALLEL DRIVEWAY ③

NOTES:

IN NO CASE SHALL SIDEWALK PROFILES EXCEED 5.0%, EXCEPT SIDEWALK PROFILES CAN MATCH ROADWAY GRADE IF ROADWAY GRADE IS GREATER THAN 5.0%. RAMPS FOR DRIVEWAYS ARE REQUIRED TO FOLLOW THE ABOVE SIDEWALK CRITERIA.

CONTRACTION JOINTS SHALL BE CONSTRUCTED ALONG ALL GRADE BREAKS WITHIN THE PEDESTRIAN ACCESS ROUTE (PAR). 1/4" DEEP VISUAL JOINTS SHALL BE USED AT THE TOPS OF CONCRETE FLARES ADJACENT TO WALKABLE SURFACES.

DRIVEWAY TYPES FROM MOST PREFERRED TO LEAST PREFERRED ARE AS FOLLOWS: PERPENDICULAR, TIERED PERPENDICULAR, TIERED PERPENDICULAR OFFSET & PARALLEL.

① TO BE USED WHEN THE DRIVEWAY PAR IS LEVEL WITH OR ABOVE THE TOP OF CURB, RESULTING IN A CONTINUOUS PAR PROFILE.

② TO BE USED WHEN THE DRIVEWAY PAR IS BELOW THE ROADWAY CURB HEIGHT. THIS DRIVEWAY TYPE CAN BE USED FOR BOTH PAVED (AS SHOWN) AND GRASS BOULEVARDS.

③ SHOULD BE USED FOR NEGATIVE SLOPED DRIVEWAYS. DW CURB TYPE 2 CURB SHOULD BE USED TO RAISE PAR ABOVE GUTTER AND REDUCE "ROLLER COASTER" EFFECT. 4" HIGH ROADWAY CURB SHOULD BE USED TO REDUCE "ROLLER COASTER" EFFECT ESPECIALLY WHEN MULTIPLE DRIVEWAYS ARE PRESENT.

④ TOP OF CURB SHALL MATCH PROPOSED ADJACENT WALK GRADE.

⑤ 8% MAX. PREFERRED, 10% MAX. FOR COMMERCIAL AND 12% MAX. FOR RESIDENTIAL. SEE GENERAL NOTES ON SHEET 2 FOR MORE INFORMATION.

⑥ 8% MAX. PREFERRED, SEE SHEET 2 FOR MORE INFORMATION.

⑦ 1:3 MIN. 1:5 PREFERRED FOR DRIVEWAY RETROFIT PROJECTS. 1:10 PREFERRED FOR SIDEWALK REPLACEMENT PROJECTS.

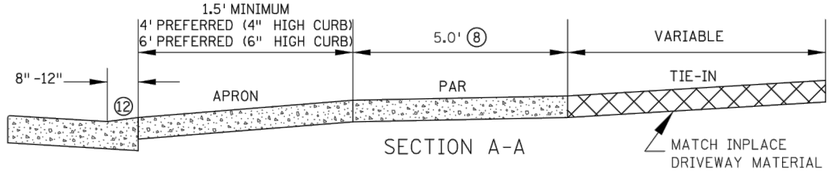
⑧ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.

⑨ THE PEDESTRIAN ACCESS ROUTE, MAY NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.

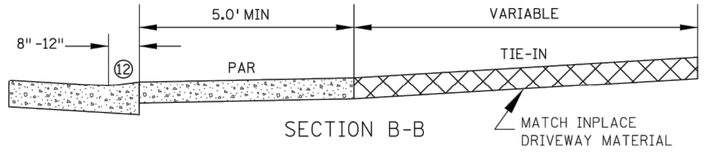
⑩ SIDEWALK OFFSET TO BE LESS THAN OR EQUAL TO HALF THE APPROACHING SIDEWALK WIDTH.

⑪ VALLEY GUTTER APRON TO BE POURED INTEGRAL WITH THE CURB AND GUTTER. SEE SHEET 2 FOR MORE INFORMATION.

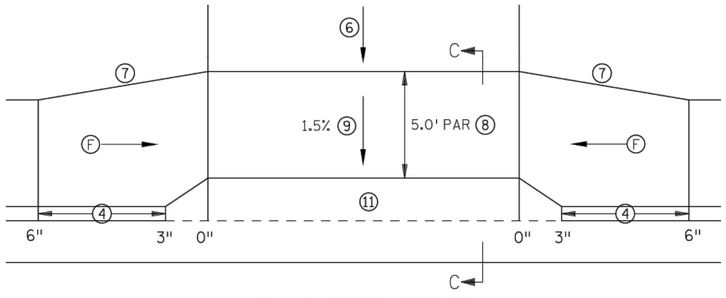
⑫ SEE SHEET 2 FOR CURB TYPE INFORMATION.



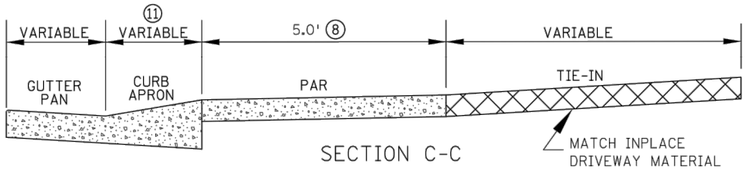
SECTION A-A



SECTION B-B



VALLEY GUTTER DRIVEWAY



SECTION C-C

LEGEND	
Ⓕ	INDICATES DRIVEWAY RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
X"	CURB HEIGHT (INCHES)

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 1 OF 4

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

DESIGNED	DRAWN	CHECKED
JWC	ZFL	JWC

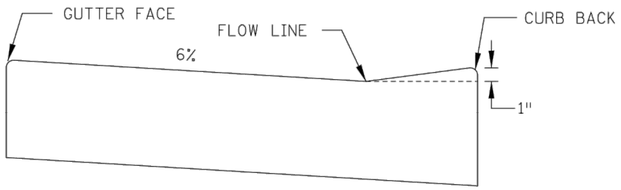
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

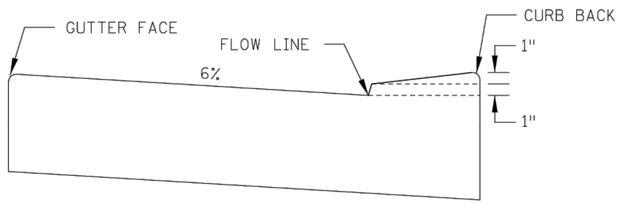
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

DRIVEWAY AND SIDEWALK DETAILS



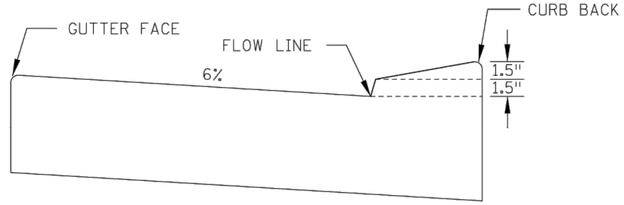
DW CURB STANDARD

STANDARD CURB AT DRIVEWAY



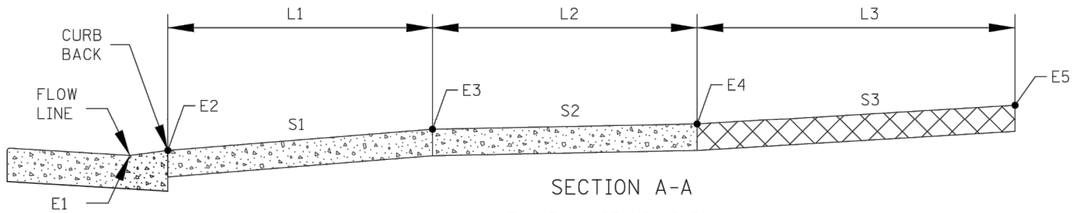
DW CURB TYPE 2

VERTICALLY CONSTRAINED



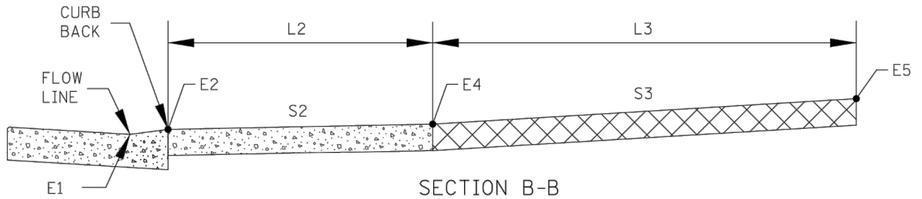
DW CURB TYPE 3

VERTICALLY CONSTRAINED



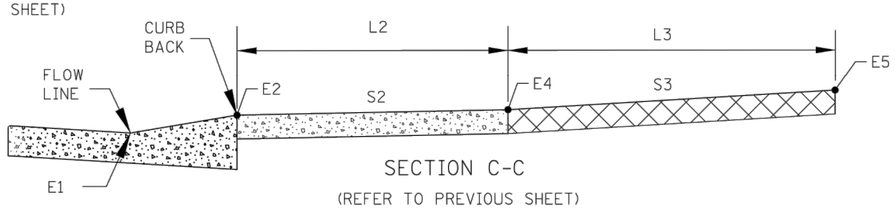
SECTION A-A

(REFER TO PREVIOUS SHEET)



SECTION B-B

(REFER TO PREVIOUS SHEET)

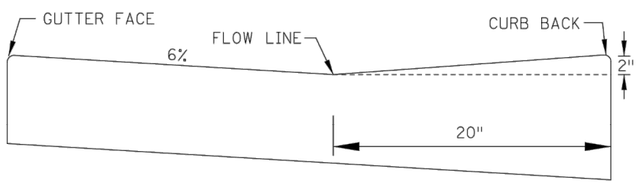


SECTION C-C

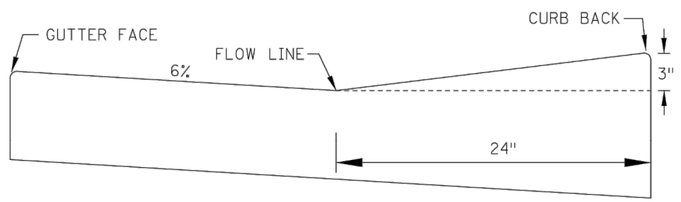
(REFER TO PREVIOUS SHEET)

DRIVEWAY TABULATION ①

STATION	SIDE	DRIVEWAY TYPE	CURB TYPE ③	E1	E2	L1 FT	S1 %	E3	L2 FT	S2 ② %	E4	L3 FT	S3 %	EXISTING %	E5	COMMENTS



VG 220



VG 324

VALLEY GUTTER CURB

OTHER CURB HEIGHTS & CURB APRON LENGTHS CAN BE USED

NOTES:

DW CURB STANDARD SHALL BE USED WHEN THE DRIVEWAY ACTS AS A PEDESTRIAN RAMP. THE MAX. APRON SLOPE MUST ADHERE TO ADA CRITERIA AS WELL. DW CURB STANDARD SHOULD BE USED IF THERE IS ON STREET PARKING.

WHERE ROADWAY DRAINAGE IS A CONCERN (NEGATIVE SLOPED APRON) DW CURB TYPE 2 CAN BE USED TO HELP KEEP THE WATER ON PUBLIC RIGHT OF WAY.

S1 8% MAX PREFERRED, 10% MAX. COMMERCIAL AND 12% MAX. RESIDENTIAL. IF EXISTING GRADES ARE STEEPER DO NOT MAKE GRADES APPRECIABLY WORSE BY USING BEST PRACTICES SUCH AS DRIVEWAY CURB HEIGHTS, EXTENDING L3 AND/ OR STEEPEN S3.

DW CURB TYPE 3 SHALL ONLY BE USED IN EXTREME TIE-IN CASES.

S3 8% MAX PREFERRED, IF THIS SLOPE IS EXCEEDED OR IS CONTINUED FOR MORE THAN 5' ANALYZE THE NEED FOR VERTICAL CURVE(S). SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGNS OF DRIVEWAYS.

① EXAMPLE SHOWN TO BE INCLUDED IN PLAN FOR EACH DRIVEWAY.

② SHOULD BE DESIGNED AT 1.5%.

③ DW CURB STANDARD SHALL BE THE STARTING POINT FOR ALL PERPENDICULAR AND TIERED DRIVEWAYS. DW CURB TYPES 2 AND 3 SHALL ONLY BE USED AFTER UTILIZING BEST PRACTICES SUCH AS MAXIMIZING S1, S3, AND L3.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED:

STATE DESIGN ENGINEER

1-23-2017

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 2 OF 4

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

DESIGNED JWC

DRAWN ZFL

CHECKED JWC

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

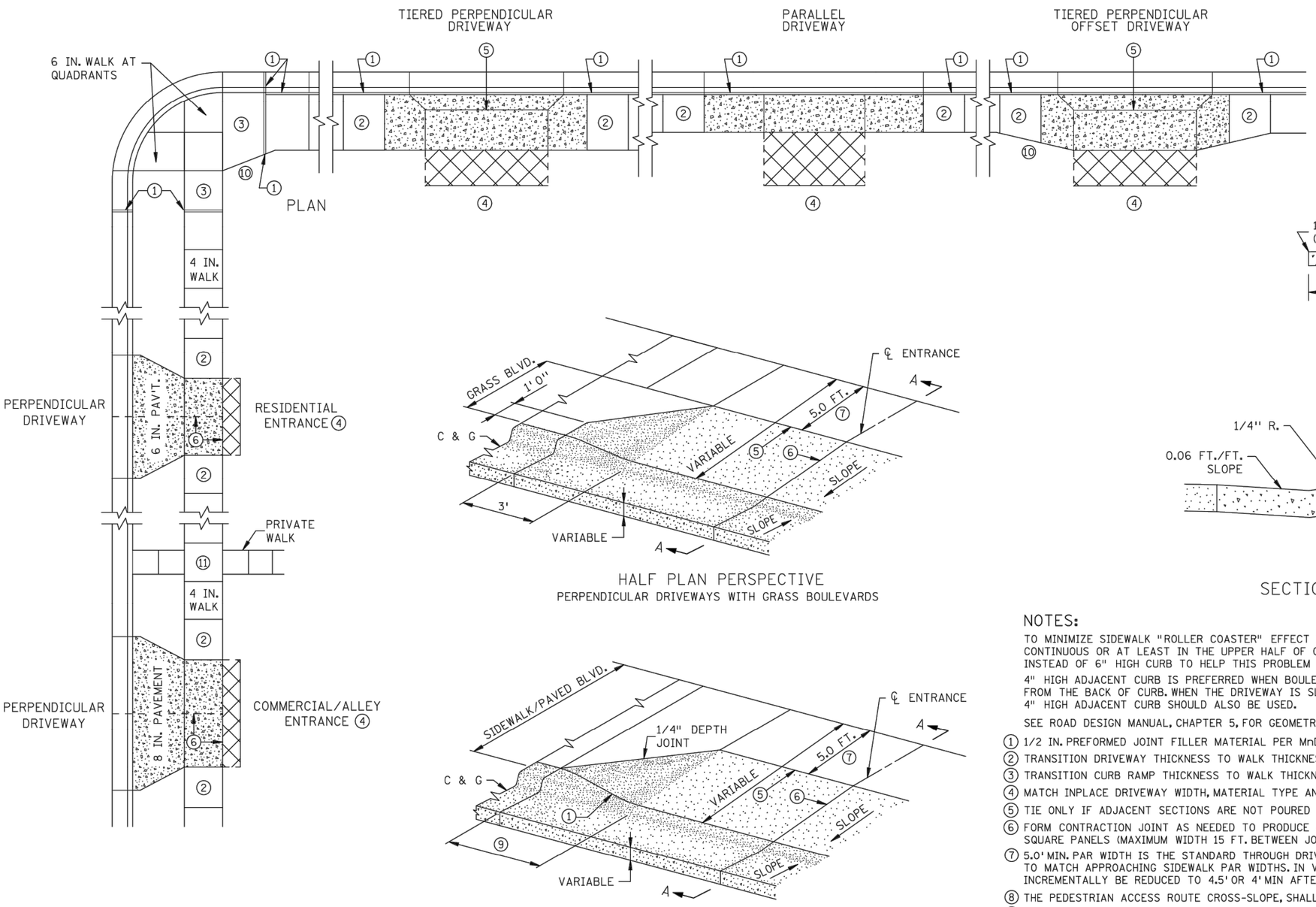
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

DRIVEWAY AND SIDEWALK DETAILS

SHEET 19 OF 44

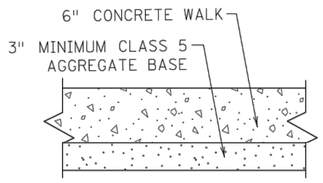


HALF PLAN PERSPECTIVE

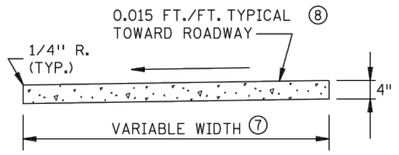
PERPENDICULAR DRIVEWAYS WITH GRASS BOULEVARDS

HALF PLAN PERSPECTIVE

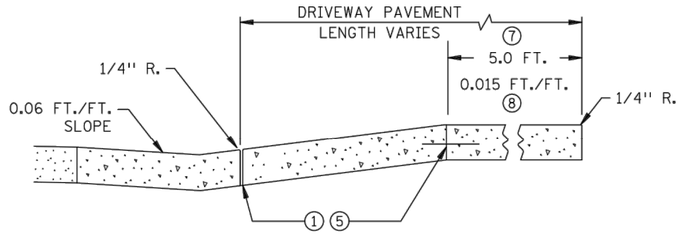
PERPENDICULAR DRIVEWAYS WITH CONCRETE BOULEVARDS AND ALL TIERED DRIVEWAYS



SECTION THRU CURB RAMP



SECTION THRU WALK



SECTION A-A

SECTION THRU DRIVEWAY

NOTES:

TO MINIMIZE SIDEWALK "ROLLER COASTER" EFFECT IT IS DESIRABLE TO KEEP THE PAR ELEVATION CONTINUOUS OR AT LEAST IN THE UPPER HALF OF CURB HEIGHT. 4" HIGH CURB SHOULD BE USED INSTEAD OF 6" HIGH CURB TO HELP THIS PROBLEM WHEN APPLICABLE.

4" HIGH ADJACENT CURB IS PREFERRED WHEN BOULEVARDS 4' OR LESS ARE PRESENT MEASURED FROM THE BACK OF CURB. WHEN THE DRIVEWAY IS SLOPING DOWN FROM THE ROADWAY (NEGATIVE) 4" HIGH ADJACENT CURB SHOULD ALSO BE USED.

SEE ROAD DESIGN MANUAL, CHAPTER 5, FOR GEOMETRIC DESIGN OF DRIVEWAYS.

① 1/2 IN. PREFORMED JOINT FILLER MATERIAL PER MnDOT SPEC. 3702, EXCEPT AT GRASS BOULEVARDS.
② TRANSITION DRIVEWAY THICKNESS TO WALK THICKNESS.
③ TRANSITION CURB RAMP THICKNESS TO WALK THICKNESS.
④ MATCH INPLACE DRIVEWAY WIDTH, MATERIAL TYPE AND THICKNESS.
⑤ TIE ONLY IF ADJACENT SECTIONS ARE NOT POURED MONOLITHICALLY. SEE SECTION A-A.
⑥ FORM CONTRACTION JOINT AS NEEDED TO PRODUCE APPROXIMATELY SQUARE PANELS (MAXIMUM WIDTH 15 FT. BETWEEN JOINTS).
⑦ 5.0' MIN. PAR WIDTH IS THE STANDARD THROUGH DRIVEWAYS. IF FEASIBLE WIDEN DRIVEWAY PAR WIDTH TO MATCH APPROACHING SIDEWALK PAR WIDTHS. IN VERTICALLY CONSTRAINED AREAS PAR WIDTHS CAN INCREMENTALLY BE REDUCED TO 4.5' OR 4' MIN AFTER ALL OTHER OPTIONS HAVE BEEN APPLIED.
⑧ THE PEDESTRIAN ACCESS ROUTE CROSS-SLOPE, SHALL NOT EXCEED 0.02 FT./FT. AS CONSTRUCTED.
⑨ 8% TO 10% FLARES SHALL BE USED WHEN ADJACENT TO WALKABLE SURFACES AND FOR ALL TIERED DRIVEWAYS WITH GRASS BOULEVARDS.
⑩ 1:10 MIN. SIDEWALK OFFSET TAPER REQUIRED FOR SIDEWALK REPLACEMENT PROJECTS. 1:3 MIN. AND 1:5 MIN. PREFERRED SIDEWALK OFFSET TAPER FOR DRIVEWAY REPLACEMENT.
⑪ LANDING REQUIRED, SEE NEXT SHEET FOR MORE INFORMATION.

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

REVISED:

APPROVED: 1-23-2017

STATE DESIGN ENGINEER

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 3 OF 4

NOTE: DETAILS ARE NOT TO SCALE

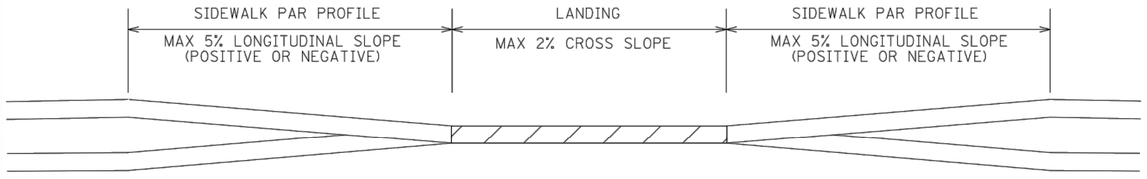
© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

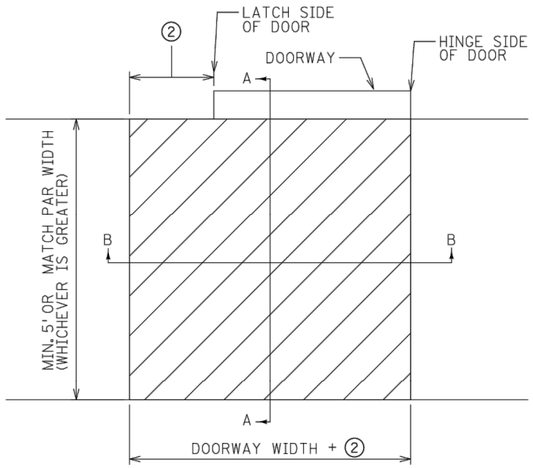
BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

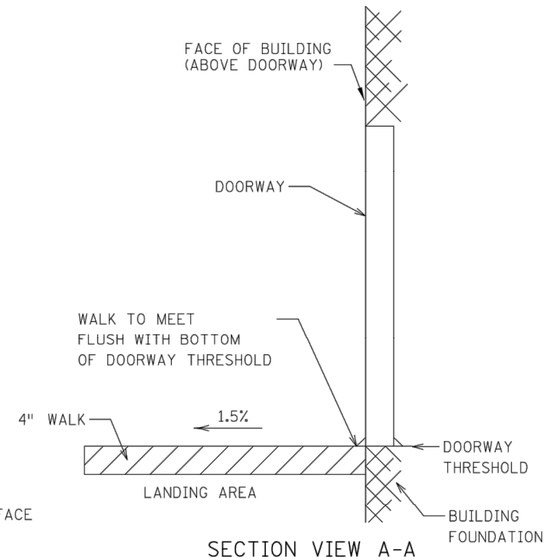
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
DRIVEWAY AND SIDEWALK DETAILS



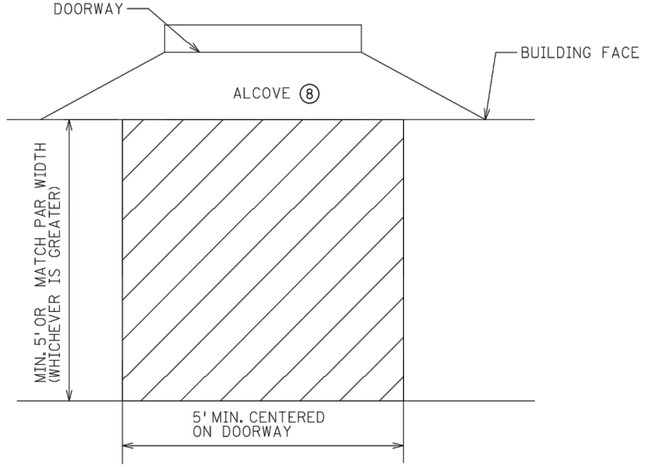
SECTION VIEW B-B



PLAN VIEW DOORWAY

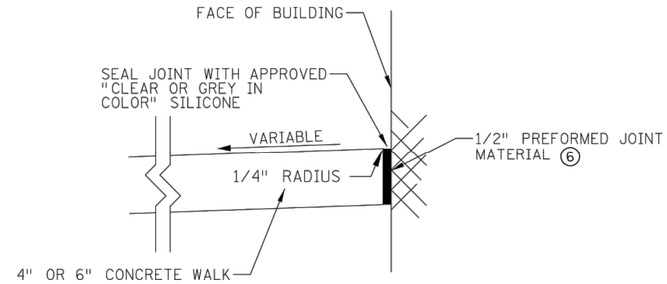


SECTION VIEW A-A

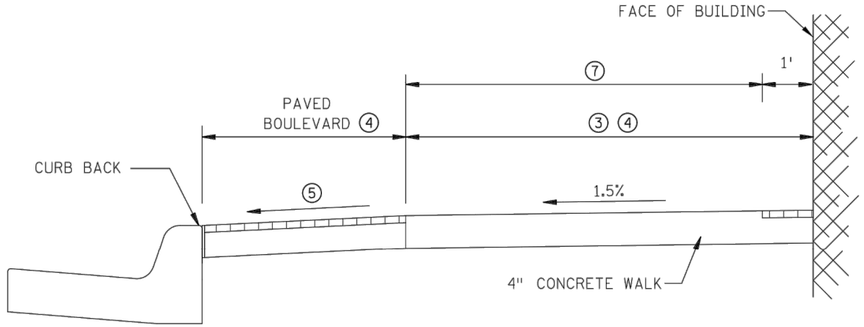


PLAN VIEW DOORWAY WITH ALCOVE

SIDEWALK LANDING REQUIREMENTS ①



BUILDING JOINT SEAL (INCIDENTAL)



DOWNTOWN SIDEWALK TYPICAL SECTION

NOTES:

FIELD ADJUST SIDEWALK PROFILES TO MEET ALL DOORWAY THRESHOLDS.

SIDEWALK MUST MAINTAIN POSITIVE DRAINAGE AWAY FROM THE BUILDING TO THE ROADWAY.

SEE SPECIAL PROVISIONS FOR SILICONE SPECIFICATIONS.

① LANDING CRITERIA IS REQUIRED FOR ALL DOORS, PRIVATE WALKS AND STEPS.

② 18" MIN. WHEN DOOR SWINGS OUTWARD FROM BUILDING.
12" MIN WHEN DOOR SWINGS INWARD FROM BUILDING.

③ 6' MIN. PAR REQUIRED WHEN ADJACENT TO BUILDINGS.

④ 2/3 PAR TO 1/3 BOULEVARD SHOULD BE USED WHEN FEASIBLE.

⑤ 1%-5% FOR THE MAJORITY OF THE BLOCK, WITH EXCEPTIONS UP TO 8% IN CONSTRAINED AREAS. 10% MAX. FOR SHORT SECTIONS ALLOWED TO ACCOUNT FOR FIELD TOLERANCES.

⑥ FURNISH AND INSTALL BACKER ROD OF APPROPRIATE DIAMETER.

⑦ TO MINIMIZE VIBRATION AND ROLLING RESISTANCE, AREA SHOULD BE FREE OF PAVERS, STAMPED CONCRETE, AND/OR EXCESSIVE JOINTING.

⑧ 2% MAX. PER BUILDING CODE. IF GREATER THAN 2%, FLATTEN AS FEASIBLE.

LEGEND

LANDING - ALL SLOPES TO BE LESS THAN 2%

OPTIONAL AESTHETIC TREATMENT

REVISION:

APPROVED: JANUARY 23, 2017

OPERATIONS ENGINEER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STATE DESIGN ENGINEER

REVISED:

APPROVED: 1-23-2017

DRIVEWAY AND SIDEWALK DETAILS

STANDARD PLAN 5-297.254 | 4 OF 4

NOTE: DETAILS ARE NOT TO SCALE

© Bolton & Menk, Inc. 2016, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\111092_DET.dwg 3/9/16 1:41 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

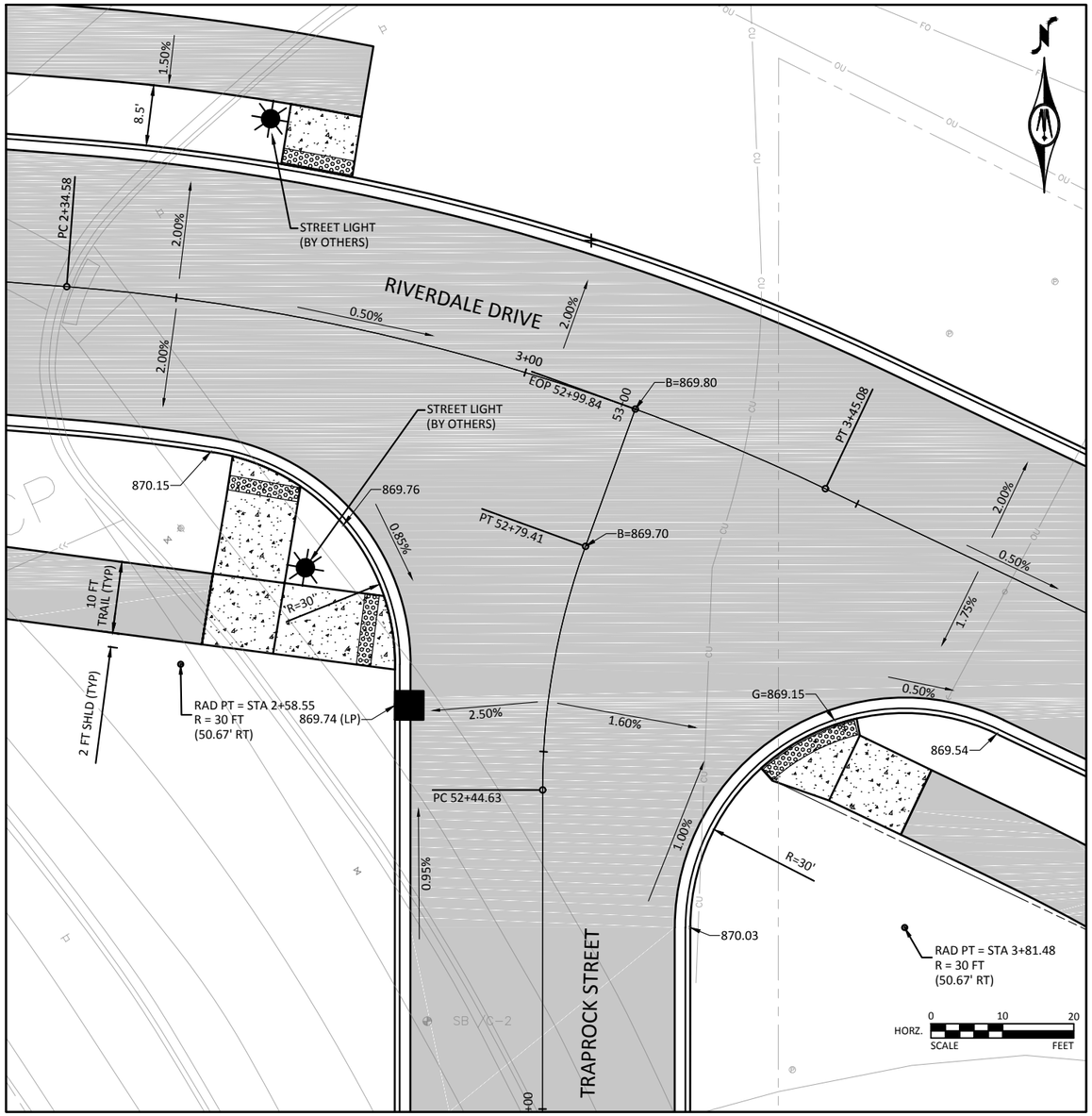
REV.	BY	DATE

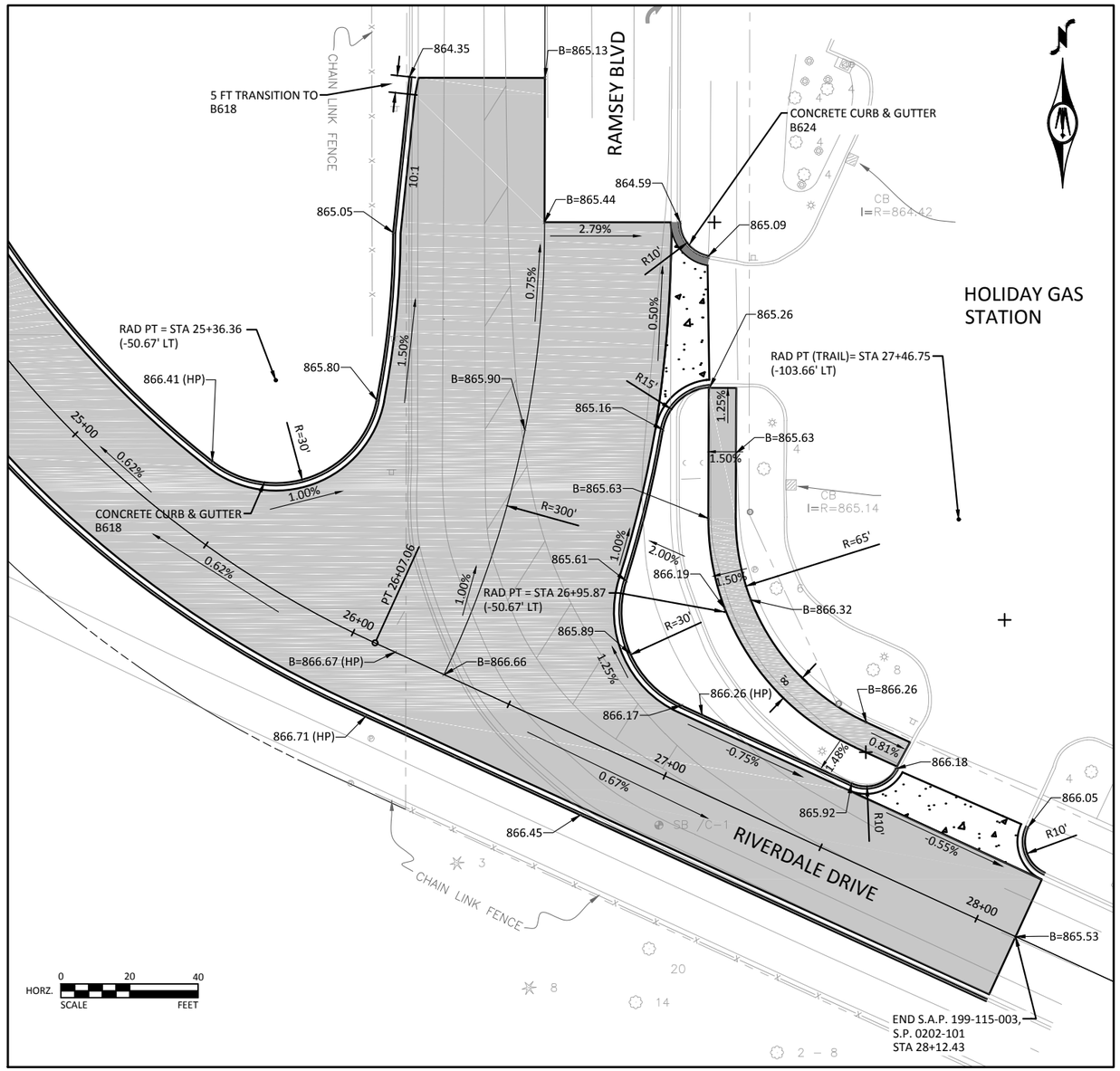
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

DRIVEWAY AND SIDEWALK DETAILS

SHEET 21 OF 44





LEGEND

- PROPOSED B618 CURB & GUTTER
- CONCRETE WALK
- BITUMINOUS PAVEMENT
- XXX.XX — PROPOSED TOP OF CURB ELEVATION
- B=XXX.XX — PROPOSED BITUMINOUS SURFACE ELEVATION
- STREET LIGHT

NOTES

1. ACCESS TO TRAPROCK STREET TO BE MAINTAINED AT ALL TIMES
2. ACCESS TO HOLIDAY GAS STATION TO BE MAINTAINED AT ALL TIMES

LEGEND

- PROPOSED B618 CURB & GUTTER
- PROPOSED B624 CURB & GUTTER
- CONCRETE PAVEMENT
- BITUMINOUS PAVEMENT
- XXX.XX — PROPOSED TOP OF CURB ELEVATION
- B=XXX.XX — PROPOSED BITUMINOUS SURFACE ELEVATION
- STREET LIGHT

HORZ. 0 10 20 SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_TYP.dwg 3/22/16 3:35 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

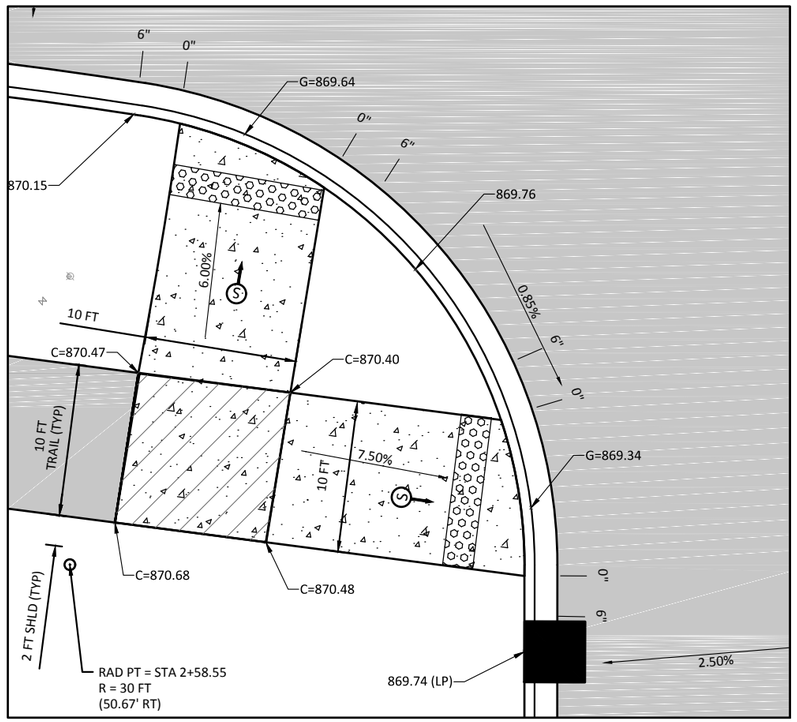
BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

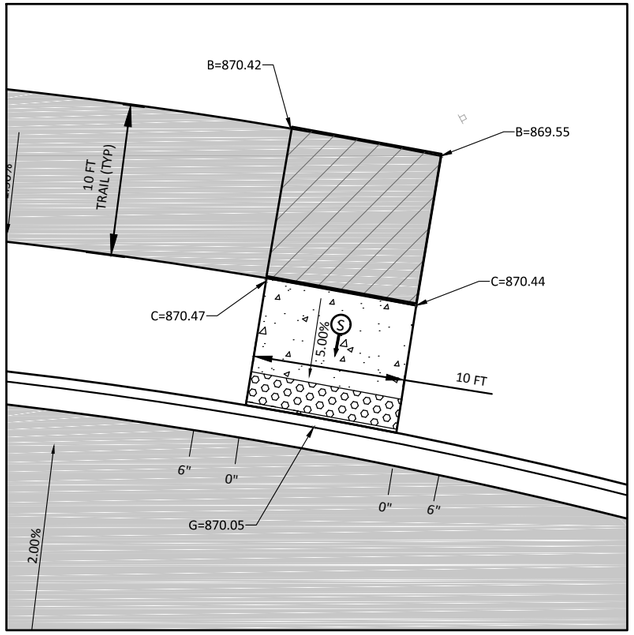
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
INTERSECTION DETAILS

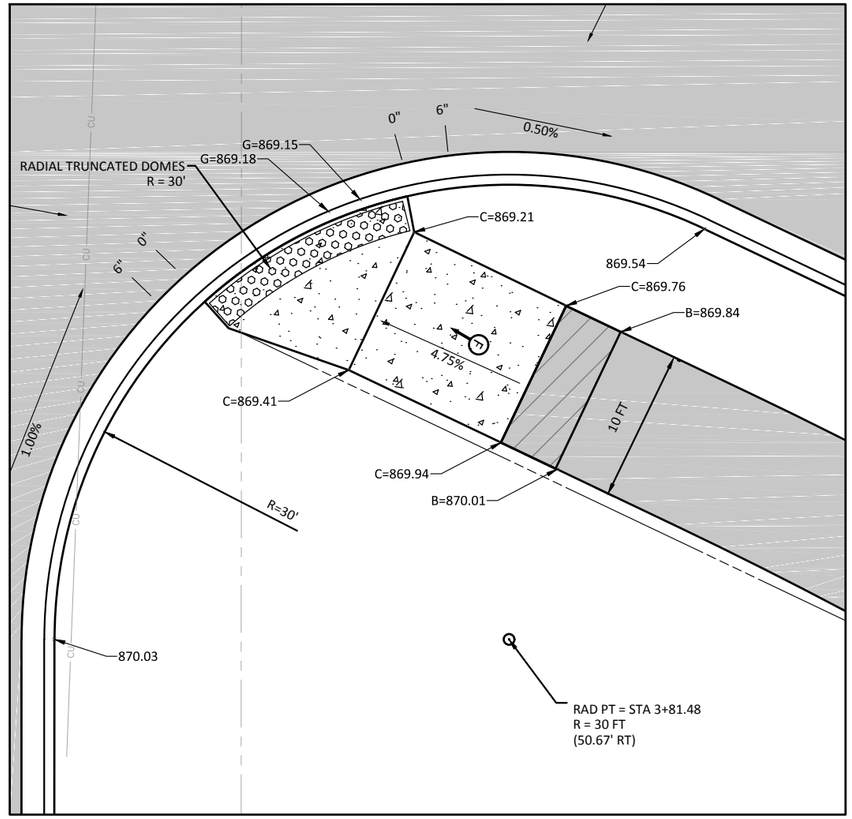
SHEET 22 OF 44



PEDESTRIAN RAMP SOUTHWEST QUADRANT
OF RIVERDALE AND TRAPROCK



PEDESTRIAN RAMP NORTH



PEDESTRIAN RAMP SOUTHEAST QUADRANT
OF RIVERDALE AND TRAPROCK

LEGEND

- TRUNCATED DOMES (SEE STANDARD PLATE 7038)
- LANDING AREA - 4' X 4' MIN DIMENSIONS AND MAX 2.0% SLOPE IN AL DIRECTIONS
- PROPOSED B618 CURB & GUTTER
- CONCRETE WALK
- BITUMINOUS PAVEMENT
- (S) INDICATES PEDESTRIAN RAMP - SLOPE SHALL BE BETWEEN 5.0% MINIMUM AND 8.3% MAXIMUM IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%
- (F) INDICATEDS PEDESTRIAN RAMP - SLOPE SHALL BE GREATER THAN 2.0% AND LESS THAN 5.0% IN THE DIRECTION SHOWN AND CROSS SLOPE SHALL NOT EXCEED 2.0%

X"	CURB HEIGHT
XXX.XX	PROPOSED TOP OF CURB ELEVATION
B=XXX.XX	PROPOSED BITUMINOUS SURFACE ELEVATION
C=XXX.XX	PROPOSED CONCRETE SURFACE ELEVATION
G=XXX.XX	PROPOSED GUTTER ELEVATION

HORZ. SCALE 0 5 10 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_TYP.dwg 3/22/16 3:35 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
PEDESTRIAN RAMP DETAILS

SHEET 23 OF 44

STORM WATER POLLUTION PREVENTION PLAN (SWPPP)

RIVERDALE DRIVE EXTENSION IMIPROVEMENTS

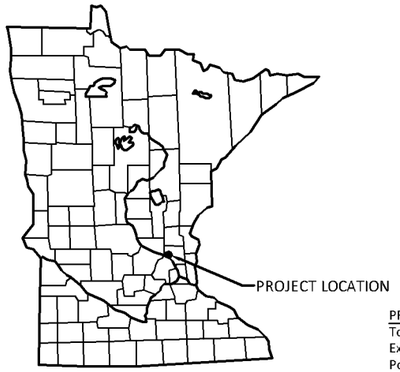
CITY OF RAMSEY
ANOKA COUNTY, MINNESOTA

SWPPP DESIGNER

UNIVERSITY OF MINNESOTA

Jason Cook

Design of Construction SWPPP (May 31 2017)



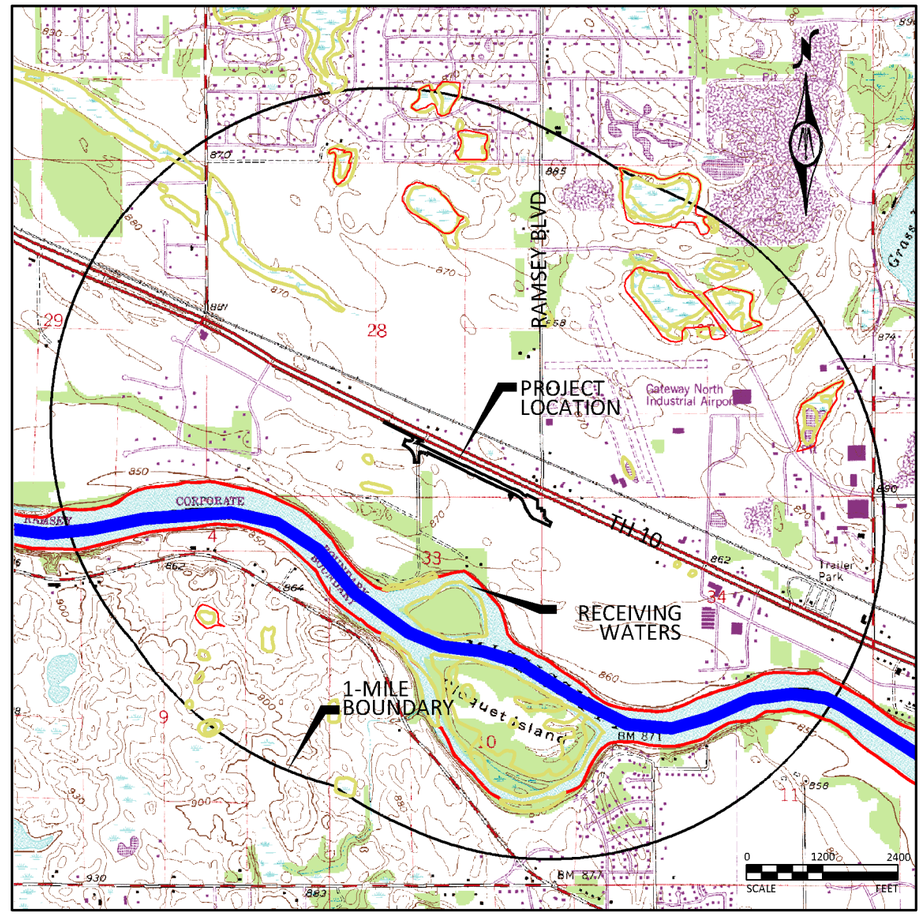
LEGEND

- PROJECT BOUNDARY
- IMPAIRED, SPECIAL OR PROTECTED WATERS
- RECEIVING WATERS

PROJECT AREAS:

Total Project Size (disturbed area) =	6.8	ACRES
Existing area of impervious surface =	1.2	ACRES
Post construction area of impervious surface =	3.0	ACRES
Total new impervious surface area created =	1.8	ACRES

Planned Construction Start Date: MAY 2017
Estimated Construction Completion Date: JULY 2018



RESPONSIBLE PARTIES:
The Contractor and Owner must apply for coverage under the MPCA's neral Storm Water Permit for Construction Activity as required by the National Pollutant Discharge Elimination System (NPDEPhase II program. Coverage under the permit will begin automatically 7 calendar days after the electronic submittal date or aftthe postmarked date of a complete application. [Longer time frames apply to sites that disturb areas greater than 50 acres.]

The Contractor shall provide one or more trained Construction SWPPP anager(s) knowledgeable and experienced in the application of erosion prevention and sediment control BMPs that will oversee theplementation of the SWPPP, and the installation, inspection and maintenance of the erosion prevention and sediment control BMPA Construction SWPPP Manager must be available for an on-site inspection within 72 hours upon request by the MPCA.

	COMPANY	CONTACT PERSON	PHONE
OWNER:	CITY OF RAMSEY	BRUCE WESTBY	763-433-9825
SWPPP DESIGNER:	Bolton & Menk, Inc.	JASON COOK	763-433-2851
CONTRACTOR:			
CONSTRUCTION SWPPP MANAGER:			
PARTY RESPONSIBLE FOR LONG TERM O&M:	CITY OF RAMSEY	BRUCE WESTBY	763-433-9825
MINNESOTA POLLUTION CONTROL AGENCY		DUTY OFFICER	800-422-0798 OR 651-649-5451

The SWPPP Designer and Construction SWPPP Manager must have appriate training. Documentation showing training commensurate with the job duties and responsibilities is required to beluded in the SWPPP prior to any work beginning on the site. Training documentation for the SWPPP Designer is included on thiheet. The Contractor shall attach training documentation to this SWPPP for the Construction SWPPP Manager prior to the start of cstruction. This information shall be kept up to date until the project NOT is filed.

ADDITIONAL COMPENSATION
Payment for all work associated with Erosion and Sediment Control shae as described in the Project Manual. Unless otherwise authorized by the Owner no additional payment shall be made for any ork required to administer and maintain the site erosion and sediment control in compliance with the Minnesota Pollution Control Ancy (MPCA) - General Storm Water Permit for Construction Activity (MN R100001) including but not limited to inspection, maintence, and removal of BMPs or addition of BMPs to accommodate Contractor phasing.

SPECIAL ENVIRONMENTAL CONSIDERATIONS:

1)	Was an environmental review required for this project or any rt of a common plan of development or sale that includes all or any portion of this project?	NO
2)	Does any portion of the site have the potential to affect threatied or endangered species or their critical habitat?	NO
3)	Does any portion of this site discharge to a Calcareous fen.	NO
4)	Will any portion of the site potentially affect properties listed the National Register of Historic Places or a known or discovered archeological site?	NO
5)	Have any Karst features have been identified in the project vicinity?	NO
6)	Is compliance with temporary or permanent stormwater manement design requirements infeasible for this project?	NO
7)	Has the MN DNR promulgated "work in water restrictions" forny Public Water this site disharges to during fish spawning?	NO

GENERAL STORMWATER DISCHARGE REQUIREMENTS
All requirements listed in Part III of the Permit for the design of the permanent stormwater management system and discharge have been included in the preparation of this SWPPP. These include burare not limited to::

1. The expected amount, frequency, intensity, and duration of precipitation.
2. The nature of stormwater runoff and run-on at the site
3. Peak flow rates and stormwater volumes to minimize erosion atitlets and downstream channel and stream bank erosion.
4. The range of soil particle sizes expected to be present on the site.

PERMANENT STORMWATER MANAGEMENT SYSTEM:
Type of storm water management used if more than 1 acre of new imervious surface is created:

	Wet Sedimentation Basin
X	Infiltration/Filtration
	Regional Pond
	Permanent Storm Water Management Not Required

PROJECT LOCATION:

COUNTY	TOWNSHIP	RANGE	SECTION	LATITUDE	LONGITUDE
ANOKA	32N	25W	28, 33, 34	45°13'38" N	93°27'13" W

BMP SUMMARY	QUANTITY	UNIT
STORM DRAIN INLET PROTECTION	20	EACH
EROSION CONTROL BLANKET CATEGORY 3N	8095	SQ YD
RANDOM RIPRAP CLASS III	24	TON
SEDIMENT CONTROL LOG TYPE COMPOST	100	LIN FT
STABILIZED CONTRUCTION EXIT	1	LUMP SUM
HYDRAULIC BONDED FIBER MATRIX	13750	POUND

DESCRIPTION OF CONSTRUCTION ACTIVITIES AND STORMWATER MANAGEMENT:
Construction activities include: Site grading, pond excavation, watenain extensions, storm sewer construction, temporary erosion and sediment control, concrete curb & gutter, roway and trail paving, and permanent stabilization.

The project consists of construction of 0.5 miles of new street. The sting site consists of native prairie and drains to the Mississippi River. The proposed storm sewer system provides infiltration basin that will provide water quality treatment and ultimately discharge to the Mississippi River.

DOCUMENT RETENTION
The following documentation will be retained for a period of not lesnan 3-years from the date of submittal of the NOT in compliance with Part III.E of the Permit.

1. The final SWPPP
2. Copies of all stormwater related permits required for the project
3. Records of all inspection and maintenance conducted during construction
4. Copies of all permanent operation and maintenance agreemer; including all right-of-way, contracts, covenants and other binding requirements regarding perpetual maintenance, and
5. All required calculations for design of the temporary and permanent BMPs.

RECEIVING WATERS:
Receiving waters, including surface water, wetlands, Public Waters, and stowater ponds, are identified on the USGS 7.5 min quad map within one mile of the project boundary. Receiving waters that are impaireche impairment, and WLA are listed as follows. All specific BMPs relative to construction activities listed in this permit for special and paired waters have been incorporated into this plan. All specific BMPs listed in approved TMDLs and those BMPs listed for constructin related waste load allocations have also been incorporated.

NAME OF WATER BODY	TYPE (ditch, pond, wetland, lake, etc.)	Appendix A Special Water?	Flows to Impaired Water Within 1 Mile?	USEPA Approved TMDL?
MISSISSIPPI RIVER	RIVER	YES	YES	YES
Impairments: NOT FOR CONSTRUCTION, MERCURY & PCB IN FISH TISSUE				

IMPLEMENTATION SCHEDULE AND PHASING:

1) Submit SWPPP Updates to Engineer. Submittal shall include any requed changes to the SWPPP, including but not limited to: Trained Personnel, Locations for Stockpiles, Concrete Washout, Saniton Facilities, Types and Locations of Erosion & Sediment Control. Failure to submit updates shall be considered acceance of the SWPPP as designed with no changes.
2) Install perimeter sediment control, inlet protection, and construction exit.
3) Remove existing impervious surfaces, clear and grub trees
4) Strip and stockpile top soil
5) Rough grade site
6) Install underground utilities
7) Install proposed impervious surfaces
8) Add additional temporary BMPs as necessary during construction based on inspection reports.
9) Ensure final stabilization measures are complete.
10) Submit Notice of Termination (NOT) to MPCA within 30 days of final stabilization.

© Bolton & Menk, Inc. 2017, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\SWPPP\SWPPP_02_10_2016\CAD\SWPPP_1_PROJ_INFO_MAP.dwg 3/8/16 12:02 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
STORMWATER POLLUTION PREVENTION PLAN

Information contained in this SWPPP narrative sheet summarizes requirements of the GENERAL PERMIT AUTHORIZATION TO DISCHARGE STORMWATER ASSOCIATED WITH CONSTRUCTION ACTIVITY UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM/STATE DISPOSAL SYSTEM PROGRAM - Permit No: MN RI0000I as they apply to this project. All provisions of the permit including those not specifically cited herein shall apply to this project. The Contractor is responsible to be familiar with and comply with all conditions of the permit. The full text of the permit is available at: http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/construction-stormwater/mpca-to-re-issue-construction-stormwater-general-permit.html.

SWPPP AMENDMENTS

Permittee must amend SWPPP as necessary to include additional requirements to correct problems identified or address the following situations.

1. There is a change in design, construction, operation, maintenance, weather or seasonal conditions.
2. Inspections or investigations by site owner or operators, USEPA or MPCA officials determine the SWPPP is not minimizing discharge of pollutants to surface waters or underground waters or discharges are causing water quality standard exceedances.
3. The SWPPP is not achieving the objectives of minimizing pollutants in stormwater discharges associated with construction activity, or the SWPPP is not consistent with the terms and conditions of the permit.
4. The MPCA determines that the project's stormwater discharges may cause, have reasonable potential to cause, or contribute to non-attainment of any applicable water quality standard, or the SWPPP does not incorporate the applicable requirements of the permit.

EROSION PREVENTION PRACTICES:

The location of areas not to be disturbed must be delineated on the project before site work begins.

Disturbance on steep slopes (>33.3%) shall be minimized. Where required, techniques such as phasing and stabilizing practices designed for steep slopes shall be used.

All exposed soils must be stabilized as soon as possible but in no case later than 7 days after the construction activity has temporarily or permanently ceased.

For public waters that have been promulgated "work in water restrictions" during fish spawning time frames, all exposed soil areas that are within 200 feet of the water's edge, and drain to these waters must complete stabilization within 24-hours during the time period.

Stormwater conveyance channels shall be routed around unstabilized areas. Erosion controls and velocity dissipation devices shall be used at outlets within and along the length of any constructed conveyance channel.

The normal wetted perimeter of all ditches or swales, including storm water management pond slopes, that drain waters from the site must be stabilized within 200' of any property edge or discharge point, including storm sewer inlets, within 24 hours of connection.

Stabilization of the remaining portions of any temporary or permanent ditches or swales with 7 calendar days after connecting to a surface water or property edge and construction in that portion of the ditch has temporary or permanently ceased.

Temporary or permanent ditches or swales used as sediment containment during construction do not need to be stabilized during temporary period of use and shall be stabilized within 24 hours after no longer used as sediment containment.

Mulch, hydromulch, tackifier, or similar practice shall not be used in any portion of a temporary or permanent drainage ditch. Refer to erosion and sediment control plan for temporary and permanent stabilization measures for ditches and swales.

Stormwater discharges shall be directed to vegetated areas where feasible. Velocity dissipation devices shall be used at discharge point.

Phased construction will be used to extent practical or as indicated in the plans to minimize exposed soils.

Rapid stabilization shall be of type and quantity indicated in the project specifications. Additional rapid stabilization may be necessary to minimize erosion throughout the duration of the project. Type and quantity shall be determined by the engineer or inspector prior to installation. In extreme cases, the contractor shall use any available rapid stabilization to immediately mitigate erosion, then further remedy the situation with approval by owner or engineer.

SEDIMENT CONTROL PRACTICES:

Practices must be established on all down gradient perimeters and be located up gradient of any buffer zones. Perimeter controls must be in place before up gradient land- disturbing activities begin and shall remain in place until final stabilization.

All sediment controls practices shall be re-installed if they have been adjusted or removed to accommodate short-term activities and replaced immediately after the short term activity has ceased. Short term activities shall be performed as quickly as possible. Sediment control practices shall be re-installed even before the next precipitation event if the activity is not complete.

All storm drains must be protected by appropriate BMPs during construction until all sources to the inlet have been stabilized. Inlet protection may be removed for specific safety concerns identified by the Permittee or jurisdictional authority. The removal shall be documented in the SWPPP and retained on site. Temporary stockpiles must have silt fence or other effective sediment controls and shall not be placed in surface waters or natural buffers.

Vehicle tracking BMPs shall be installed to minimize track out of sediment from the construction site. Method shall be approved by engineer prior to commencement of construction activities. Street sweeping shall be used if vehicle tracking BMPs are not adequate to prevent sediment from being tracked onto the street.

Soil compaction shall be minimized and topsoil shall be preserved, unless infeasible or if construction activities dictate soil compaction or topsoil stripping.

A 100 foot natural buffer, or redundant BMPs (where a buffer is infeasible) must be maintained when a surface water is located within 100 feet of disturbance activities and site runoff flows to the surface water.

If polymers, flocculants, or other sedimentation treatment chemicals are used on site, 1) conventional erosion and sediment controls shall be sowed prior to chemical placement, 2) chemicals shall be chosen based on soil types, and expected turbidity, pH, and flow rate of stormwater flowing into the treatment system, and 3) chemicals shall be used with accepted engineering practices and dosing specifications.

TEMPORARY SEDIMENTATION BASINS:

The temporary sedimentation basin shall be constructed and made operational prior to disturbance of 5 or more acres draining to a common location.

Temporary sedimentation basins are required prior to runoff leaving the construction site or entering surface waters when 5 or more acres of disturbed soils drain to a common location. The basin must provide 3,600 cubic feet of storage below the outlet per acre drained. If hydraulic calculations are available, the temporary sedimentation basin must provide a storage volume equivalent to the 2-year, 24-hour storm, but in no case less than 1800 cubic feet per acre drained. The temporary sedimentation basin must be constructed and made operational concurrent with the start of soil disturbance up gradient of the pond. The temporary sedimentation basin shall be designed to prevent short circuiting. The outfall shall be designed to remove floatable debris, allow for complete drawdown of the pond for maintenance activities, and have energy dissipation. The emergency spillway shall be stabilized.

Temporary sedimentation basins shall be situated outside of surface waters and any required buffer zone, and must be designed to avoid draining wetlands, unless the impact is in compliance with the requirements of this permit.

Excessive sediment-laden water that is not properly filtered will not be permitted to discharge from site.

DEWATERING AND BASIN DRAINING

Turbid or sediment-laden waters related to dewatering or basin draining shall be discharged to a temporary or permanent sedimentation basin on the project site unless infeasible. The temporary or permanent basin may discharge to surface waters if the basin water has been visually checked to ensure adequate treatment has been obtained in the basin and that the nuisance conditions will not result from the discharge. Discharge points shall be adequately protected from erosion and proper velocity dissipation provided.

All water from dewatering or basin-draining activities must be discharged in a manner that does not cause nuisance conditions, erosion in the receiving channels or on down slope properties, or inundation in wetlands causing significant adverse impacts to the wetland.

If filters with backwash waters are used, the backwash water shall be hauled away for disposal, returned to the beginning of the treatment process, or incorporated into site in a manner that does not cause erosion. Backwash water may be discharged to sanitary sewer if permission is granted by the sanitary sewer authority.

POLLUTION PREVENTION:

Building products that have the potential to leach pollutants must be under cover to prevent discharge or protected by an effective means designed to minimize contact with stormwater.

Pesticides, herbicides, insecticides, fertilizers, treatment chemicals, and landscape materials must be under cover.

Hazardous materials and toxic waste must be properly stored in sealed containers to prevent spills, leaks or other discharge. Restricted access storage areas must be provided to prevent vandalism.

Solid waste must be stored, collected and disposed of in compliance with Minn. R. CH 7035.

Portable toilets must be positioned so that they are secure and will not be tipped or knocked over. Sanitary waste must be disposed of properly in accordance with Minn. R. CH 7041.

Discharge of spilled or leaked chemicals, including fuel, from any area where chemicals or fuel will be loaded or unloaded shall be prevented using drip pans or absorbents. Supplies shall be available at all times to clean up discharged materials and that an appropriate disposal method must be available for recovered spilled materials.

Exterior vehicle or equipment washing on the project site shall be limited to a defined area of the site. Runoff from the washing area shall be contained in a sediment basin or other similarly effective controls and waste from the washing activity must be properly disposed of. No engine degreasing is allowed on site.

Effective containment for all liquid and solid wastes generated by concrete and other washout operations related to construction activity shall be effectively contained. Liquid and solid washout waste shall not contact the ground, and containment must be designed so that it does not result in runoff from the washout operations or areas. A sign must be installed adjacent to each washout facility that requires site personnel to utilize the proper facilities for disposal of concrete and other washout wastes.

INFESTED WATERS:

MN DNR permits are not valid for work in waters that are designated as infested waters unless accompanied by and Infested Waters Permit or written notification from MN DNR that an Infested Waters Permit is not required. There is no exception for pre-existing permits. If a MN DNR Permit has been issued for the project and the water is later designated as infested, the Contractor shall halt all work covered by the MN DNR Permit until an Infested Water Permit or written notification that in Infested Water is not required is obtained.

INSPECTION & MAINTENANCE:

A trained person shall routinely inspect the entire construction site at least once every 7 days during active construction and within 24-hours after a rainfall event greater than 0.5 inches in 24 hours. Following an inspection that occurs within 24-hours after a rainfall event, the next inspection must be conducted within 7 days.

All inspections and maintenance conducted during construction must be recorded within 24 hours in writing and records must be retained with the SWPPP. Inspection report forms are available in the Project Specifications. Inspection report forms other than those provided shall be approved by the engineer.

Where parts of the project site have permanent cover, but work remains on other parts of the site, inspections may be reduced on these areas to once per month.

Where the site has permanent cover on all exposed areas and no construction activity is occurring anywhere on site, the site must be inspected during non-frozen conditions at least once per month for 12 months. Following the 12th month of permanent cover and no construction activity, inspections shall be terminated until construction activity resumes or notification from MPCA has been issued that erosion has been detected at the site.

During frozen ground conditions, inspections may be suspended and shall resume within 24 hours after runoff occurs or 24 hours prior to resuming construction activity, whichever is first.

Inspection and maintenance shall resume until another Permittee has obtained coverage under this Permit or the project has undergone Final Stabilization, and an NOT has bee submitted.

All erosion prevention and sediment control BMPs shall be inspected to ensure integrity and effectiveness during all routine and post-rainfall inspections. All non-functioning BMPs must be repaired, replaced, or supplemented with functional BMPs by the end of the next business day after discovery, or as soon as field conditions allow access.

All perimeter control devices must be repaired, replaced, or supplemented when they become non-functional or the sediment reaches one-half (1/2) of the height of the device. These repairs must be made by the end of the next business day after discovery, or as soon as field conditions allow.

Temporary and permanent sediment basins must be drained and the sediment removed when the depth of sediment collected in the basin reaches one-half (1/2) the storage volume. Drainage and sediment removal must be completed within 72 hours of discovery, or as soon as field conditions allow.

Surface waters, including drainage ditches and conveyance systems, must be inspected for erosion and sediment deposition during each inspection. All deltas and sediment deposited in drainage ways, catch basins, and other drainage systems shall be removed. The removal and stabilization must take place within seven (7) days of discovery unless precluded by legal, regulatory, or physical access constraints. The Permittee is responsible for obtaining all applicable permits prior to conducting any work in surface waters.

Construction site vehicle exit locations must be inspected for evidence of off-site sediment tracking onto paved surfaces. Tracked sediment must be removed from all paved surfaces both on and off site within 24-hours of discovery, or if applicable, within a shorter time to comply with the permit.

Streets and other areas adjacent to the project must be inspected for evidence of off-site accumulations of sediment. If sediment is present, it must be removed in a manner and at a sufficient frequency to minimize off-site impacts.

All infiltration areas must be inspected to ensure that no sediment from ongoing construction activity is reaching the infiltration area and that equipment is not being driven across the infiltration area.

FINAL STABILIZATION:

Final Stabilization is not complete until all of the following requirements have been met:

1. All soil disturbing activities at the site have been completed and all soils are stabilized by a uniform perennial vegetative cover with a density of 70% of its expected final growth density over the entire pervious surface area, or other equivalent means necessary to prevent soil failure under erosive conditions.
2. Permanent stormwater management system is constructed, meets all requirements of the Permit, and is operating as designed. Temporary or permanent sedimentation basins that are to be used as permanent water quality management basins have been cleaned of any accumulated sediment. All sediment has been removed from conveyance systems, and ditches are stabilized with permanent cover.
3. All temporary synthetic and structural erosion prevention and sediment control BMPs have been removed. BMPs designed to decompose on site may be left in place.
4. For residential construction only, individual lots are considered finally stabilized if the structure(s) are finished, temporary erosion protection and down gradient perimeter control has been completed and the residence has been sold to the homeowner. Also, the "Homeowner Fact Sheet" has been provided to the homeowner.

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\SWPPP\SWPPP_02_10_2016\CAD\SWPPP_1_PROJ_INFO_MAP.dwg 3/8/16 12:02 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb

LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

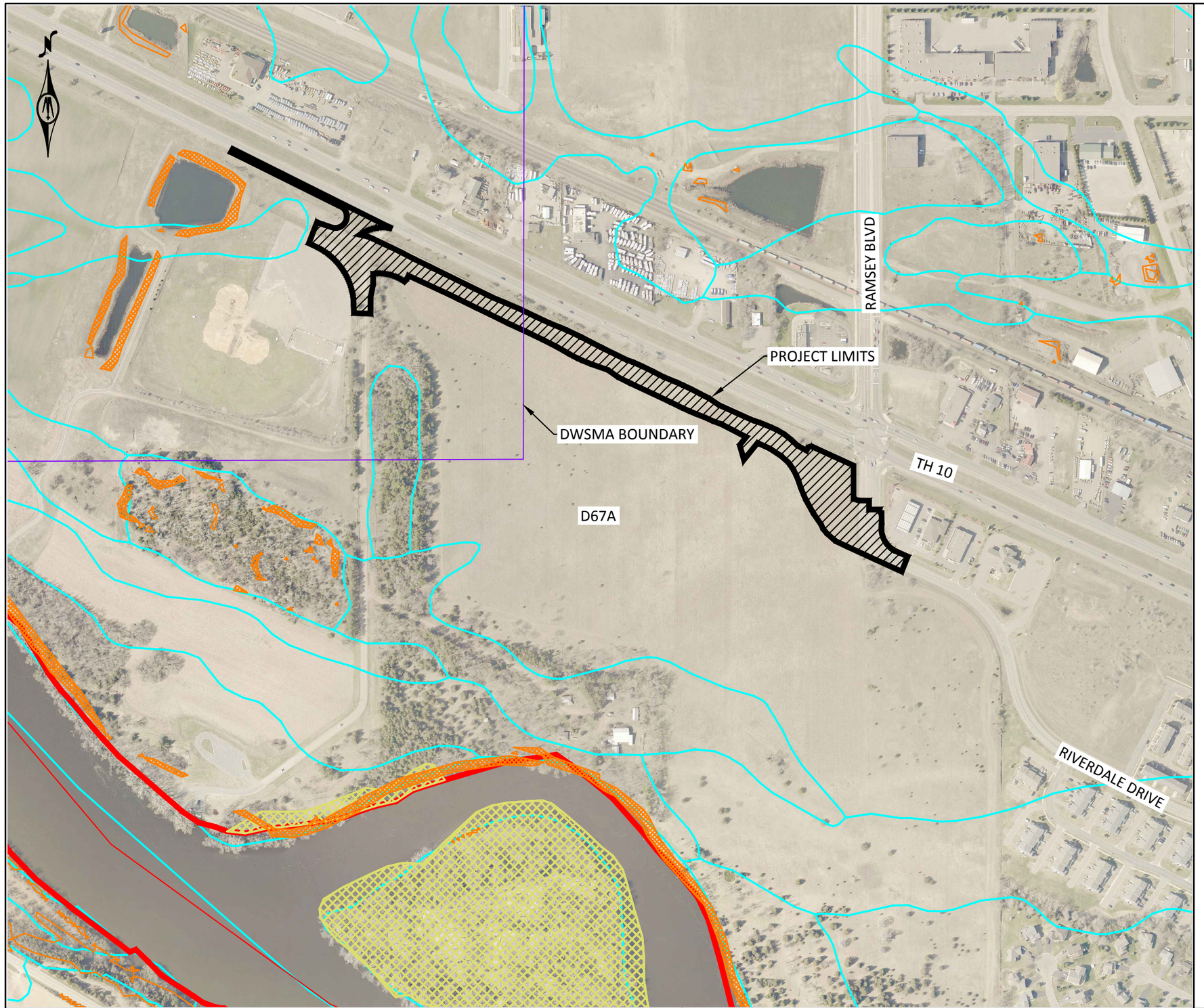
City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
STORMWATER POLLUTION PREVENTION PLAN



LEGEND

- PROJECT BOUNDARY
- SOIL TYPE
- IMPAIRED, SPECIAL OR PROTECTED WATERS
- NATIONAL WETLANDS INVENTORY
- DWSMA, LOW VULNERABILITY
- STEEP SLOPES (>33.3%)

SOIL TYPE SUMMARY

Map Unit Symbol	Soil Name	Hyd. Soil Group	Erodibility
D67A	Hubbard loamy sand, Mississippi River Valley, 0 to 2 percent slopes	A	NHEL

NHEL - Not Highly Erodible Land
PHEL - Potentially Highly Erodible Land
HEL - Highly Erodible Land

LOCATION OF SWPPP REQUIREMENTS IN PROJECT PLAN

DESCRIPTION	SHEET NO.
SITE MAP	24
DIRECTION OF FLOW	27
FINAL STABILIZATION	27
SOILS	26
DRAINAGE STRUCTURES	5
DRAINAGE TABULATION	5
STORM SEWER PLAN/PROFILE SHEETS	30 - 35
EROSION & SEDIMENT CONTROL DETAILS	10
EROSION CONTROL TABULATION	5
TURF ESTABLISHMENT TABULATION	5
NARRATIVE & NOTES	24 - 25

0 200 400
SCALE FEET

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\SWPPP\SWPPP_02_10_2016\CAD\SWPPP_3_SOILS.dwg 3/1/16 4:19 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

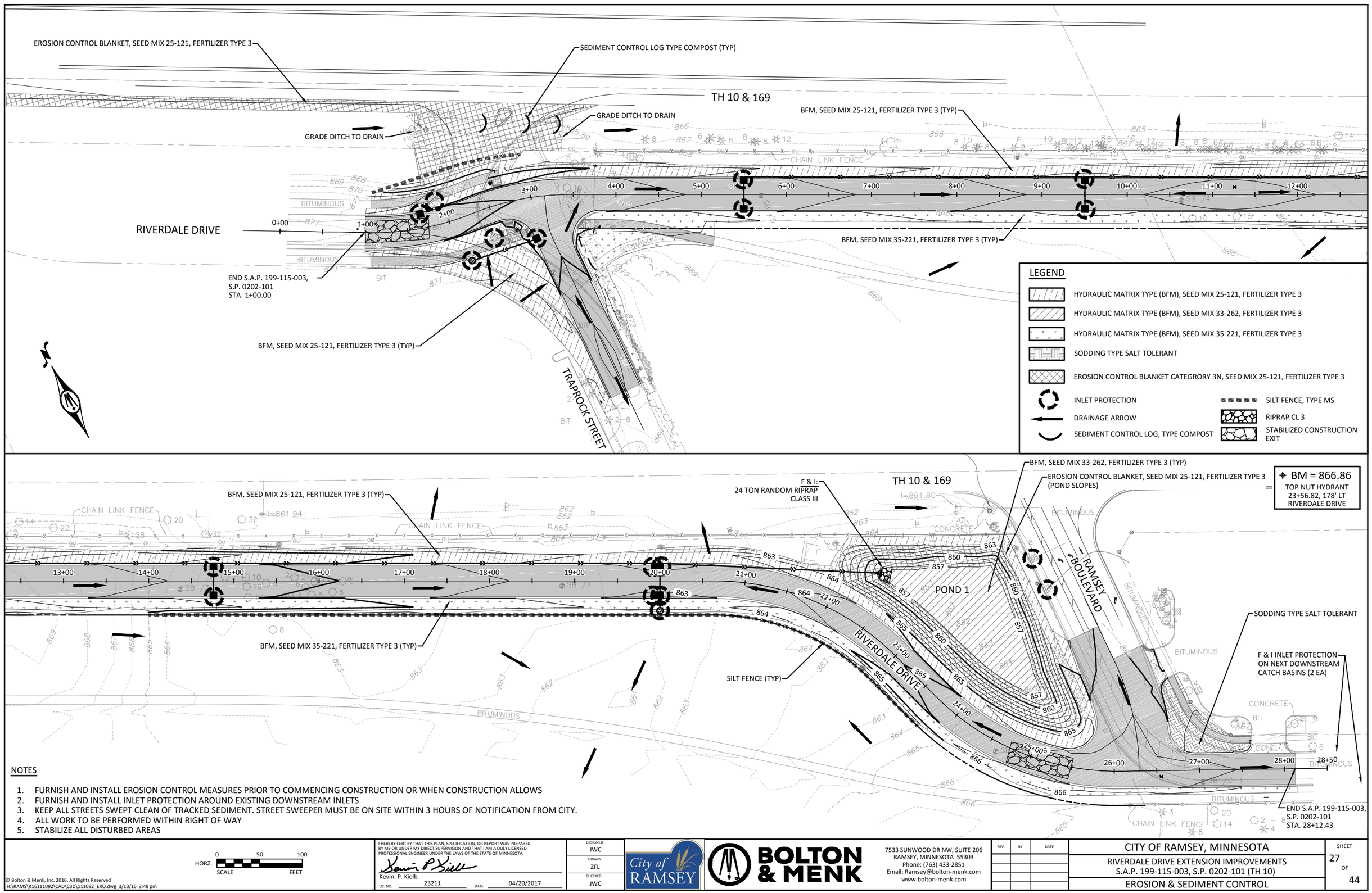
City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
STORMWATER POLLUTION PREVENTION PLAN



NOTES

1. FURNISH AND INSTALL EROSION CONTROL MEASURES PRIOR TO COMMENCING CONSTRUCTION OR WHEN CONSTRUCTION ALLOWS
2. FURNISH AND INSTALL INLET PROTECTION AROUND EXISTING DOWNSTREAM INLETS
3. KEEP ALL STREETS SWEPT CLEAN OF TRACKED SEDIMENT. STREET SWEEPER MUST BE ON SITE WITHIN 3 HOURS OF NOTIFICATION FROM CITY.
4. ALL WORK TO BE PERFORMED WITHIN RIGHT OF WAY
5. STABILIZE ALL DISTURBED AREAS

HORZ. SCALE 0 50 100 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_ERO.dwg 3/10/16 3:48 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb

LIC. NO. 23211 DATE 04/20/2017

DESIGNED	DRAWN	CHECKED
JWC	ZFL	JWC

City of RAMSEY
BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

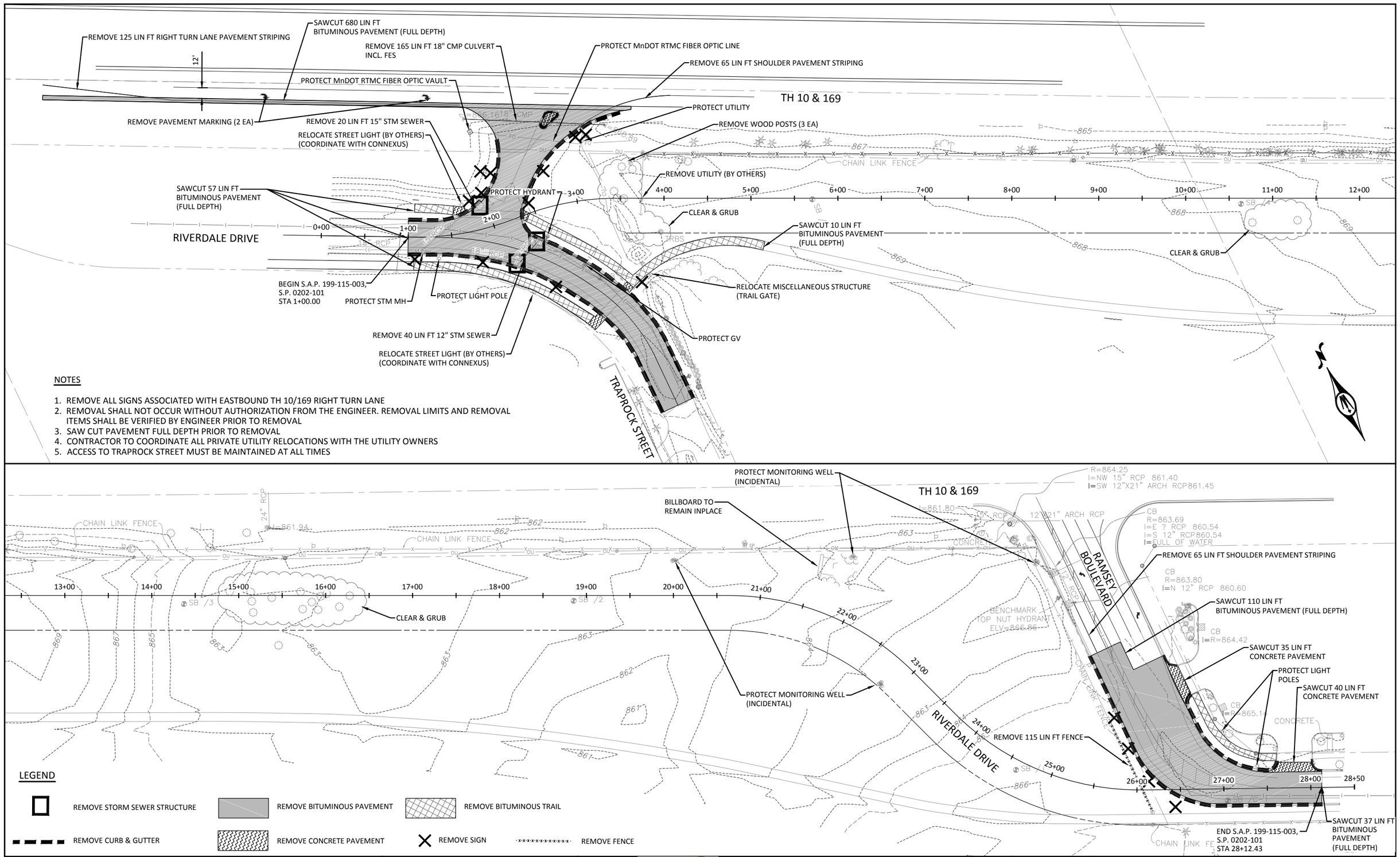
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

EROSION & SEDIMENT CONTROL

SHEET 27 OF 44



NOTES

1. REMOVE ALL SIGNS ASSOCIATED WITH EASTBOUND TH 10/169 RIGHT TURN LANE
2. REMOVAL SHALL NOT OCCUR WITHOUT AUTHORIZATION FROM THE ENGINEER. REMOVAL LIMITS AND REMOVAL ITEMS SHALL BE VERIFIED BY ENGINEER PRIOR TO REMOVAL
3. SAW CUT PAVEMENT FULL DEPTH PRIOR TO REMOVAL
4. CONTRACTOR TO COORDINATE ALL PRIVATE UTILITY RELOCATIONS WITH THE UTILITY OWNERS
5. ACCESS TO TRAPROCK STREET MUST BE MAINTAINED AT ALL TIMES

HORZ. SCALE 0 50 100 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_REM.dwg 3/9/16 12:30 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb

LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

EXISTING CONDITIONS & REMOVALS

SHEET 28 OF 44

BM = 866.86
TOP NUT HYDRANT
23+56.82, 178' LT
RIVERDALE DRIVE

LEGEND
- DRAINAGE ARROW
- RIPRAP CL 3
- 860 PROPOSED MAJOR CONTOUR
- 861 PROPOSED MINOR CONTOUR
- EXISTING CONTOUR

STM MH
R=864.25
I=NW 15" RCP
I=SW 12"X21"
ARCH RCP

12"X21" ARCH RCP

861.45

PROTECT MONITORING WELL

I=861.80

CONC

MONITORING WELL

CB
R=863.80
I=N 12" RCP 860.60

CB
I=R=864.42

CB
I=R=865.14

BITUMINOUS

RAMSEY BLVD

CHAIN LINK FENCE

POND 1
INFILTRATION BASIN
BOTTOM = 857.00
100 HWL = 860.80

10'

1:4

FES 1

18" STM

PROTECT BILLBOARD

SIGN

RIVERDALE DRIVE

22+00

23+00

24+00

25+00

26+00

27+00

21+00

STEEL POST

SB /1

PROTECT MONITORING WELL

857 860 863 864 865 866

HORZ. 0 20 40
SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_ERO.dwg 3/10/16 3:48 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

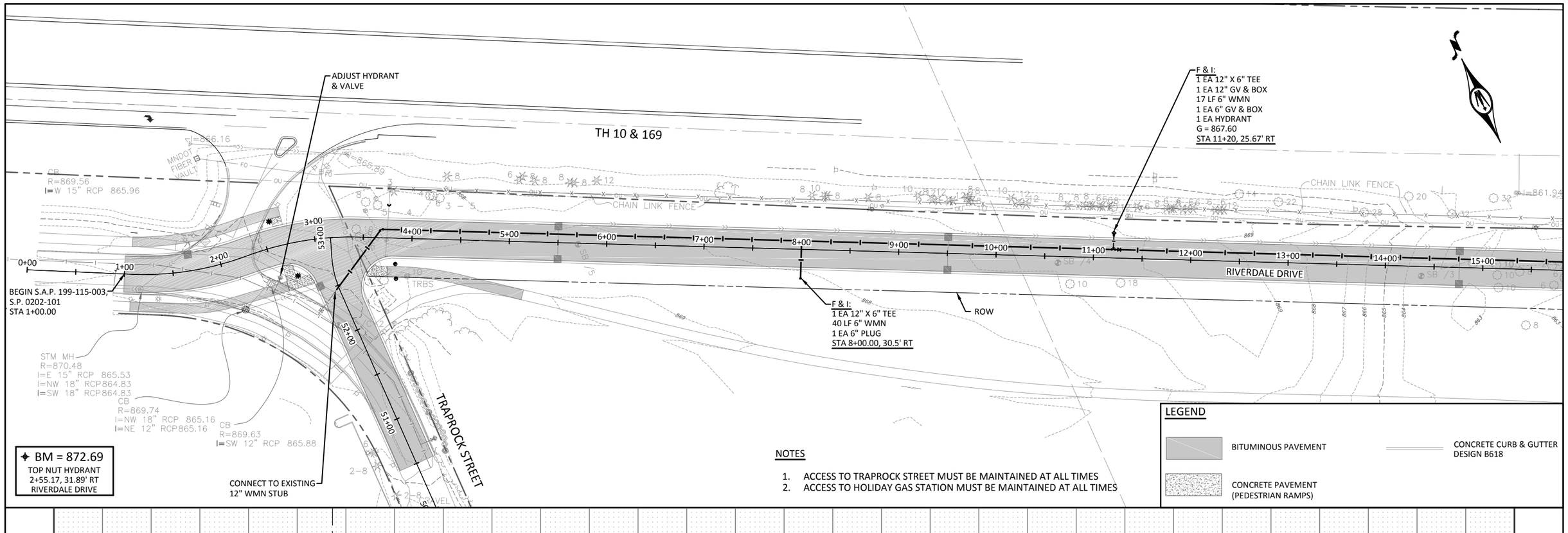
BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
POND GRADING

SHEET 29 OF 44



HORZ. SCALE 0 50 100 FEET
VERT. SCALE 0 5 10 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_AL1_OPT3.dwg 3/10/16 3:52 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
RIVERDALE DRIVE - P & P - WATERMAIN

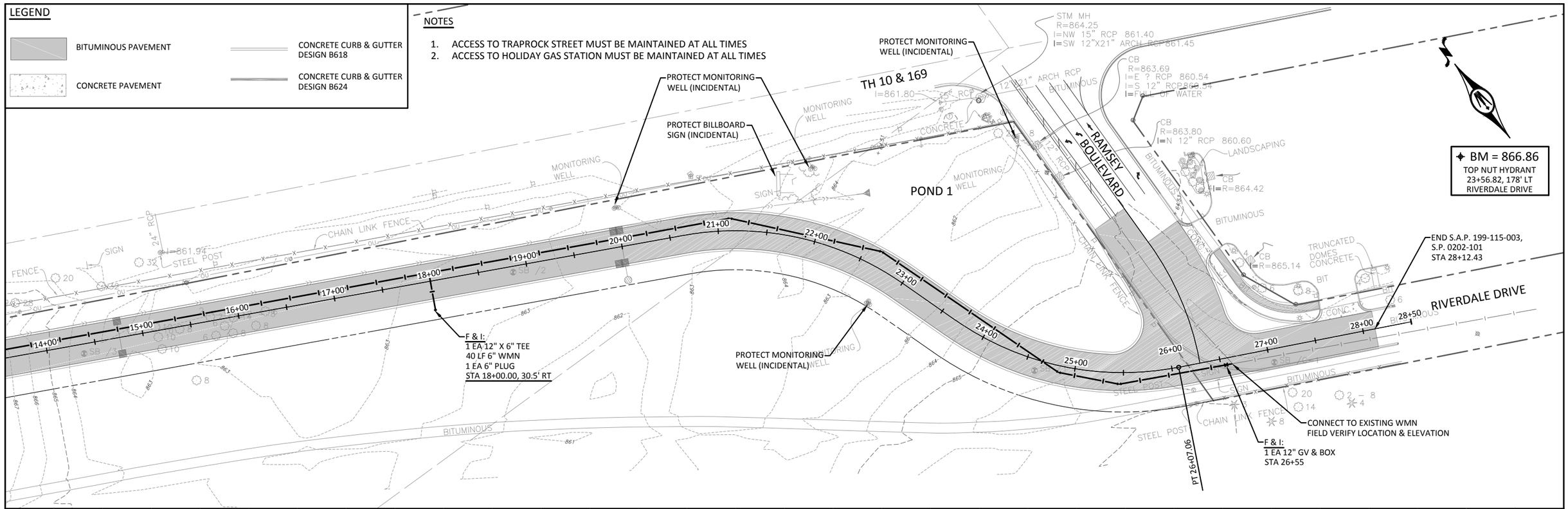
SHEET 30 OF 44

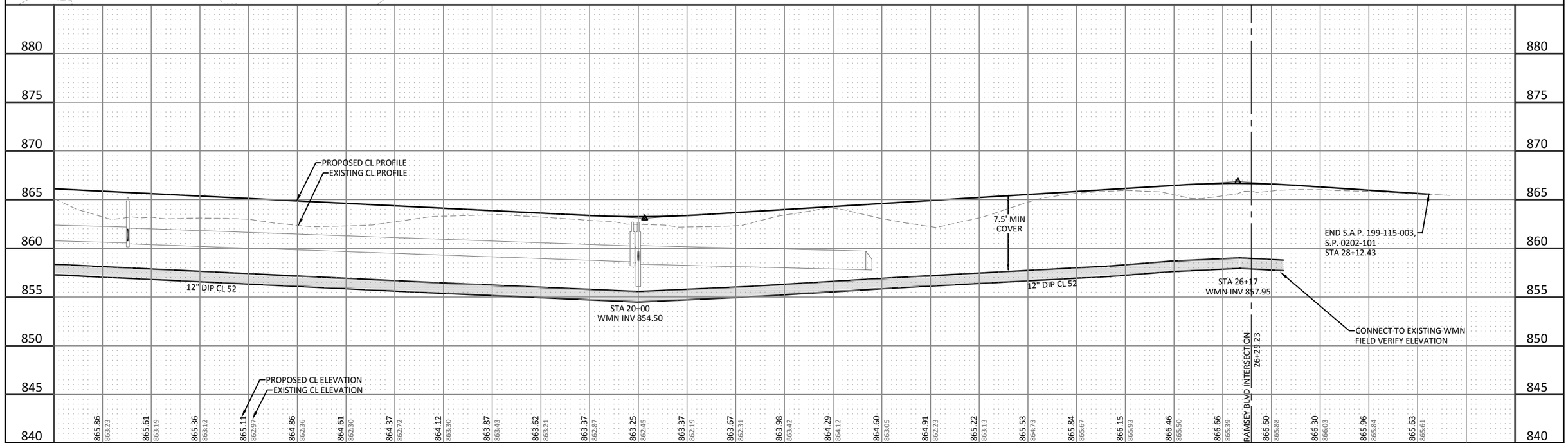
LEGEND

- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE CURB & GUTTER DESIGN B618
- CONCRETE CURB & GUTTER DESIGN B624

NOTES

1. ACCESS TO TRAPROCK STREET MUST BE MAINTAINED AT ALL TIMES
2. ACCESS TO HOLIDAY GAS STATION MUST BE MAINTAINED AT ALL TIMES





HORZ. SCALE 0 50 100 FEET
VERT. SCALE 0 5 10 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_AL1_OPT3.dwg 3/10/16 3:52 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

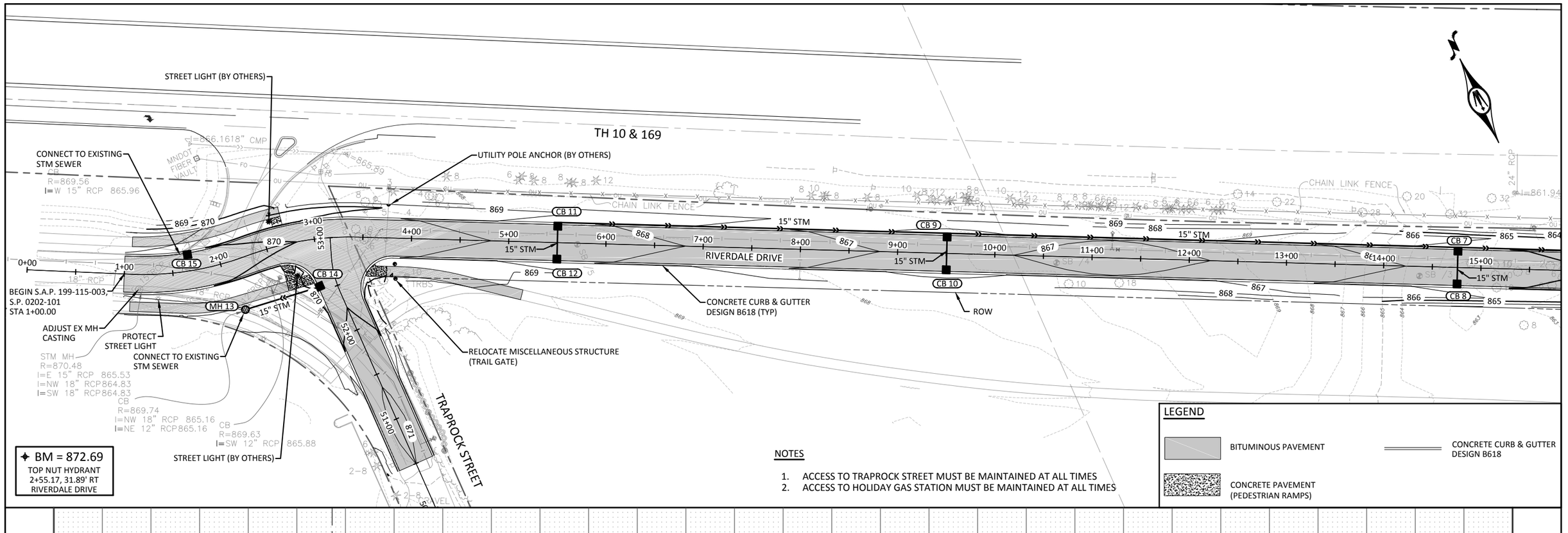
BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
RIVERDALE DRIVE - P & P - WATERMAIN

SHEET 31 OF 44



HORZ. SCALE 0 50 100 FEET
VERT. SCALE 0 5 10 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_AL1_OPT3.dwg 3/10/16 3:52 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
RIVERDALE DRIVE - P & P - STREET & STORM SEWER

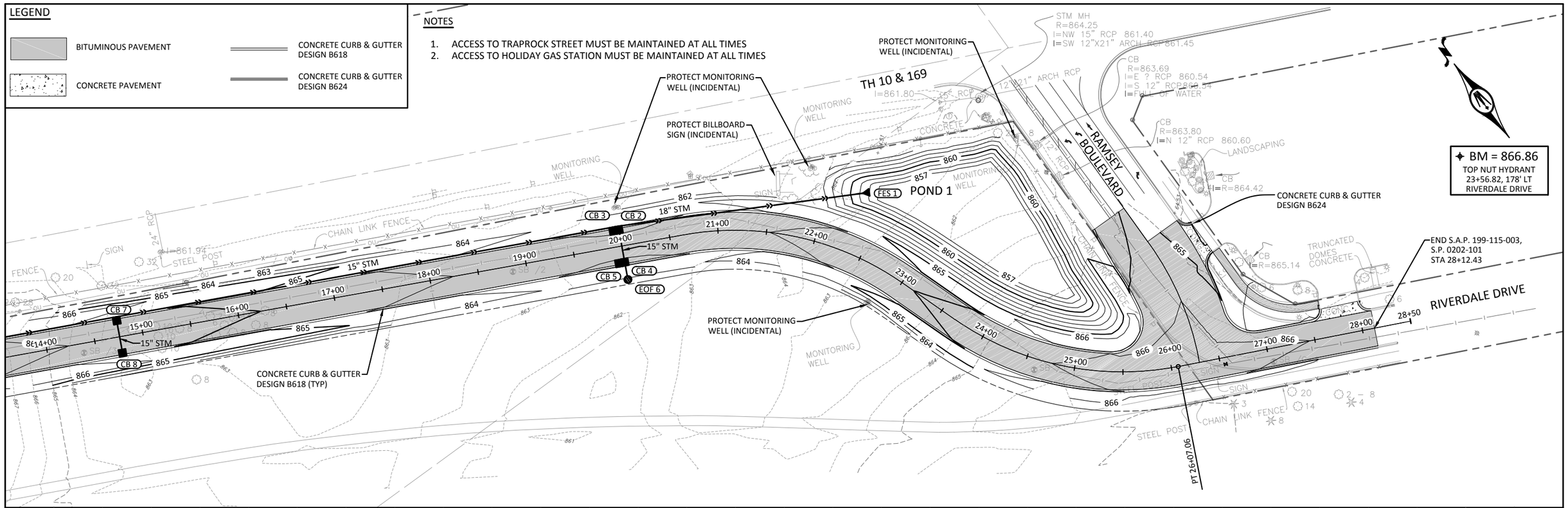
SHEET 32 OF 44

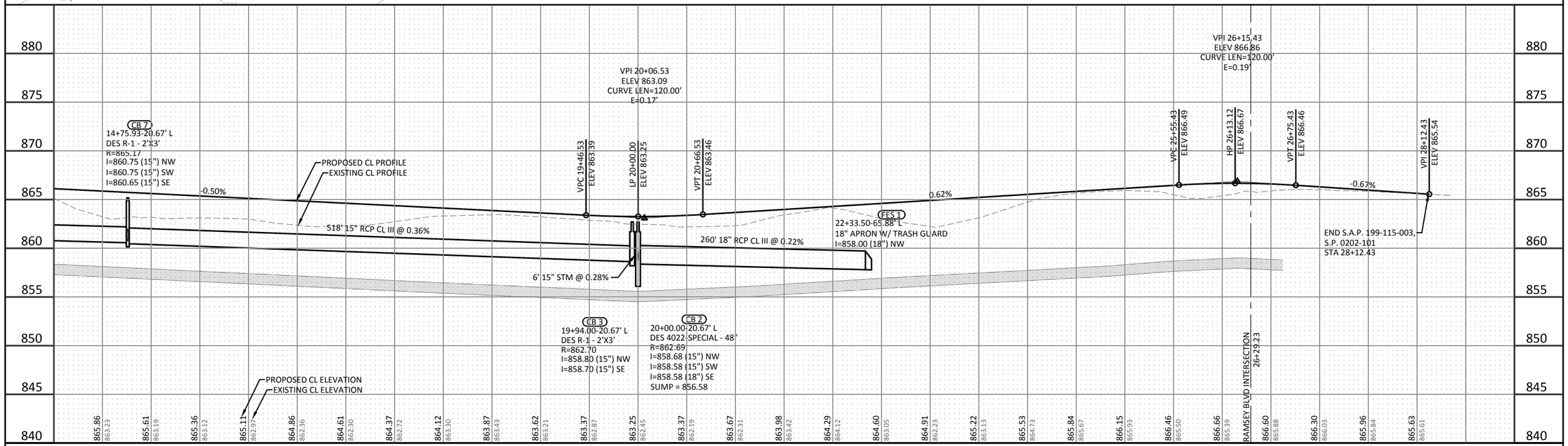
LEGEND

- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- CONCRETE CURB & GUTTER DESIGN B618
- CONCRETE CURB & GUTTER DESIGN B624

NOTES

1. ACCESS TO TRAPROCK STREET MUST BE MAINTAINED AT ALL TIMES
2. ACCESS TO HOLIDAY GAS STATION MUST BE MAINTAINED AT ALL TIMES





HORZ. SCALE 0 50 100 FEET
VERT. SCALE 0 5 10 FEET

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_AL1_OPT3.dwg 3/10/16 3:52 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

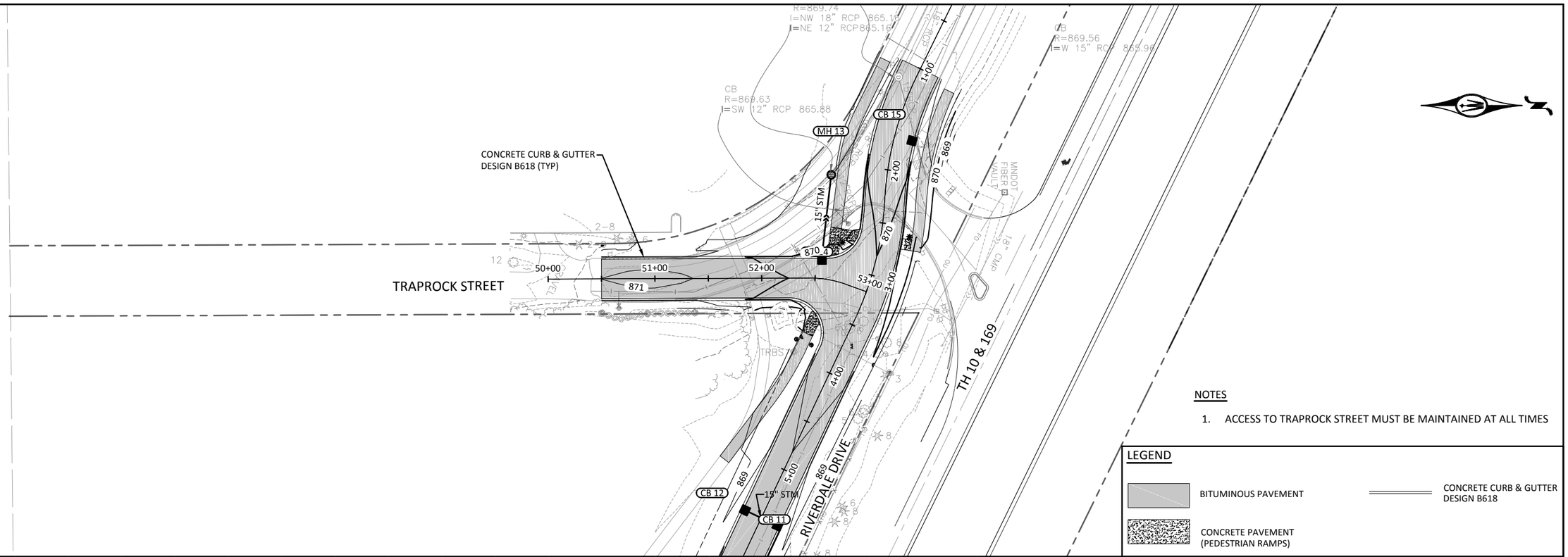
BOLTON & MENK

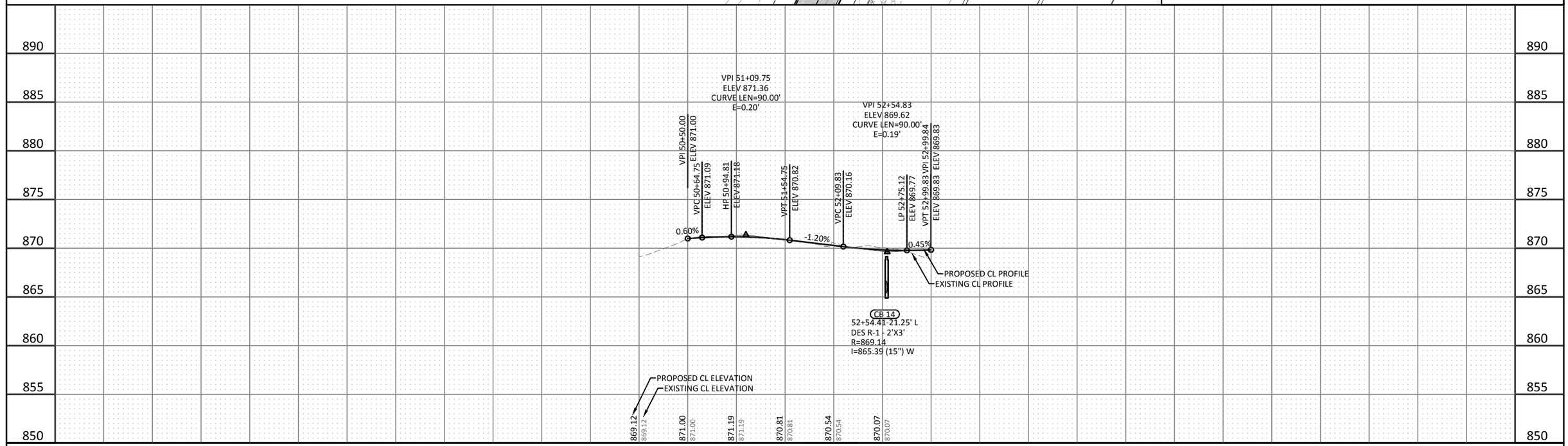
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)
RIVERDALE DRIVE - P & P - STREET & STORM SEWER

SHEET 33 OF 44





HORZ. SCALE 0 50 100 FEET
VERT. SCALE 0 5 10 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_AL1_OPT3.dwg 3/10/16 3:52 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

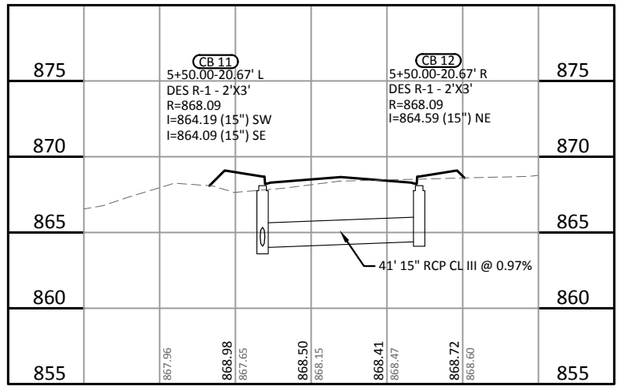
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

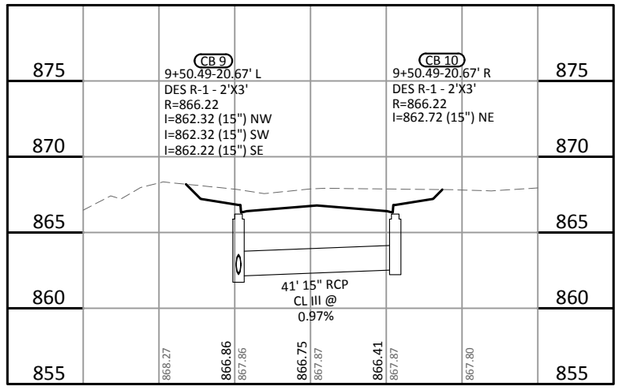
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
TRAPROCK STREET - PLAN & PROFILE

SHEET 34 OF 44

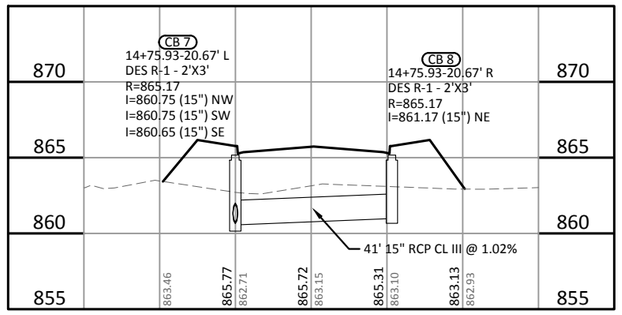
STA 50+00.00



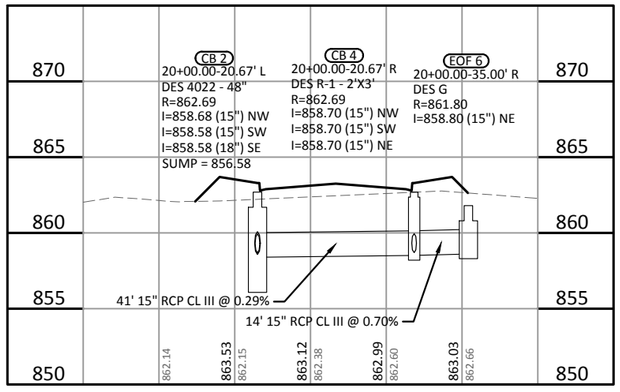
STA 9+50.49



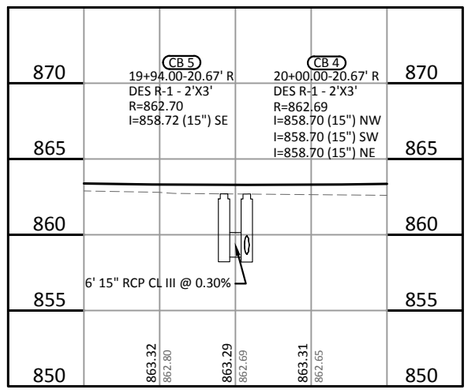
STA 14+75.93



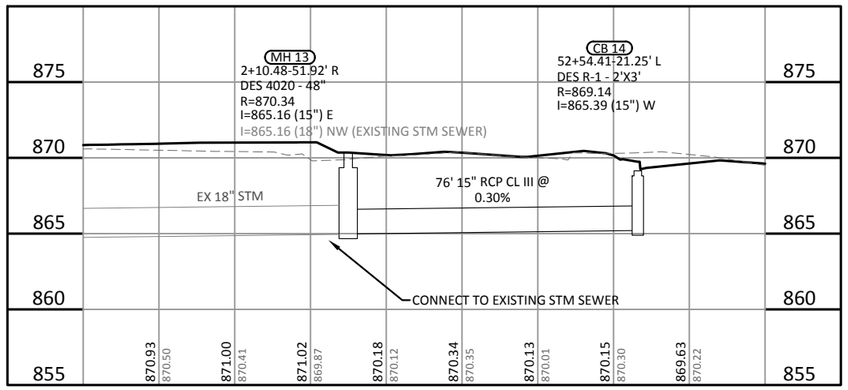
STA 20+00.00



STA 20+00.00, RT



STA 52+54.41



HORZ. SCALE 0 20 40 FEET
VERT. SCALE 0 5 10 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_AL1_OPT3.dwg 3/10/16 3:52 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

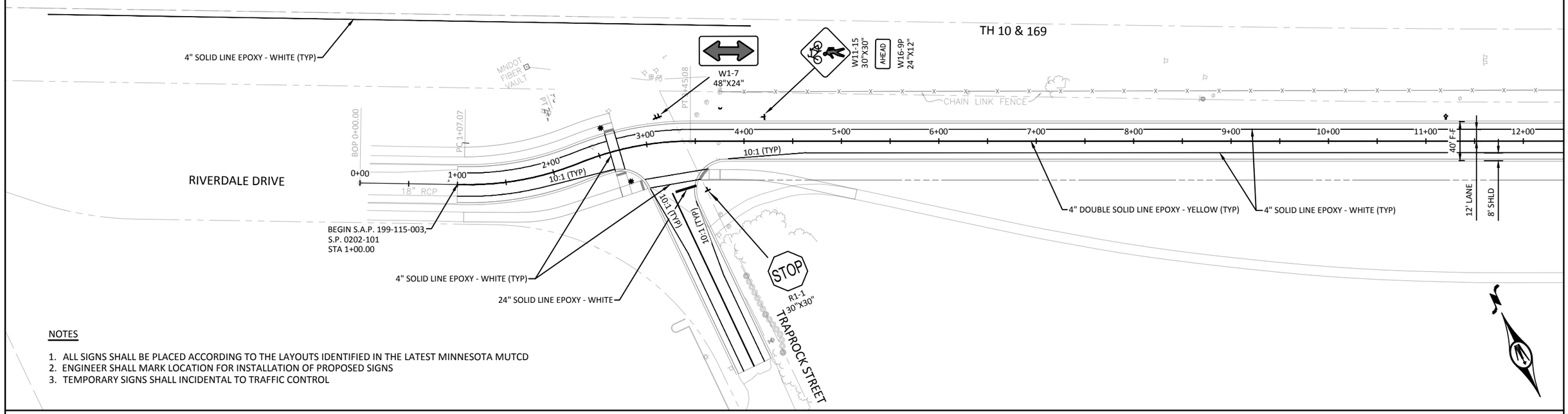
BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

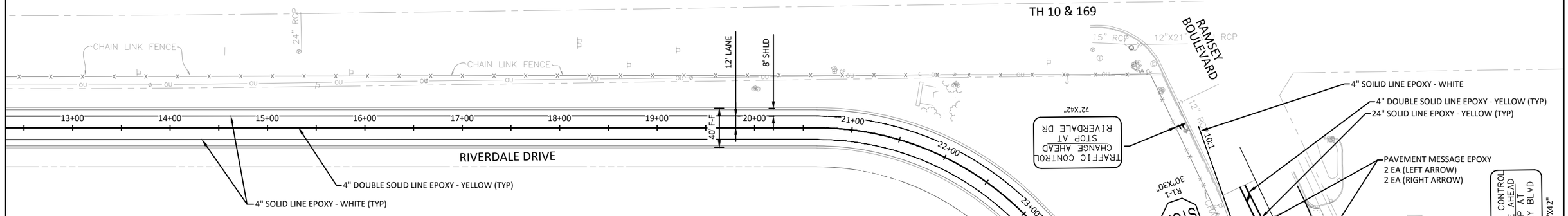
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
STORM SEWER LEADS

SHEET 35 OF 44



NOTES

1. ALL SIGNS SHALL BE PLACED ACCORDING TO THE LAYOUTS IDENTIFIED IN THE LATEST MINNESOTA MUTCD
2. ENGINEER SHALL MARK LOCATION FOR INSTALLATION OF PROPOSED SIGNS
3. TEMPORARY SIGNS SHALL INCIDENTAL TO TRAFFIC CONTROL



SIGN LEGEND	SIGN NUMBER/SIZE	NOTES	ESTIMATED QUANTITY
STOP	R1-1 30"X30"	FURNISH AND INSTALL SIGN, POST, & ASSEMBLY	4
	W1-7 48"X24"	FURNISH AND INSTALL SIGN, POST, & ASSEMBLY	2
	W3-1 36"X36"	FURNISH AND INSTALL SIGN, POST, & ASSEMBLY	1

SIGN LEGEND	SIGN NUMBER/SIZE	NOTES	ESTIMATED QUANTITY
AHEAD	W11-15 30"X30" W16-9P 24"X12"	FURNISH AND INSTALL SIGN, POST, & ASSEMBLY	1
TRAFFIC CONTROL CHANGE AHEAD STOP AT RIVERDALE DR	72"X42"	BLACK ON ORANGE BACKGROUND, FURNISH AND INSTALL SIGN, POST, & ASSEMBLY - PERMANENTLY MOUNTED	1
TRAFFIC CONTROL CHANGE AHEAD STOP AT RAMSEY BLVD	72"X42"	BLACK ON ORANGE BACKGROUND, FURNISH AND INSTALL SIGN, POST, & ASSEMBLY - PERMANENTLY MOUNTED	1

HORZ. 0 50 100
SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_SIGN STRIP.dwg 3/16/16 5:54 pm

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Kevin. P. Kielb
LIC. NO. 23211 DATE 04/20/2017

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

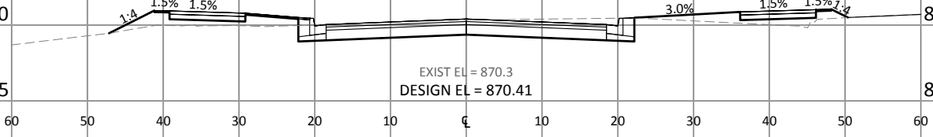
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

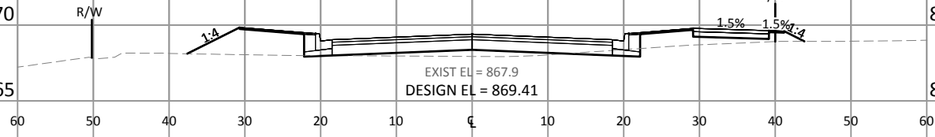
CITY OF RAMSEY, MINNESOTA
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)
SIGNING & STRIPING

SHEET 36 OF 44

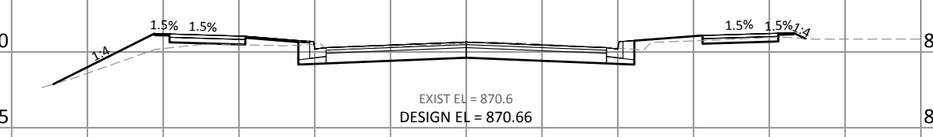
STA 2+00



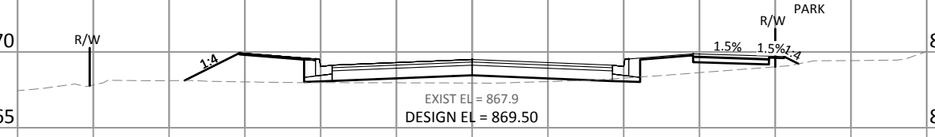
STA 4+00



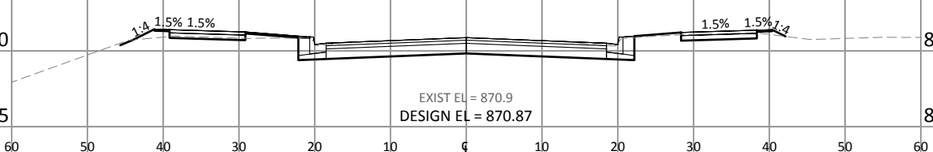
STA 1+50



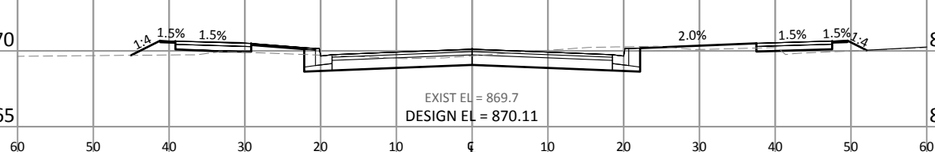
STA 3+81.48



STA 1+07.07



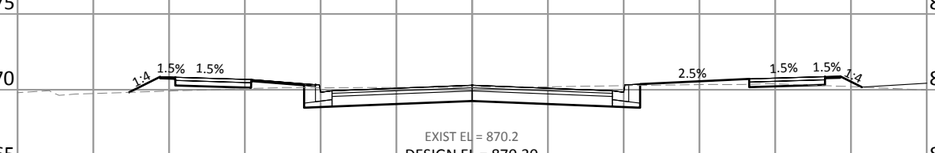
STA 2+58.51



STA 1+00



STA 2+22.23



HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

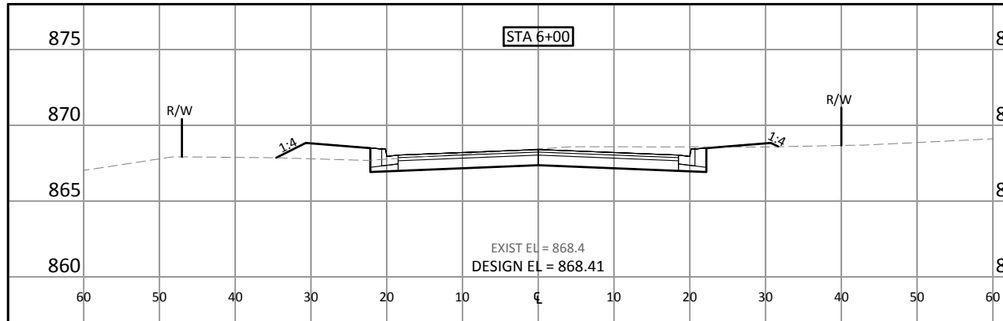
REV.	BY	DATE

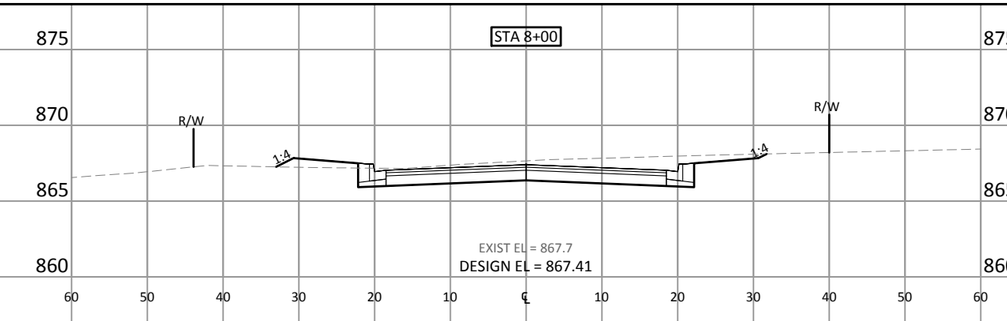
CITY OF RAMSEY, MINNESOTA

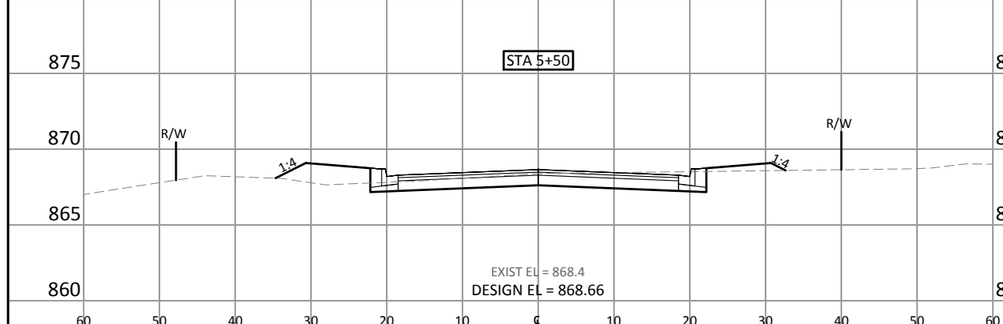
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

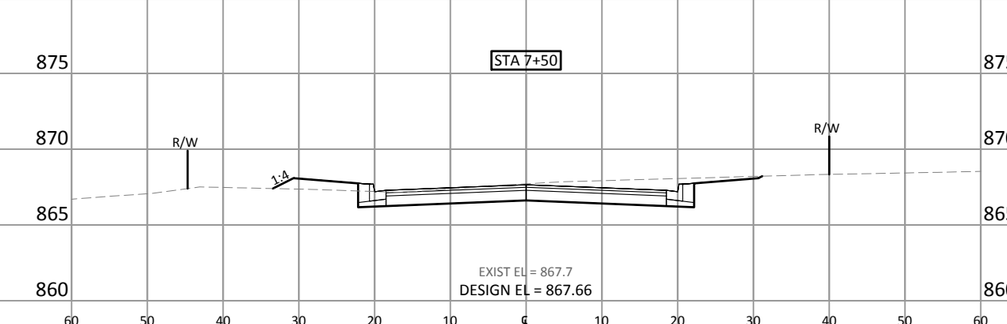
CROSS SECTIONS - RIVERDALE DRIVE

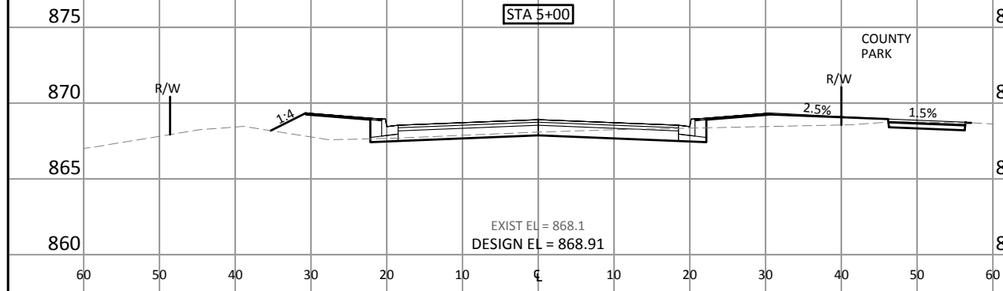
SHEET 37 OF 44

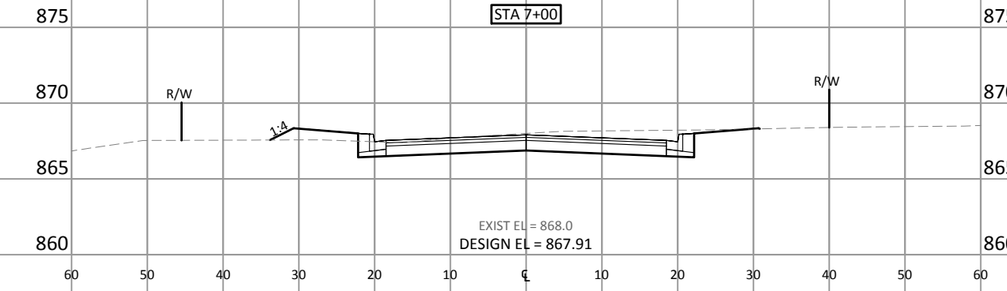


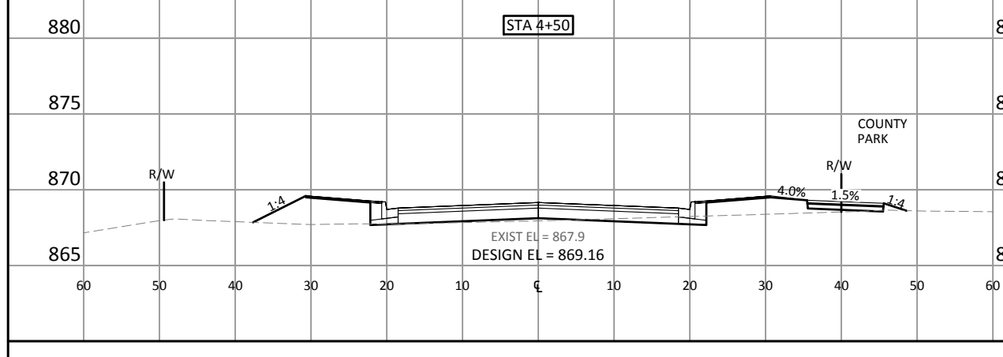


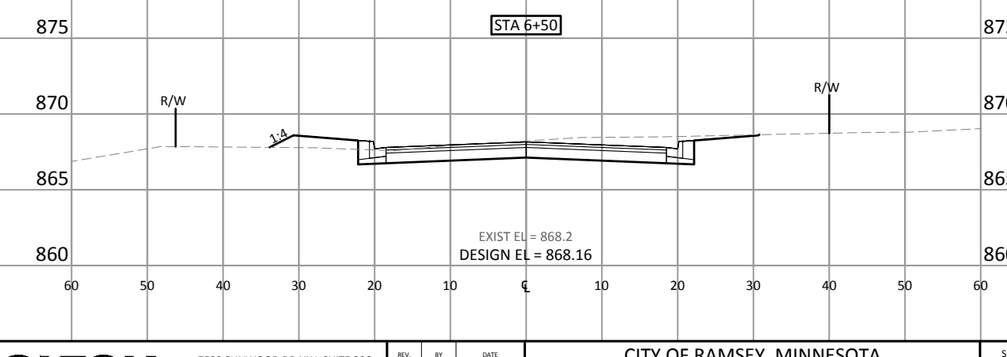












HORIZ. 0 10 20 SCALE FEET
VERT. 0 5 10 SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

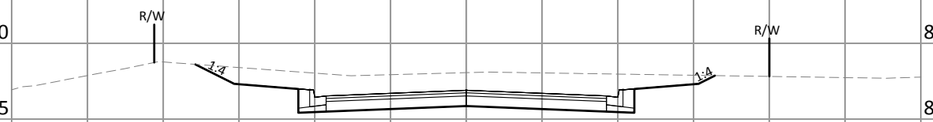
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - RIVERDALE DRIVE

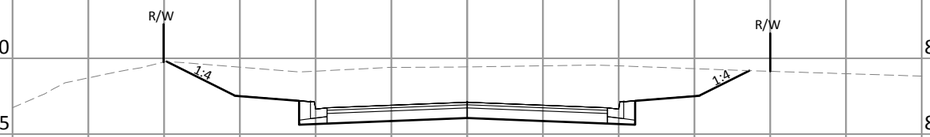
SHEET 38 OF 44

STA 10+00



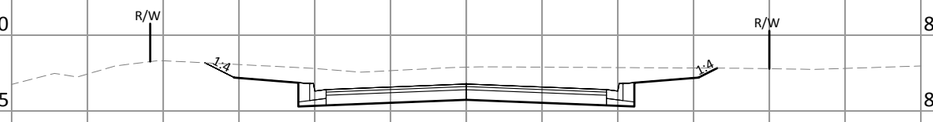
EXIST EL = 868.1
DESIGN EL = 866.90

STA 12+00



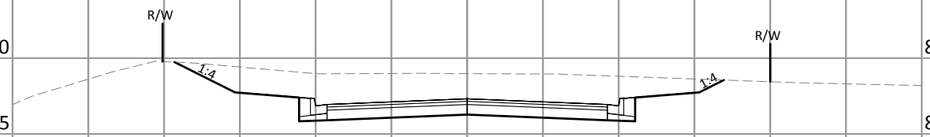
EXIST EL = 869.4
DESIGN EL = 867.11

STA 9+50



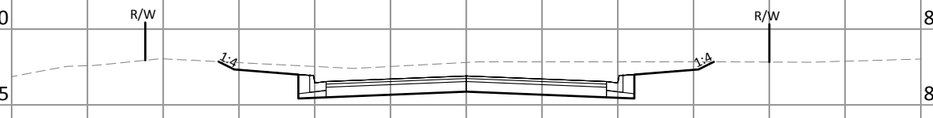
EXIST EL = 867.9
DESIGN EL = 866.78

STA 11+50



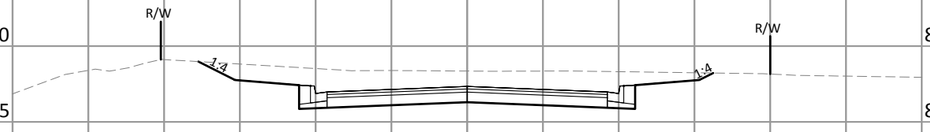
EXIST EL = 869.0
DESIGN EL = 867.32

STA 9+00



EXIST EL = 867.8
DESIGN EL = 866.91

STA 11+00



EXIST EL = 868.4
DESIGN EL = 867.34

STA 8+50



EXIST EL = 867.7
DESIGN EL = 867.16

STA 10+50



EXIST EL = 868.1
DESIGN EL = 867.15

HORIZ. 0 10 20 SCALE FEET
VERT. 0 5 10 SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

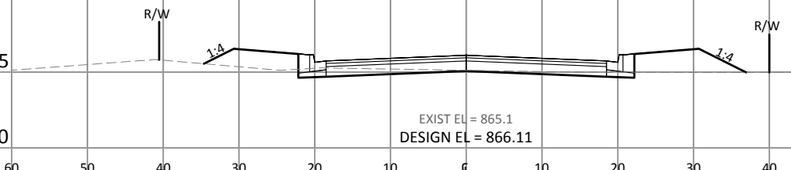
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

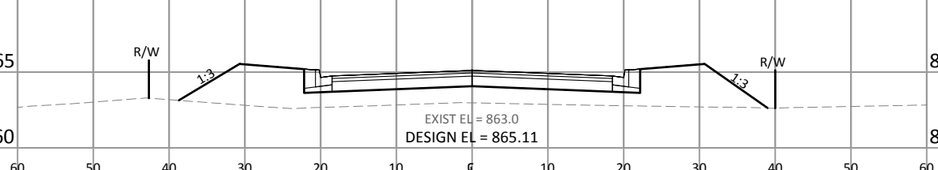
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - RIVERDALE DRIVE

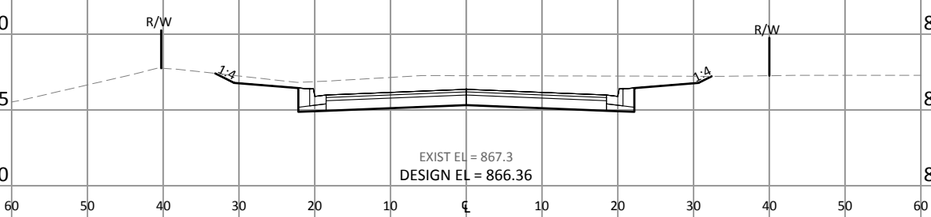
STA 14+00



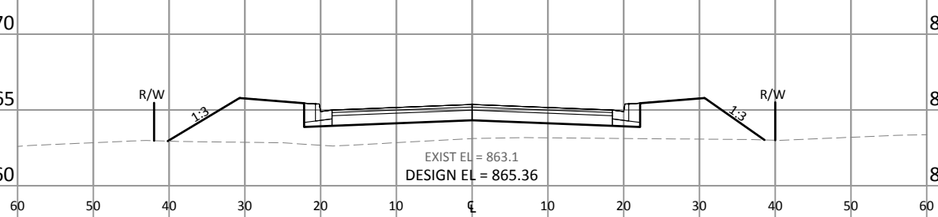
STA 16+00



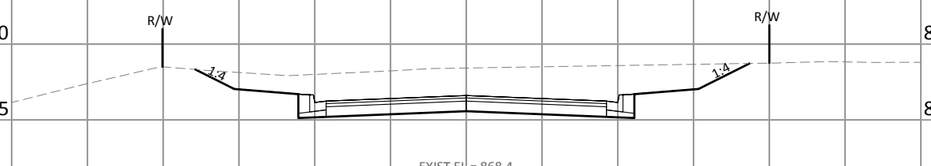
STA 13+50



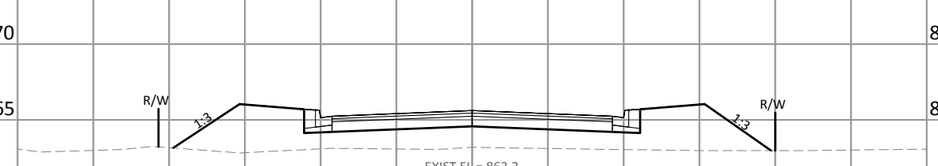
STA 15+50



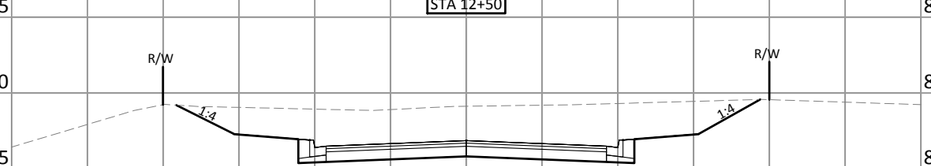
STA 13+00



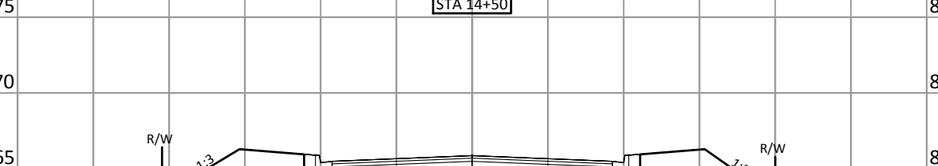
STA 15+00



STA 12+50



STA 14+50



HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

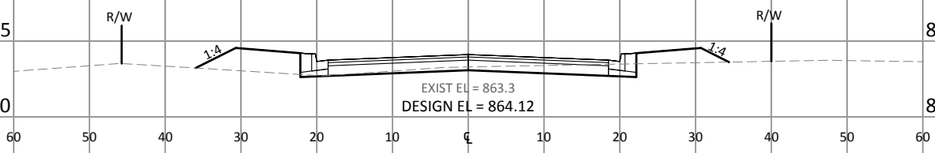
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

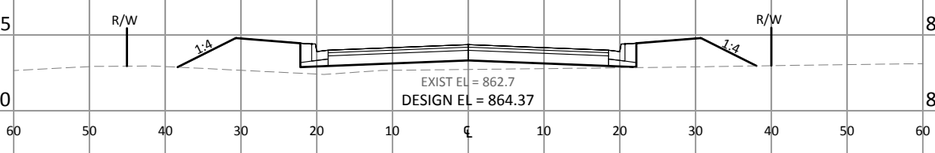
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - RIVERDALE DRIVE

STA 18+00



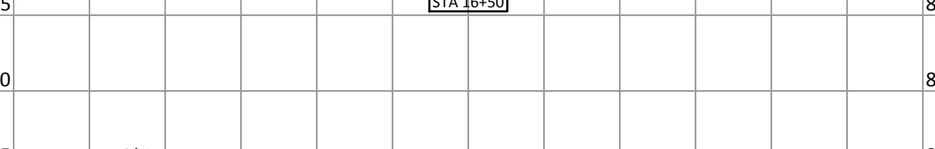
STA 17+50



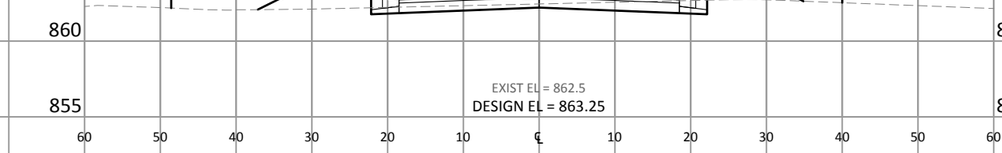
STA 17+00



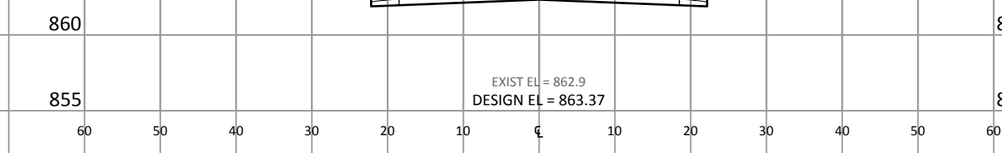
STA 16+50



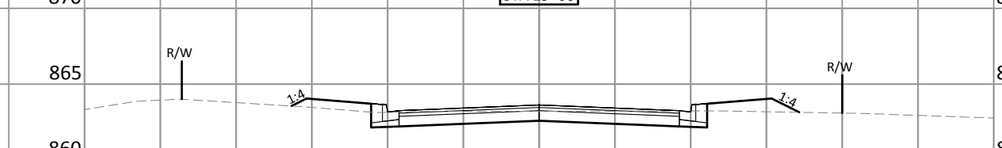
STA 20+00



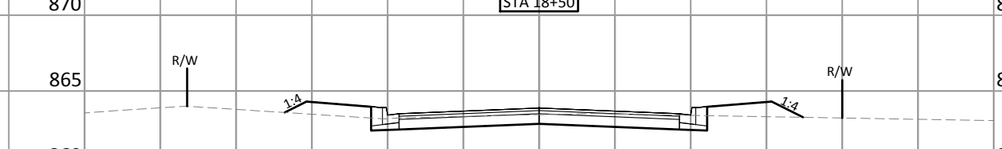
STA 19+50



STA 19+00



STA 18+50



HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

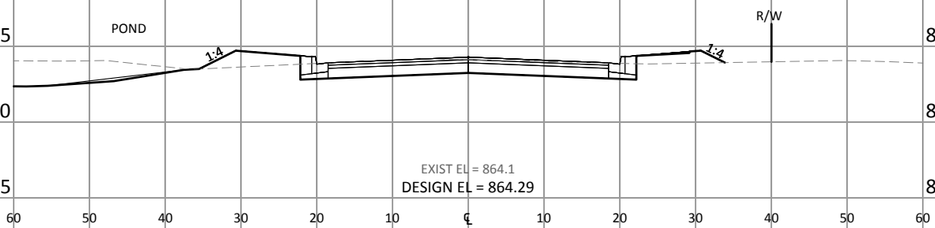
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

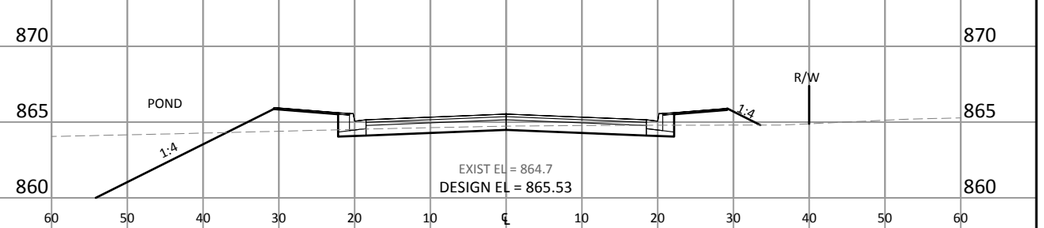
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - RIVERDALE DRIVE

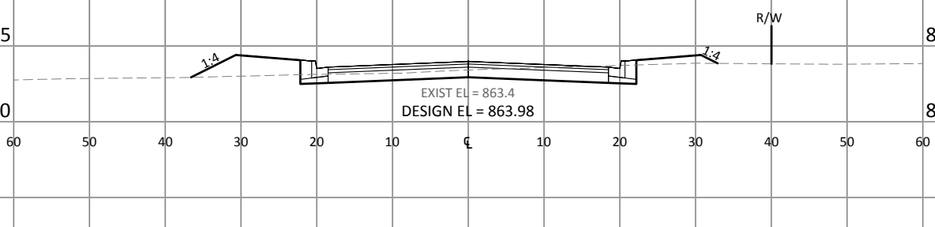
STA 22+00



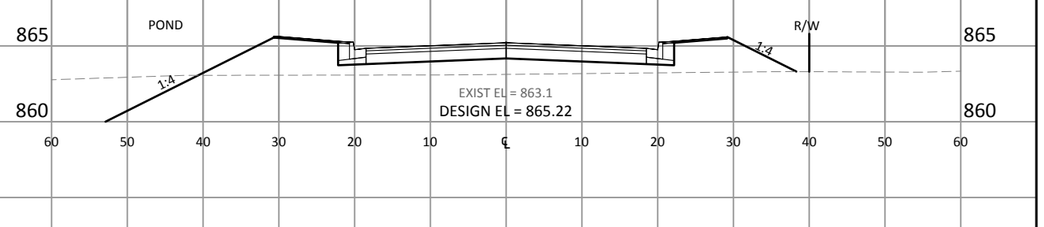
STA 24+00



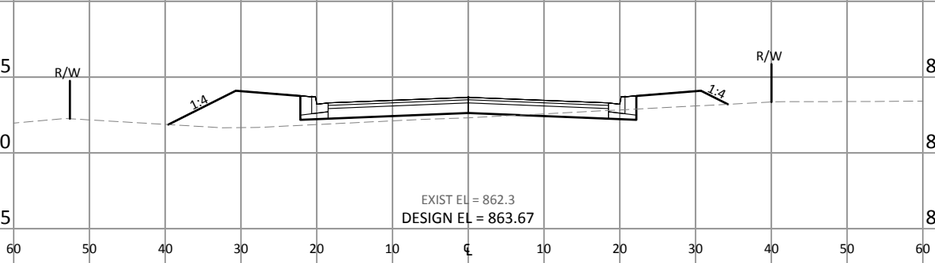
STA 21+50



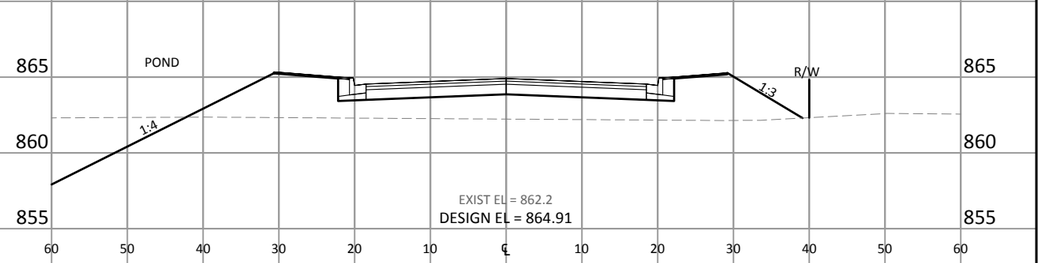
STA 23+50



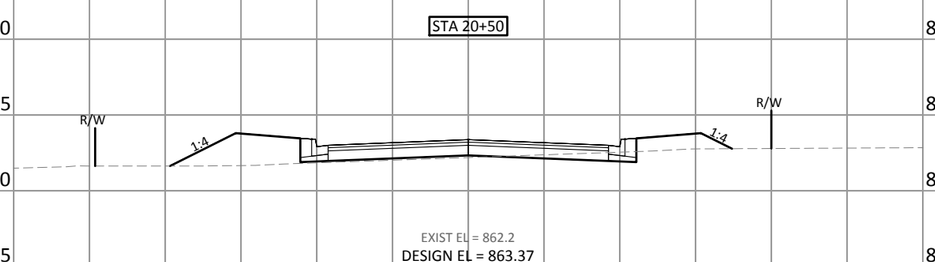
STA 21+00



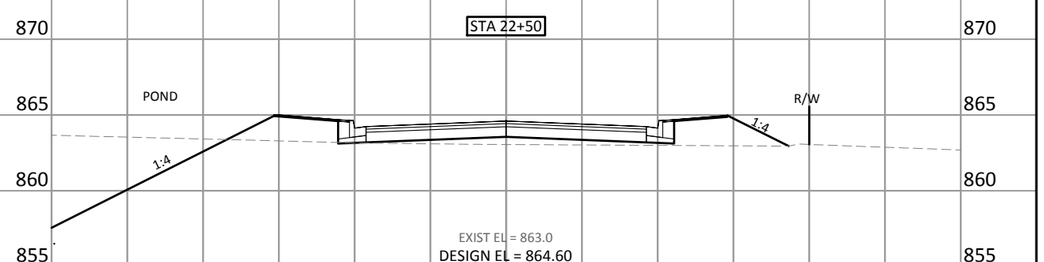
STA 23+00



STA 20+50



STA 22+50



HORIZ. 0 10 20 SCALE FEET
VERT. 0 5 10 SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

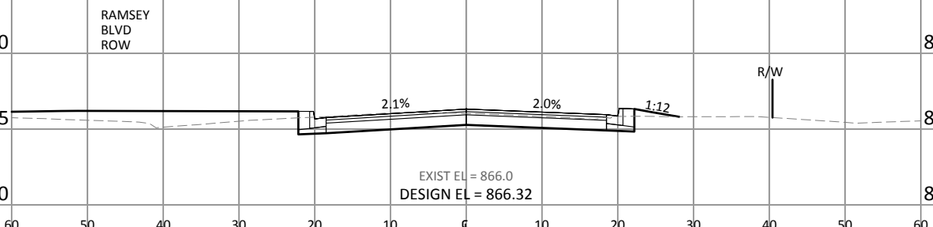
CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

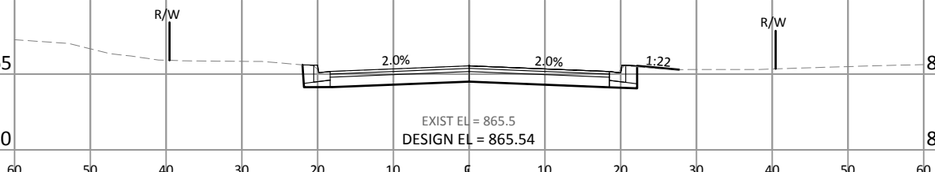
CROSS SECTIONS - RIVERDALE DRIVE

SHEET 42 OF 44

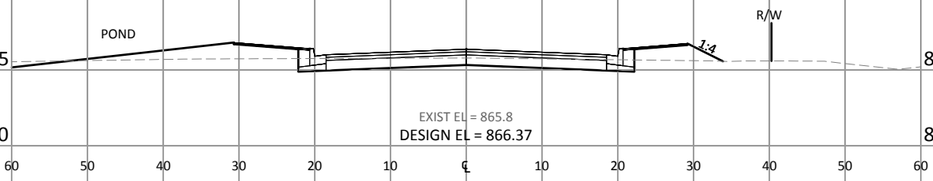
STA 26+95.87



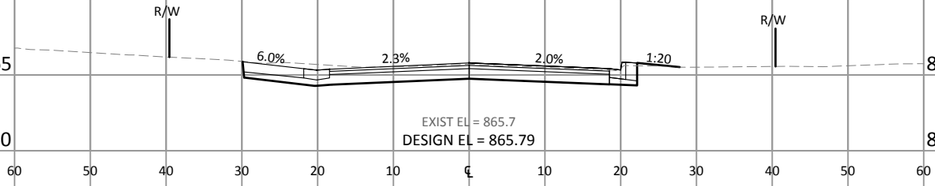
STA 28+12.43



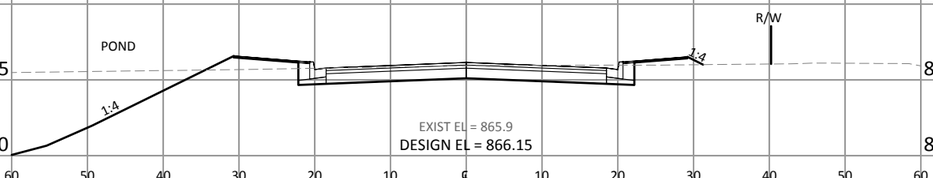
STA 25+36.36



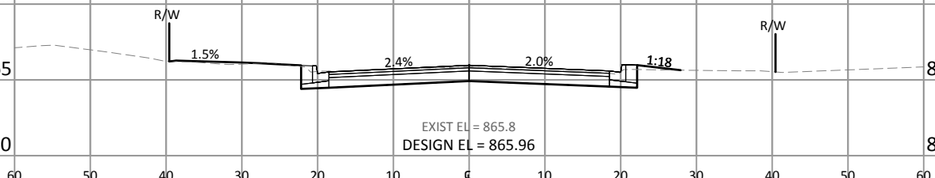
STA 27+75



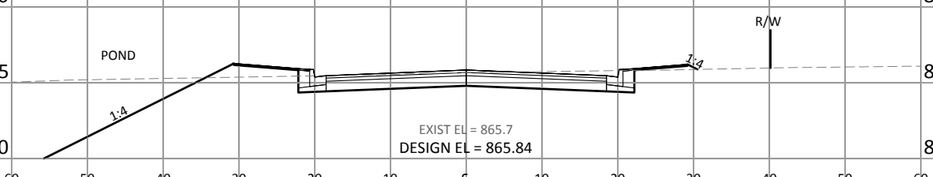
STA 25+00



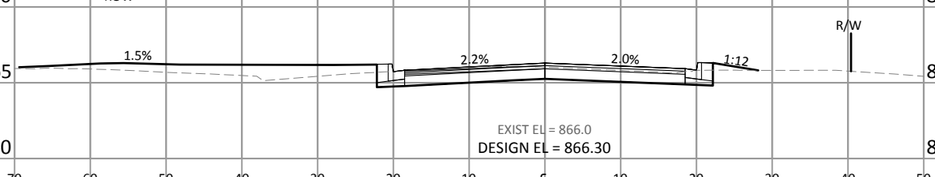
STA 27+50



STA 24+50



STA 27+00



HORIZ. SCALE 0 10 20 FEET
VERT. SCALE 0 5 10 FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved
H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

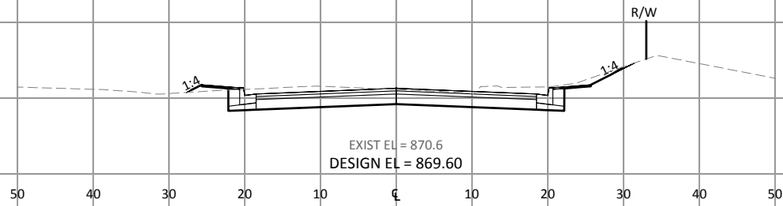
REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

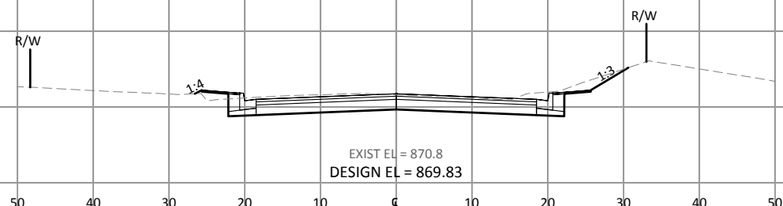
RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10=003)

CROSS SECTIONS - RIVERDALE DRIVE

STA 51+69.45



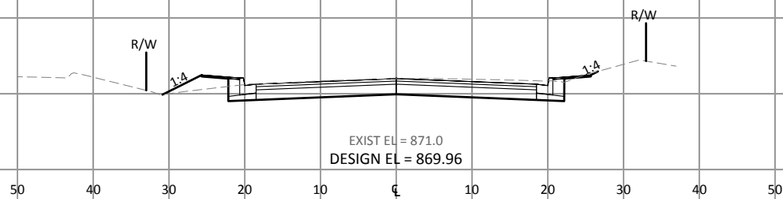
STA 51+50



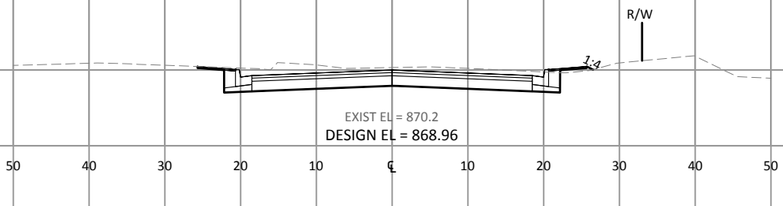
STA 51+00



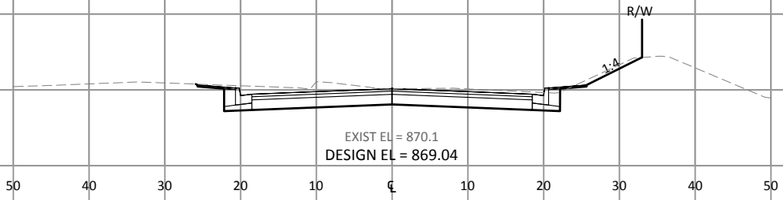
STA 50+50



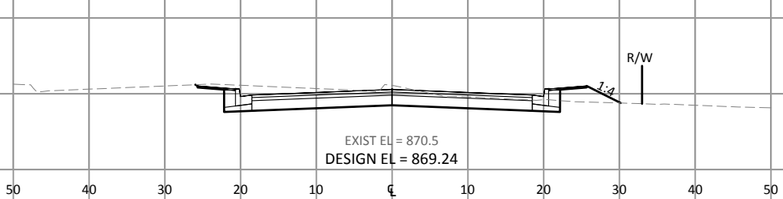
STA 52+25.41



STA 52+16.81



STA 52+00



HORIZ. 0 10 20 SCALE FEET

VERT. 0 5 10 SCALE FEET

© Bolton & Menk, Inc. 2016, All Rights Reserved

H:\RAMS\R16111092\CAD\C3D\111092_COR_OPT3.dwg 3/10/16 4:17 pm

DESIGNED JWC
DRAWN ZFL
CHECKED JWC

City of RAMSEY

BOLTON & MENK

7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

REV.	BY	DATE

CITY OF RAMSEY, MINNESOTA

RIVERDALE DRIVE EXTENSION IMPROVEMENTS
S.A.P. 199-115-003, S.P. 0202-101 (TH 10)

CROSS SECTIONS - TRAPROCK STREET

SHEET 44 OF 44

Public Works Committee **5. 3.**

Meeting Date: 06/20/2017

By: Bruce Westby, Engineering/Public Works

Title:

Consider Recommending City Council Approval of Plans and Specifications for Sunwood Drive Striping Improvements, Improvement Project #17-04

Purpose/Background:

Purpose:

The purpose of this case is to consider recommending City Council approval of plans and specifications for Sunwood Drive Striping Improvements, Improvement Project #17-04.

Background:

The existing striping along Sunwood Drive between Armstrong Boulevard and Ramsey Boulevard is missing or faded in many areas, and some areas are not striped appropriately based on development that occurred since the street was originally striped. Staff therefore prepared plans for completing striping improvements along Sunwood Drive, Improvement Project #17-04.

Staff presented preliminary plans for these improvements to the Public Works Committee on April 18th. Based on feedback received from the Public Works Committee at that meeting, Staff has completed draft plans, which are attached.

In summary, the draft plans replace all existing center two-way turn lanes with dedicated left turn lanes based on existing access locations. Several dedicated right turn lanes were also added.

The plans incorporate dedicated left turn lanes for westbound driver's to use to turn left into Casey's gas station and store, the west Residence at the COR driveway, and the new segment of Yolite Street to be constructed with the Stonebrook development.

Dedicated right turn lanes were also added along eastbound Sunwood Drive at Yolite Street and at Casey's, as well as on westbound Sunwood Drive at Center Street.

Timeframe:

Staff estimates 5 minutes will be required to present this case and respond to questions.

Observations/Alternatives:

Observations:

Attached are draft plans for Improvement Project #17-04 as prepared by City staff.

Staff will present the attached plans to Council on June 27th to request approval of plans and specifications and authorization to advertise for bids. This will allow the proposed striping improvements to be complete in August, before Happy Days occurs.

Striping improvements on each end of Sunwood Drive, east of Rhinestone Street and west of Zeolite Street, are proposed with the 2017 Crackseal and Sealcoat Improvements project. On June 27th, Council will consider awarding a construction contract for the crackseal and sealcoat improvements, which is proposed to be complete in August. This will allow all striping on Sunwood Drive to be complete before Happy Days.

Alternatives:
Alternative #1 – Motion recommending City Council approval of plans and specifications for Sunwood Drive Striping Improvements, Improvement Project #17-04.

Alternative #2 – Motion of other.

Funding Source:
The engineer's estimate for construction costs is $16,842.10. Total project costs, including 23% indirect costs, is $20,715.78.

Staff proposes to fund the proposed striping improvements using the Public Improvement Revolving Fund, which has a current balance of approximately $4,000,000.

Recommendation:
Staff recommends alternative #1.

Action:
Motion recommending City Council approval of plans and specifications for Sunwood Drive Striping Improvements, Improvement Project #17-04.

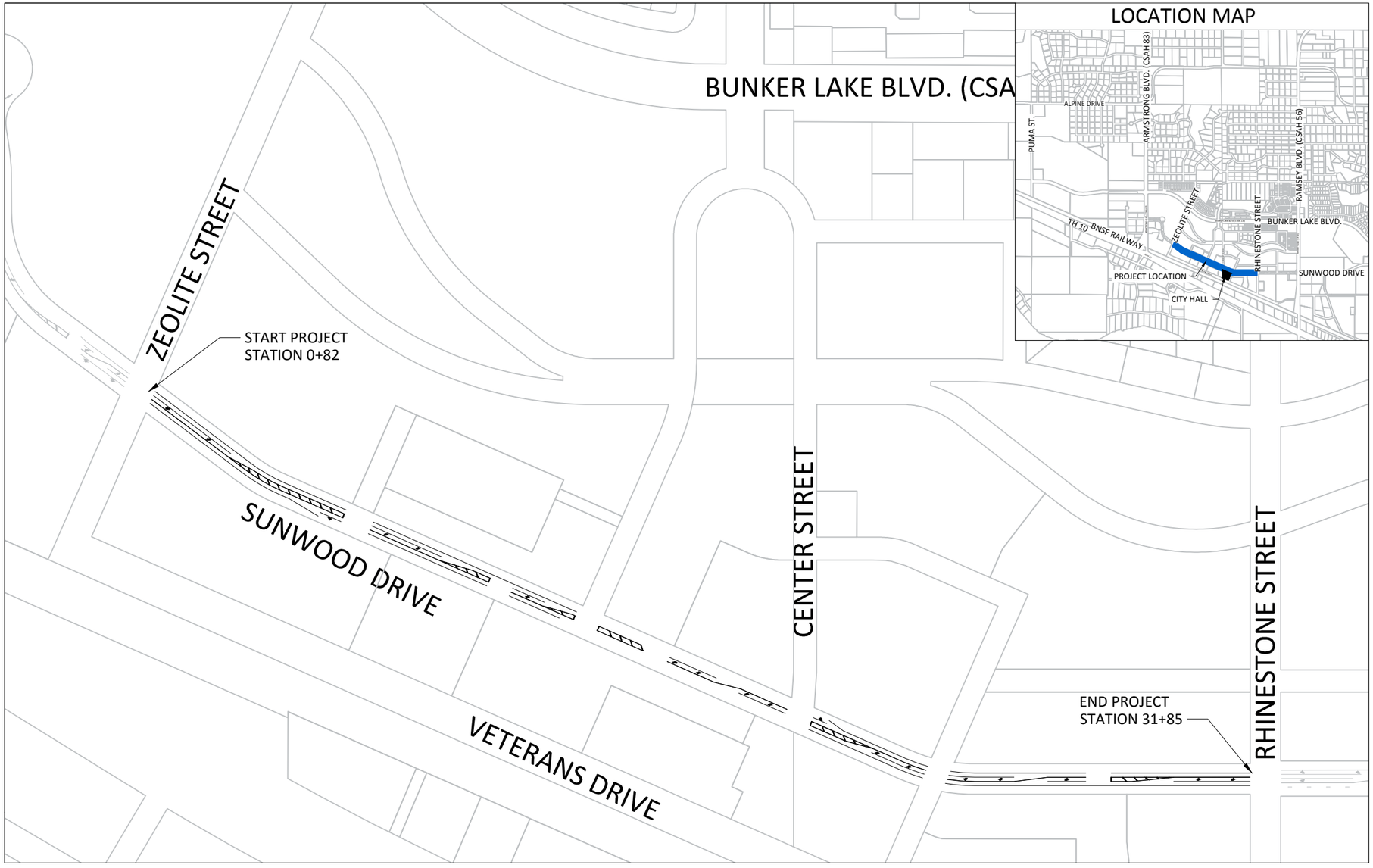
Attachments

IP1704 Draft Plans
IP1704 Draft Specs

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	06/15/2017 01:05 PM
Kurt Ulrich	Kurt Ulrich	06/15/2017 01:08 PM
Form Started By: Bruce Westby		Started On: 06/15/2017 04:59 AM
Final Approval Date: 06/15/2017		

CITY OF RAMSEY
SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY IMPROVEMENT PROJECT NO. 17-04



0 150 300 450
SCALE (FEET)

N

City of RAMSEY

CITY OF RAMSEY
7550 SUNWOOD DRIVE
RAMSEY, MN 55303
(763) 427-1410 FAX (763) 433-9898

NOTE: EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE CALL 1-800-252-1166 OR 651-454-0002

GSOC

Call before you dig
811
651 454-0002 Metro
800 252-1166 Outstate
www.gopherstateonecall.org

GOVERNING SPECIFICATIONS

THE 2016 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL FEDERAL, STATE AND LOCAL LAWS, REGULATIONS AND ORDINANCES SHALL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

SHEET INDEX

THIS PLAN CONTAINS 10 SHEETS

SHEET No.	DESCRIPTION
1	TITLE SHEET
2	STATEMENT OF ESTIMATED QUANTITIES
3 - 6	REMOVALS
7 - 10	STRIPING PLAN

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

BRUCE R WESTBY, P.E.
RAMSEY CITY ENGINEER

40116
LIC. NO.

DATE _____

DATE	REVISION

Jun 07, 2017 - 9:35am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Location Map.dwg

17-04 SUNWOOD DRIVE STRIPING - ESTIMATED QUANTITIES

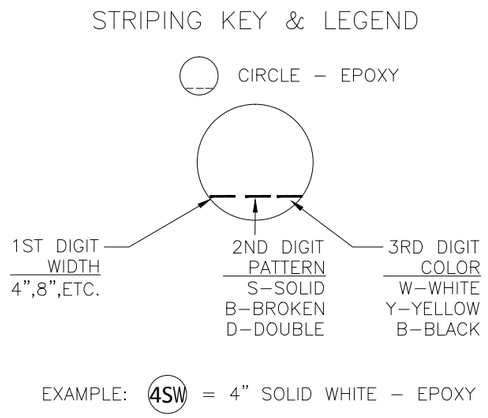
PAGE NO.	NOTE	ITEM NO.	ITEM	UNIT	ESTIMATED QUANTITY
		2021.501	MOBILIZATION	LS	1
3 - 4, 6	1	2102.501	PAVEMENT MARKING REMOVAL	SF	480
3 - 6	1, 2	2102.502	PAVEMENT MARKING REMOVAL	LF	2104
		2563.601	TRAFFIC CONTROL	LS	1
7 - 10		2582.501	PAVT MSSG (LT ARROW) - EPOXY	EA	16
7, 9		2582.501	PAVT MSSG (RT ARROW) - EPOXY	EA	2
7 - 10	3	2582.502	4" DOUBLE SOLID LINE YELLOW - EPOXY	LF	3652
7 - 10		2582.502	4" SOLID LINE WHITE - EPOXY	LF	5895
7 - 10		2582.502	24" SOLID LINE YELLOW - EPOXY	LF	427

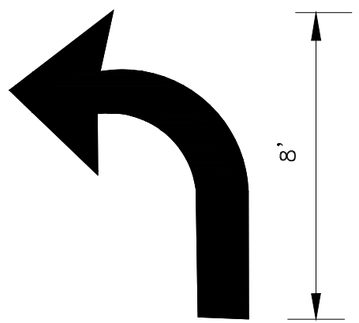
NOTES:

1. REMOVALS SHALL BE MARKED IN THE FIELD BY CITY STAFF.
2. REMOVAL OF DOUBLE SOLID LINE IS PAID BY LINEAR FOOT FOR EACH SOLID LINE. EXAMPLE: 50 LF OF DOUBLE SOLID LINE REMOVAL EQUALS 100 LF OF PAVEMENT MARKING REMOVAL.
3. 4" DOUBLE SOLID LINE SHALL BE SPACED 4" APART AS MEASURED AT THE INSIDE EDGES OF THE LINES.

17-04 SUNWOOD DRIVE STRIPING SUMMARY

LINE	SEGMENT NO.	START STATION	TAPER STATION	END STATION	LENGTH (FEET)	KEY
EB FOG LINE	EB FL 1	0+85		6+12	531	4SW
	EB FL 2	7+50		10+89	339	4SW
	EB FL 3	11+53		13+31	178	4SW
	EB FL 4	20+09		23+31	324	4SW
	EB FL 5	23+90		31+85	797	4SW
EB TURN LANE	EB TL 1	6+12		6+72	60	4SW
	EB TL 2	18+04		19+37	133	4SW
	EB TL 3	21+84		23+33	149	4SW
	EB TL 4	26+56		27+56	100	4SW
	EB TL 5	29+85		31+85	200	4SW
CENTERLINE	CL 1	0+83		6+72	590	4DY
	CL 1A	3+33	4+07	6+72	338	4DY
	CL 1D	3+33		6+72	154	24SY
	CL 2	7+50		10+89	339	4DY
	CL 2A	9+50	10+37	10+89	139	4DY
	CL 2D	9+50		10+89	48	24SY
	CL 3	11+53		13+31	178	4DY
	CL 3A	12+43	13+21	13+31	89	4DY
	CL 3D	12+43		13+31	26	24SY
	CL 4	14+00		15+30	130	4DY
	CL 4A	14+00		15+20	120	4DY
	CL 4D	14+00		15+30	74	24SY
	CL 5	16+00		19+37	338	4DY
	CL 6	20+09		23+34	324	4DY
	CL 6A	20+09	21+09	21+84	176	4DY
	CL 6D	20+09		21+84	70	24SY
	CL 7	23+93		27+56	364	4DY
	CL 8	28+22		31+85	363	4DY
	CL 8A	28+22	28+76	29+85	164	4DY
	CL 8D	28+22		29+85	55	24SY
WB FOG LINE	WB FL 1	31+85		28+22	363	4SW
	WB FL 2	27+56		23+99	354	4SW
	WB FL 3	23+36		20+49	285	4SW
	WB FL 4	13+31		7+50	581	4SW
	WB FL 5	6+72		0+78	590	4SW
WB TURN LANE	WB TL 1	25+68		23+96	171	4SW
	WB TL 2	20+46		20+09	37	4SW
	WB TL 3	17+35		16+00	135	4SW
	WB TL 4	12+43		11+53	90	4SW
	WB TL 5	9+49		7+50	200	4SW
	WB TL 6	2+80		0+80	200	4SW





PAVEMENT ARROW MARKINGS

PERMANENT PAVEMENT MARKING GENERAL NOTES AND GUIDELINES:

1. THE ENGINEER'S INVOLVEMENT IN THE APPLICATION OF THE MATERIAL SHALL BE LIMITED TO FIELD CONSULATATION AND INSPECTION. THE CONTRACTOR WILL PLACE NECESSARY "SPOTTING" AT APPROPRIATE POINTS TO PROVIDE HORIZONTAL CONTROL FOR STRIPING TO DETERMINE NECESSARY STARTING AND CUTOFF POINTS. LONGITUDINAL JOINTS, PAVEMENT EDEGES AND EXISTING MARKINGS MAY SERVE AS HORIZONTAL CONTROL WHEN SO DIRECTED.
2. EDGE LINES AND LANE LINES ARE TO BE BROKEN ONLY AT INTERSECTIONS WITH PUBLIC ROADS AND AT PRIVATE ENTRANCES IF THEY ARE CONTROLLED BY A YIELD SIGN, STOP SIGN OR TRAFFIC SIGNAL. THE BREAK POINT IS TO BE AT THE START OF THE RADIUS FOR THE INTERSECTION OR AT MARKED STOP LINES OR CROSSWALKS.
3. TOLERANCE OF $\frac{1}{4}$ INCH UNDER OR $\frac{1}{4}$ OVER THE SPECIFIED WIDTH WILL BE ALLOWED FOR STRIPING PROVIDED THE VARIATION IS GRADUAL AND DOES NOT DETRACT FROM THE GENERAL APPEARANCE. BROKEN LINE SEGMENTS MAY VARY UP TO $\frac{1}{2}$ FOOT FROM THE SPECIFIED LENGTHS PROVIDED THE OVER AND UNDER VARIATIONS ARE REASONABLY COMPENSATORY. ALIGNMENT DEVIATIONS FROM THE CONTROL GUIDE SHALL NOT EXCEED 1 INCH. MATERIAL SHALL NOT BE APPLIED OVER LONGITUDINAL JOINTS. ESTABLISHMENT OF APPLICATION TOLERANCES SHALL NOT RELIEVE THE CONTRACTOR OF THEIR RESPONSIBILITY TO COMPLY AS CLOSELY AS PRACTICABLE WITH THE PLANNED DIMENSIONS.
4. THE ROAD SURFACE SHALL BE CLEANED AT THE DIRECTION OF THE ENGINEER JUST PRIOR TO APPLICATION. PAVEMENT CLEANING SHALL CONSIST OF AT LEAST BRUSHING WITH A ROTARY BROOM (NON-METALLIC) OR AS RECOMMENDED BY THE MATERIAL MANUFACTURER AND ACCEPTABLE TO THE ENGINEER. THIS WORK SHALL BE INCIDENTAL TO PAVEMENT MARKING.
5. THE EPOXY MARKING APPLICATION SHALL IMMEDIATELY FOLLOW THE PAVEMENT CLEANING. GLASS BEADS SHALL BE APPLIED IMMEDIATELY AFTER APPLICATION OF THE EPOXY RESIN LINE TO PROVIDE AN IMMEDIATE NO-TRACK SYSTEM.
6. FOR 15 MIL APPLICATIONS, GLASS BEADS SHALL BE APPLIED AT A RATE OF AT LEAST 25 LB/GAL. THE "NO-TRACKING" CONDITION SHALL BE DETERMINED ON AN APPLICATION OF SPECIFIED THICKNESS TO THE PAVEMENT AND COVERED WITH GLASS BEADS AT THE RATE OF AT LEAST 25 LB/GAL.
7. OPERATIONS SHALL BE CONDUCTED ONLY WHEN THE ROAD PAVEMENT SURFACE TEMPERATURES ARE 50 DEGREES °F OR GREATER.
8. PERMANENT PAVEMENT MARKINGS SHALL NOT BE PLACED OVER TEMPORARY TAPE MARKINGS.

DATE	REVISION

Jun 07, 2017 - 9:35am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Location Map.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

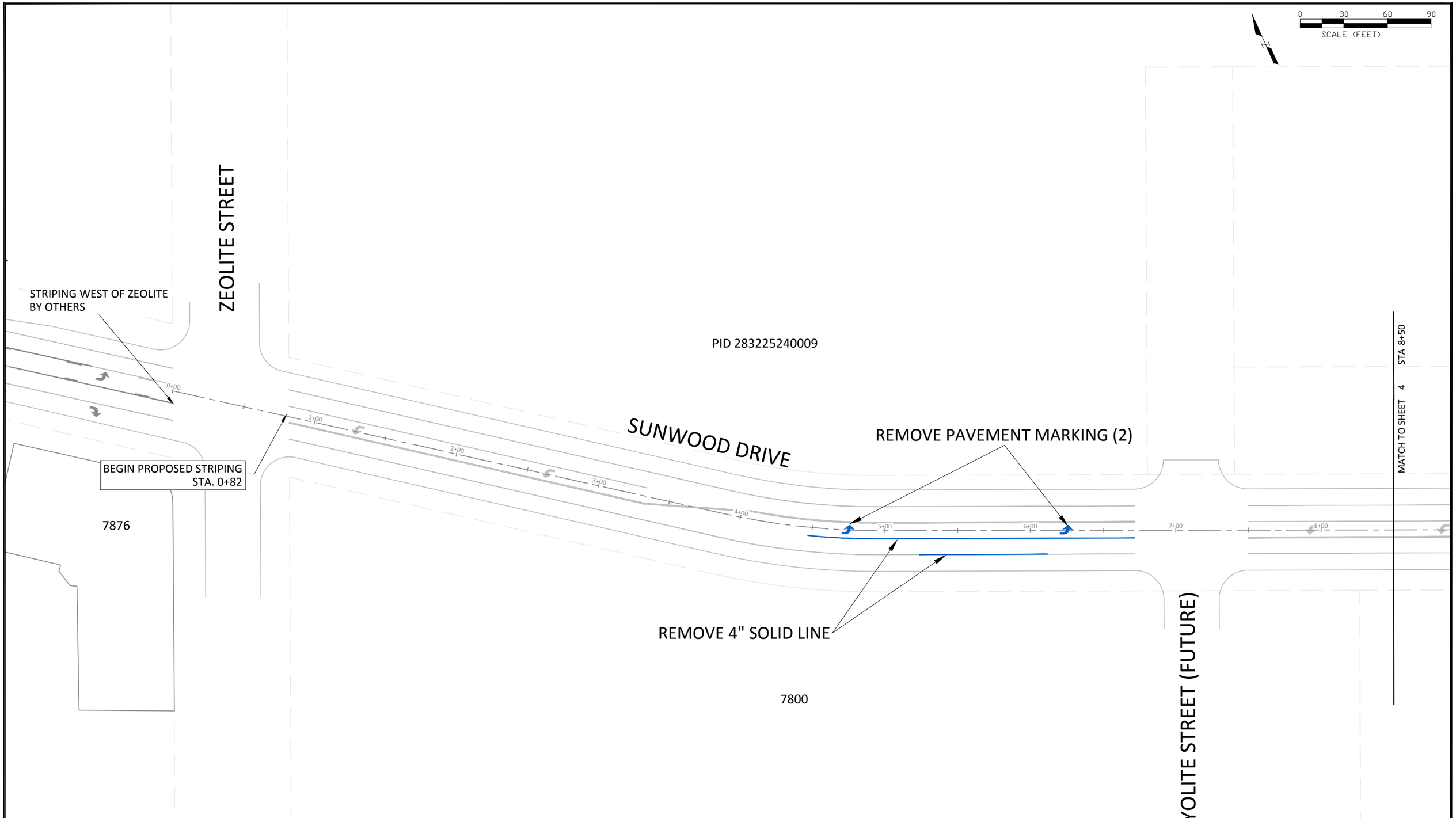
DESIGNED BY:	
JJF	
DRAWN BY: JJF	DATE: 6/7/17
CHECKED BY: BRW	FILE No. 17-04

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□2□□1□10 FA□ □6□□□□□□□□

SEQ & NOTES

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 2 OF 10 SHEETS



DATE	REVISION

Jun 07, 2017 - 9:36am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Removals.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

DESIGNED BY: JJF	
DRAWN BY: JJF	DATE: 6/7/17
CHECKED BY: BRW	FILE No. 17-04

City of RAMSEY

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□□2□□1□10 FA□ □6□□□□□□□□□

REMOVALS STA. 0+00 TO 8+50

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 3 OF 10 SHEETS

0 30 60 90
SCALE (FEET)

N

MATCH TO SHEET 3 STA 8+50

MATCH TO SHEET 5 STA 17+50

PID 283225240013

PID 283225240008

PID 283225310009

REMOVE 4" DOUBLE SOLID LINE

REMOVE PAVEMENT MARKING (2)

REMOVE 4" SOLID LINE

SUNWOOD DRIVE

8+00 9+00 10+00 11+00 12+00 13+00 14+00 15+00 16+00 17+00

REMOVE 4" SOLID LINE

7750

7700

7650

DATE	REVISION

Jun 07, 2017 - 9:36am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Removals.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

DESIGNED BY:	JJF	
DRAWN BY:	JJF	DATE: 6/7/17
CHECKED BY:	BRW	FILE No. 17-04

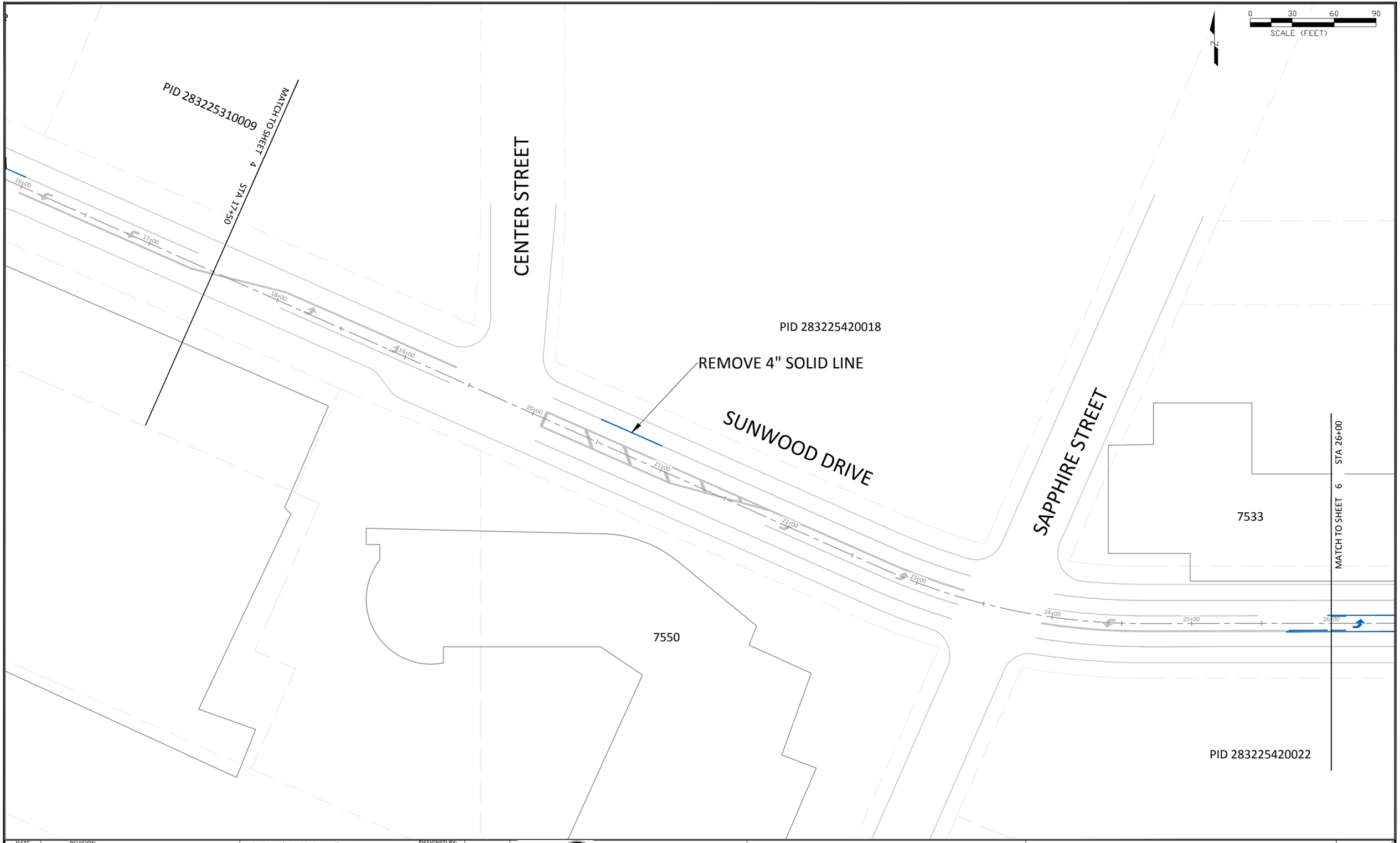
City of RAMSEY

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□□2□□1□10 FA□ □6□□□□□□□□□

REMOVALS STA. 8+50 TO 17+50

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 4 OF 10 SHEETS



DATE	REVISION

Jun 07, 2017 - 9:36am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Removals.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

DESIGNED BY: JJF	
DRAWN BY: JJF	DATE: 6/7/17
CHECKED BY: BRW	FILE No. 17-04

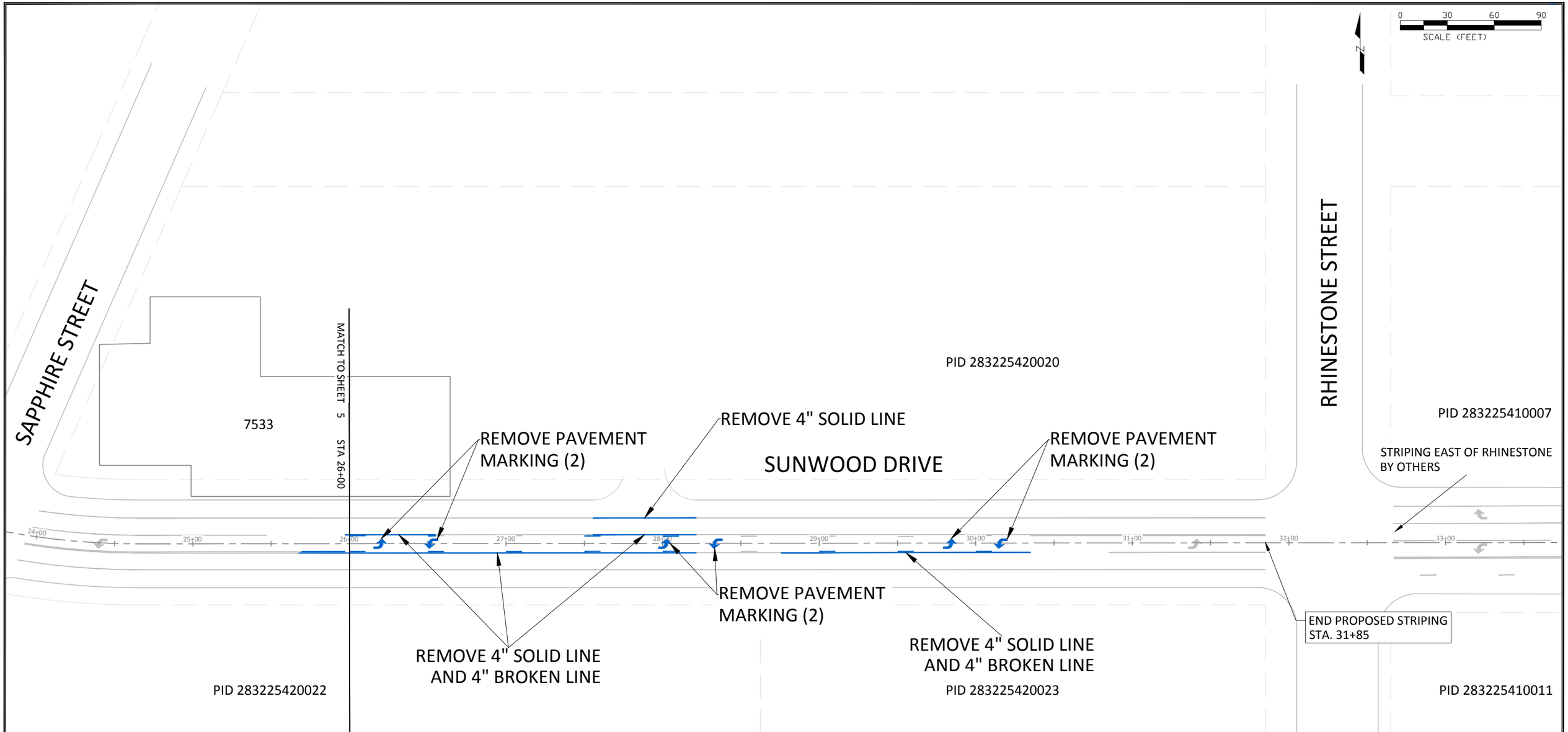
City of RAMSEY

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□2□1□10 FA□ □6□□□□□□□□□

REMOVALS STA. 17+50 TO 26+00

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 5 OF 10 SHEETS



DATE	REVISION

Jun 07, 2017 - 9:37am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Removals.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

DESIGNED BY:	JJF	
DRAWN BY:	JJF	DATE: 6/7/17
CHECKED BY:	BRW	FILE No. 17-04

City of RAMSEY

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□□2□□1□10 FA□ □6□□□□□□□□□

REMOVALS STA. 26+00 TO 31+85

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 6 OF 10 SHEETS

0 30 60 90
SCALE (FEET)

ZEOLITE STREET

STRIPING WEST OF ZEOLITE
BY OTHERS

PID 283225240009

4SW

SUNWOOD DRIVE

4DY

4SW

BEGIN PROPOSED STRIPING
STA. 0+82

0+00 1+00 2+00 3+00 4+00 5+00 6+00 7+00 8+00

4DY

4SW

24S Y

4SW

MATCH TO SHEET 8 STA 8+50

7876

7800

YOLITE STREET (FUTURE)

DATE	REVISION

Jun 07, 2017 - 9:37am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Sunwood Drive Striping - 2017.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

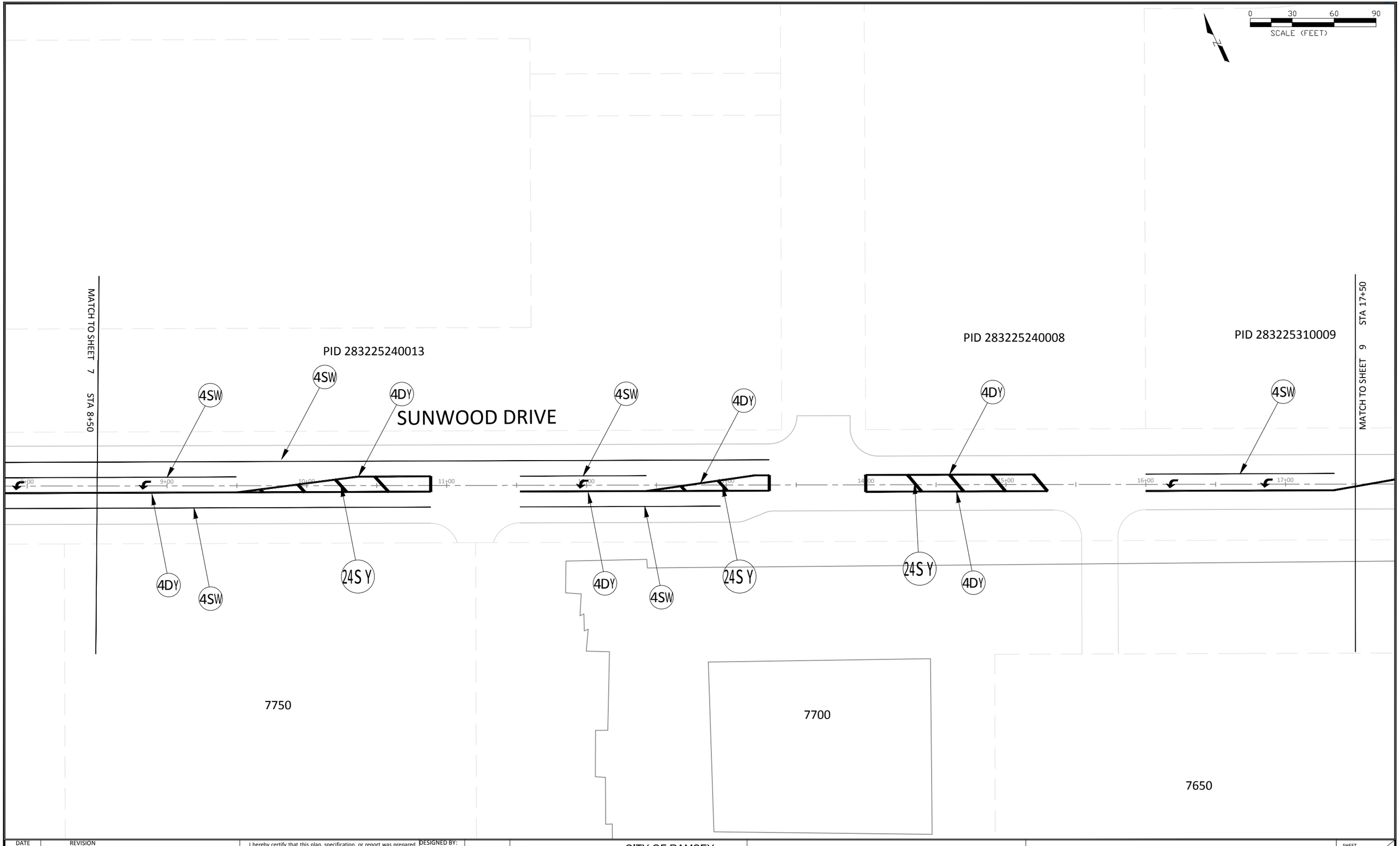
DESIGNED BY:	JJF	
DRAWN BY:	JJF	DATE: 6/7/17
CHECKED BY:	BRW	FILE No. 17-04

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□□2□□1□10 FA□ □6□□□□□□□□□

STRIPING PLAN STA. 0+00 TO 8+50

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 7 OF 10 SHEETS



DATE	REVISION

Jun 07, 2017 - 9:37am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Sunwood Drive Striping - 2017.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

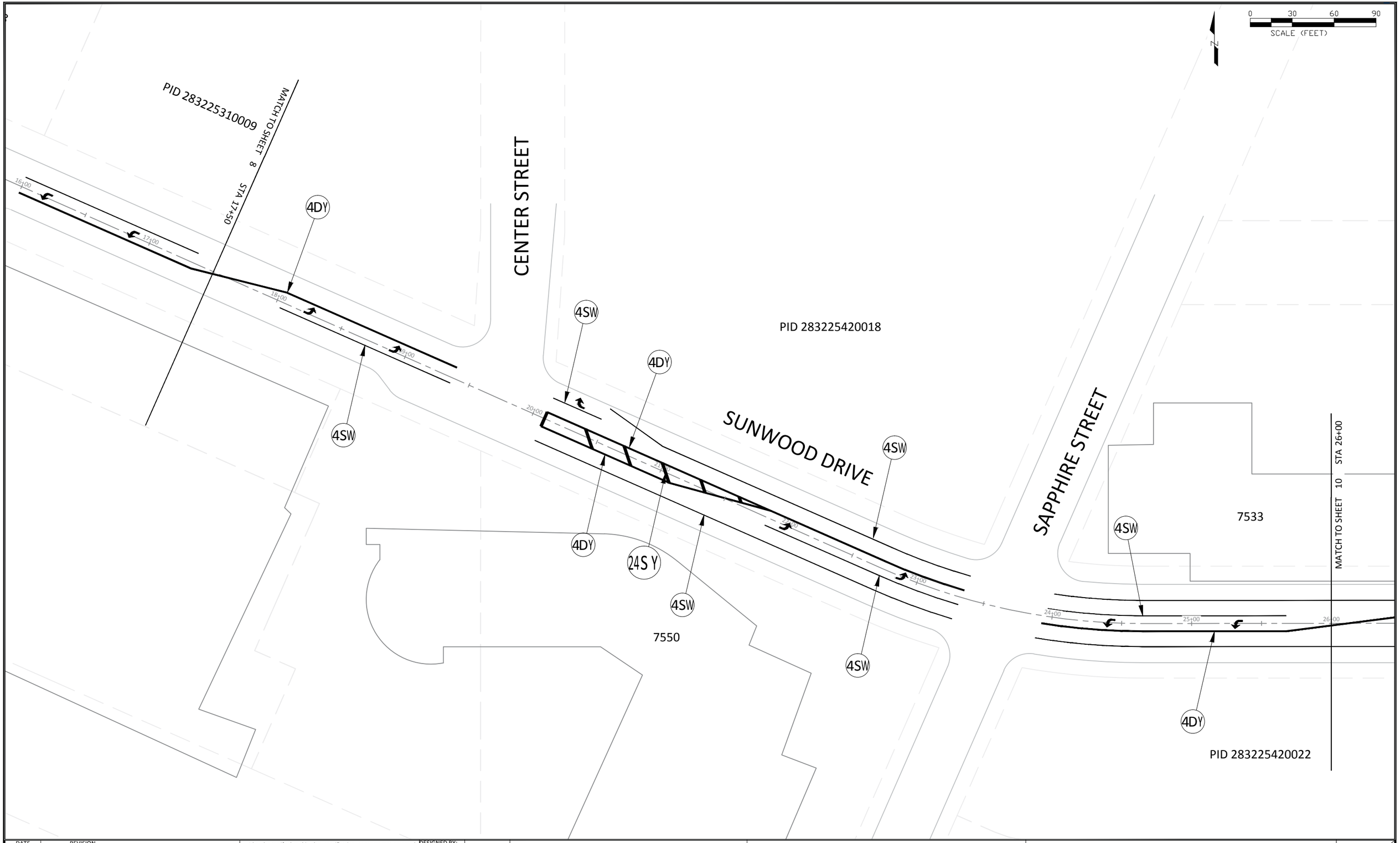
DESIGNED BY:	JJF	
DRAWN BY:	JJF	DATE: 6/7/17
CHECKED BY:	BRW	FILE No. 17-04

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□□2□□1□10 FA□ □6□□□□□□□□□

STRIPING PLAN STA. 8+50 TO 17+50

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 8 OF 10 SHEETS



DATE	REVISION

Jun 07, 2017 - 9:37am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Sunwood Drive Striping - 2017.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

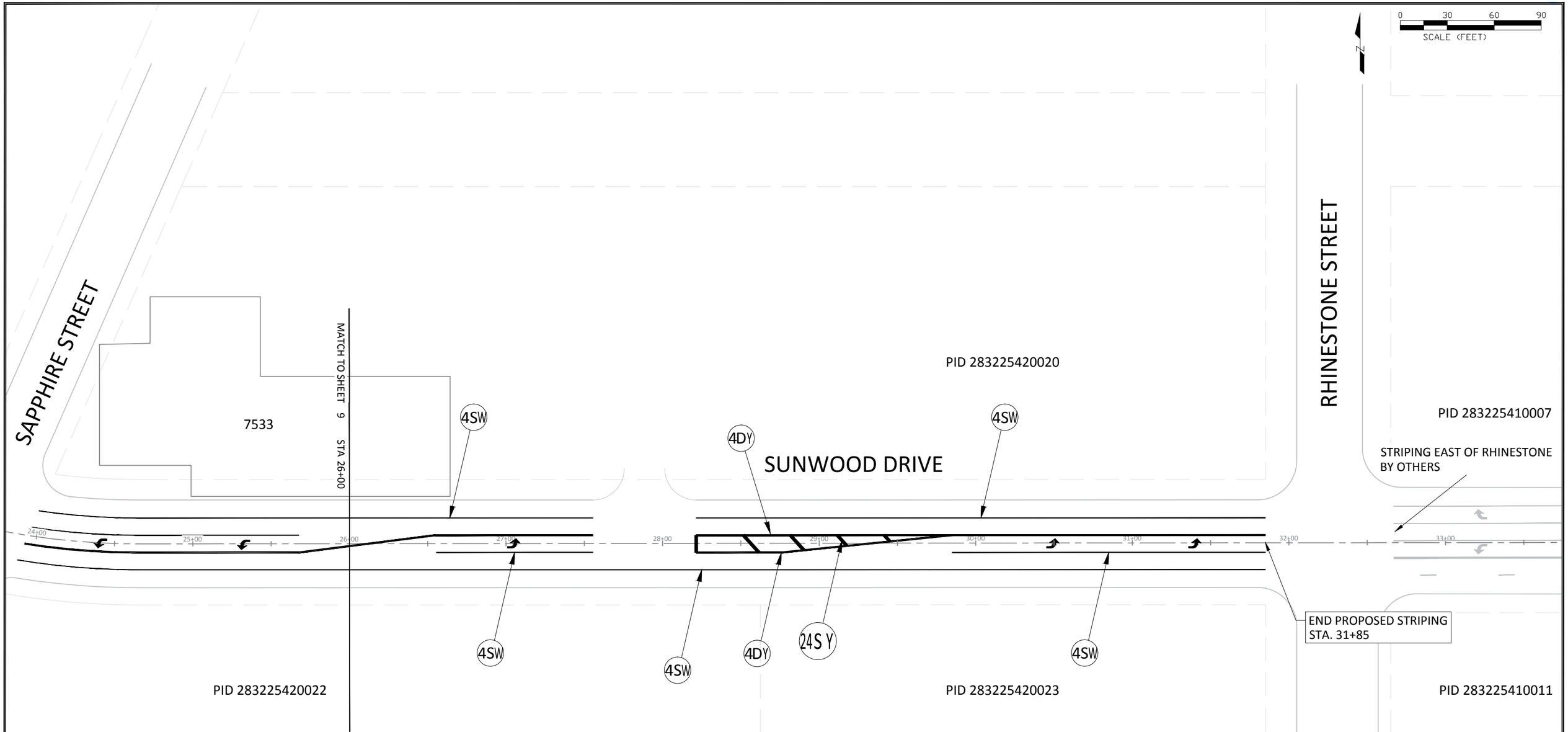
DESIGNED BY: JJF		
DRAWN BY: JJF	DATE: 6/7/17	
CHECKED BY: BRW	FILE No. 17-04	

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□□2□□1□10 FA□ □6□□□□□□□□□

STRIPING PLAN STA. 17+50 TO 26+00

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 9 OF 10 SHEETS



DATE	REVISION

Jun 07, 2017 - 9:37am
G:\Engineering\AutoCad Dwgs\Projects N-Z\Sunwood Drive Striping - 17-04\Plan Drawings\Sunwood Drive Striping - 2017.dwg

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota

BRUCE WESTBY
Date 6/7/17 Lic. No. 40116

DESIGNED BY:	JJF	
DRAWN BY:	JJF	DATE: 6/7/17
CHECKED BY:	BRW	FILE No. 17-04

CITY OF RAMSEY
□□□0 SUN□ OOD DRIVE
RAMSEY, MN □□□0□
□6□□□2□□1□10 FA□ □6□□□□□□□□□

STRIPING PLAN STA. 26+00 TO 31+85

SUNWOOD DRIVE STRIPING IMPROVEMENTS
CITY PROJECT NO. 17-04
CITY OF RAMSEY, MINNESOTA

SHEET 10 OF 10 SHEETS

GENERAL INDEX

Title Page i

General Index ii

Advertisement for Bids ..... AB 1

Information for Bidders ..... IB 1-3

Bid Proposal ..... BP 1-4

Responsible Contractor Certification ..... RC 1-2

General Conditions ..... GC 1-28

Special Provisions ..... SP 1-8

Construction Contract ..... C 1-4

Certificate of City's Attorney ..... CA 1

Prompt Payment Requirement ..... PP 1

ADVERTISEMENT FOR BIDS

The City of Ramsey will receive sealed bids until Friday, July 21, 2017, at 10:00 a.m. for furnishing all labor, material, machinery and tools necessary for City Improvement Project 17-04, Sunwood Drive Striping Improvements, at which time bids will be publicly opened at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, MN.

The work generally consists of pavement striping along 0.59 miles of Sunwood Drive from Zeolite Street to Rhinestone Street in the City of Ramsey. Primary estimated quantities include 2,104 lineal feet of pavement marking removals, 480 square feet of pavement marking removals, placement of 18 pavement message turn arrows, and 9,977 lineal feet of pavement striping.

It is anticipated that a contract will be awarded on July 25, 2017, and that work may begin on or after August 7, 2017. This project shall be completed on or before August 25, 2017.

The contract documents may be examined at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, MN 55303. Copies of the contract documents may be obtained at the above address upon receipt of a non-refundable deposit of $40. The contract documents shall also be available on QuestCDN. These documents may be downloaded by selecting this project and by entering eBidDoc Number xxxxxxx on the Search Projects page. For assistance and free membership registration, contact QuestCDN at (952) 233-1632 or info@questcdn.com.

All bids shall be submitted in sealed envelopes plainly marked as "IP 17-04, Sunwood Drive Striping Improvements." If mailed, the bid should be placed in a separate envelope and mailed to the City address noted above to the attention of the City Engineer.

Each bidder shall submit, with the proposal, a bidder's bond made payable to the City of Ramsey in the amount of 5% of the total bid. No bidder may withdraw their bid for at least 45 days after the scheduled closing time for the receipt of bids. The City of Ramsey reserves the right to reject any or all bids, and to waive informalities.

By order of the City of Ramsey, Minnesota: June 27, 2017

Published:

Anoka County Union	June 30 and July 7, 2017
Finance and Commerce	June 30 and July 7, 2017

INFORMATION FOR BIDDERS

BIDS will be received by the CITY OF RAMSEY (hereinafter called the "OWNER") at the Ramsey Municipal Center, 7550 Sunwood Drive NW, Ramsey, MN 55303 until July 21, 2017 at 10:00 a.m., and then at said office publicly opened and read aloud.

Each BID must be submitted in a sealed envelope, addressed to Bruce Westby, City Engineer, at the City of Ramsey. Each sealed envelope containing a BID must be plainly marked on the outside as "IP 17-04; Sunwood Drive Striping Improvements" and the envelope shall bear on the outside the name of the BIDDER, and their address and license number if applicable. If mailed, bids should be placed in a separate envelope and mailed to the City address noted above to the attention of City Engineer Bruce Westby.

All BIDS must be made on the required BID FORM. All blank spaces for BID prices must be filled out in ink or typewritten and the BID FORM must be fully completed and executed when submitted. Only one (1) copy of the BID FORM is required.

The OWNER may waive any informality or minor defects or reject any and all BIDS. Any BID may be withdrawn prior to the above scheduled time for the opening of BIDS or authorized postponement thereof. Any BID received after the time and date specified shall not be considered. No BIDDER may withdraw a BID within thirty (30) days after the actual date of the opening thereof. Should there be reasons why the contract cannot be awarded within the specified period; the time may be extended by mutual agreement between the OWNER and the BIDDER.

BIDDERS must satisfy themselves of the accuracy of the estimated quantities in the BID schedule by examination of the site and a review of the drawings and specifications, including any ADDENDA. After BIDS have been submitted, the BIDDER shall not assert that there was a misunderstanding concerning the quantities of WORK or of the nature of the WORK to be done.

The OWNER shall provide to BIDDERS all information which is pertinent to, and delineates and describes, the land owned and rights-of-way acquired or to be acquired.

The CONTRACT DOCUMENTS contain the provisions required for the construction of the PROJECT. Information obtained from an officer, agent or employee of the OWNER or any other person shall not affect the risks or obligations assumed by the CONTRACTOR or relieve the CONTRACTOR from fulfilling any of the conditions of the contract.

Each BID must be accompanied by a BID BOND in the amount of five percent (5%) of the total amount of the BID, made payable to the Treasurer of the City of Ramsey. As soon as the BID prices have been compared, the OWNER will return the BONDS of all except the three (3) lowest responsible BIDDERS. When the AGREEMENT is executed, the BONDS of the two remaining unsuccessful BIDDERS will be returned. The BID BOND of the successful BIDDER will be retained until the Payment BOND and Performance BOND have been executed and approved, after which, it will be returned. A certified check may be used in lieu of a BID BOND.

A Performance BOND and a Payment BOND, each in the amount of one hundred percent (100%) of the CONTRACT PRICE, with a corporate surety approved by the OWNER, will be required for the faithful performance of the contract.

Attorneys-in-fact who sign BID BONDS or Payment BONDS and Performance BONDS must file with each BOND a certified and effective dated copy of their power of attorney.

The party to whom the contract is awarded will be required to execute the AGREEMENT and obtain the Performance BOND and Payment BOND within ten (10) calendar days from the date when NOTICE OF AWARD is delivered to the BIDDER. The NOTICE OF AWARD shall be accompanied by the necessary AGREEMENT and BOND forms. In case of failure of the BIDDER to execute the AGREEMENT, the OWNER may at its option consider the BIDDER in default; in which case the BID BOND accompanying the proposal shall become the property of the OWNER.

The OWNER, within ten (10) days of receipt of acceptable Performance BOND, Payment BOND and AGREEMENT signed by the party to whom the AGREEMENT was awarded, shall sign the AGREEMENT and return to such party an executed duplicate of the AGREEMENT. Should the OWNER not execute the AGREEMENT within such period, the BIDDER may give WRITTEN NOTICE to withdraw his signed AGREEMENT. Such notice of withdrawal shall be effective upon receipt of that WRITTEN NOTICE by the OWNER.

The NOTICE TO PROCEED shall be issued within ten (10) days of the execution of the AGREEMENT by the OWNER. Should there be reasons why the NOTICE TO PROCEED cannot be issued within such period; the time may be extended by mutual agreement between the OWNER and CONTRACTOR. If the NOTICE TO PROCEED has not been issued within the ten (10) day period or within the period mutually agreed upon, the CONTRACTOR may terminate the AGREEMENT without further liability on the part of either party.

The OWNER may make such investigations as he deems necessary to determine the ability of the BIDDER to perform the WORK and the BIDDER shall furnish to the OWNER all such information and data for this purpose as the OWNER may request. The OWNER reserves the right to reject any BID if the evidence submitted by, or investigation of, such BIDDER fails to satisfy the OWNER that such BIDDER is properly qualified to carry out the obligations of the AGREEMENT and to complete the WORK contemplated therein.

A conditional or qualified BID will not be accepted. Award will be made to the lowest responsible BIDDER.

All applicable laws, ordinances and the rules and regulations of all authorities having jurisdiction over construction of the PROJECT shall apply to the contract throughout.

Each BIDDER is responsible for inspecting the site and for reading and being thoroughly familiar with the CONTRACT DOCUMENTS. The failure or omission of any BIDDER to do any of the foregoing shall in no way relieve any BIDDER from any obligation in respect to their BID.

The low BIDDER shall supply the names and addresses of major material SUPPLIERS and SUBCONTRACTORS when requested to do so by the OWNER.

The ENGINEER is Bruce Westby, City Engineer, 7550 Sunwood Drive NW, Ramsey, MN 55303; telephone (763) 433-9825.

BID PROPOSAL

This Bid is submitted to the City of Ramsey for City Improvement Project #17-04 – Sunwood Drive Striping Improvements.

That _____, the undersigned bidder, proposes and agrees, if this bid is accepted, to enter into an agreement with the Owner in the form included in the contract documents to perform and furnish all work as specified or indicated in the contract documents for the Contract Price and within the contract time indicated in this Bid and in accordance with the other terms and conditions of the contract documents.

In submitting this bid, bidder represents, as more fully set forth in the Agreement, that:

(a) Bidder has examined copies of all bidding documents and of the following addenda (receipt of all which is hereby acknowledged:

_____

_____

_____

(b) Bidder has familiarized himself with the nature and extent of the contract documents, work, site, locality and all local conditions and laws and regulations that in any manner may affect cost, progress, performance or furnishing of the work.

(c) Bidder has given Engineer written notice of all conflicts, errors or discrepancies that it has discovered in the contract documents and the written resolution thereof by Engineer is acceptable to bidder.

(d) This bid is genuine, is not made in the interest of or on behalf of any undisclosed person, firm or corporation, and is not submitted in conformity with any agreement or rules of any group, association, organization or corporation; bidder has not directly or indirectly induced or solicited any other bidder to submit a false or sham bid; bidder has not solicited or induced any person, firm or corporation to refrain from bidding and bidder has not sought by collusion to obtain for itself any advantages over any other bidder or over owner.

(e) Bidder agrees that final completion will occur by August 25, 2017, and agrees to pay liquidated damages as provided for therein.

(f) A bid bond in the amount of five percent (5%) of the basic bid contained herein is attached. This bid bond shall be forfeited if the bidder fails to execute and file the required contract and bond within ten (10) days after notification of the bid award by the owner.

(g) The contractor agrees to perform all work described in the contract documents for the following unit prices or lump sum:

BID PROPOSAL

ITEM NO.	MNDOT NO.	ITEM DESCRIPTION	UNIT	QUANTITY	PRICE	EXTENSION
1	2021.501	MOBILIZATION	LS	1	_____	_____
2	2102.501	PAVEMENT MARKING REMOVAL	SF	480	_____	_____
3	2102.502	PAVEMENT MARKING REMOVAL	LF	2,104	_____	_____
4	2563.601	TRAFFIC CONTROL	LS	1	_____	_____
5	2582.501	PAVT MSSG (LT ARROW) – EPOXY	EA	16	_____	_____
6	2582.501	PAVT MSSG (RT ARROW) – EPOXY	EA	2	_____	_____
7	2582.502	4” DOUBLE SOLID LINE YELLOW – EPOXY	LF	3,652	_____	_____
8	2582.502	4” SOLID LINE WHITE – EPOXY	LF	5,895	_____	_____
9	2582.502	24” SOLID LINE YELLOW – EPOXY	LF	427	_____	_____

TOTAL BID LINES 1-9 _____

This Bid Submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____ (SEAL)
(Individuals Signature)

Doing Business as: _____

A Partnership

Partnership Name: _____ (SEAL)

By: _____
(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____
Type: _____

By: _____
(Signature of general partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest: _____
(Signature of Corporate Secretary)

Date of Qualification to do business in Minnesota is: _____

A Joint Venture

Name of Joint Venture: _____ (SEAL)

First Joint Venturer Name: _____

By: _____
(Signature of first joint venture partner – attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____

By: _____
(Signature of second joint venture partner – attach evidence of authority to sign)
(Each joint venture must sign. The manner of signing for each individual, partnership, and corporation that is party to the joint venture should be in the manner indicated above.)

Bidders Business Address: _____

_____

Phone: _____ Facsimile: _____

Submitted on _____, 2017

State Contractor License No. _____. (If Applicable)

S-1 RESPONSIBLE CONTRACTOR

In accordance with Laws of Minnesota, 2014, chapter 253 (Minnesota Statutes §16C.285), Bidders are hereby advised that the Department cannot award a construction contract in excess of $50,000 unless the contractor is a "responsible contractor" as defined in Minnesota Statutes §16C.285, subdivision 3. A bidder submitting a Proposal for this Project must verify that it meets the minimum criteria specified in Minnesota Statutes §16C.285, subdivision 3, by completing the Responsible Contractor Certificate within this Proposal. Statements in the certificate must be certified by a company officer. Bidders are responsible for obtaining verifications of compliance from all subcontractors, using a form provided by the Department. A bidder must submit signed verifications from subcontractors upon the Department's request.

A Bidder or subcontractor who does not meet the minimum criteria established in Minnesota Statutes §16C.285, subdivision 3, or who fails to verify compliance with the minimum requirements, will not be a "responsible contractor" and will be ineligible to be awarded the Contract for this Project or to work on this Project. Bidders and subcontractors are also advised that making a false statement verifying compliance with any of the minimum criteria will render the Bidder or subcontractor ineligible to be awarded a construction contract for this Project and may result in the termination of a contract awarded to a Bidder or subcontractor that makes a false statement.

S-2 (1801) SUBLETTING OF CONTRACT

REVISED 11/24/14

The provisions of MnDOT 1801 are modified as follows:

S-2.1 For Projects in excess of $50,000, the Contractor may sublet work only to subcontractors that meet the definition of "responsible contractor" in Minnesota Statutes §16C.285, subdivision 3. The Contractor is responsible for obtaining verifications of compliance with §16C.285 from subcontractors using a form provided by the Department. The Contractor must provide such verifications to the Department upon the Department's request.

S-2.2 The third paragraph of MnDOT 1801 is modified to read:

On Contracts with Disadvantaged Business Enterprise (DBE), the Contractor's organization shall perform Work amounting to not less than 30 percent of the total original Contract Amount. The Department will deduct specialty items from the total original Contract Amount before calculating the amount of Work that the Contractor shall perform.

STATE OF MINNESOTA - RESPONSIBLE CONTRACTOR CERTIFICATE

Applies to all prime contracts in excess of $50,000

A responsible contractor is defined in Minnesota Statutes §16C.285, subdivision 3.

Any prime contractor or subcontractor who does not meet the minimum criteria under Minnesota Statutes §16C.285, subdivision 3, or who fails to verify that it meets those criteria, is not a responsible contractor and is not eligible to be awarded a construction contract for the project or to perform work on the project.

A false statement under oath verifying compliance with any of the minimum criteria shall render the prime contractor or subcontractor that makes the false statement ineligible to be awarded a construction contract for the project and may result in termination of a contract awarded to a prime contractor or subcontractor that makes a false statement.

A prime contractor shall submit to the contracting authority upon request copies of the signed verifications of compliance from all subcontractors of any tier pursuant to subdivision 3, clause 7.

By signing this statement, I, _____(typed or printed name), _____(title) certify that I am an owner or officer of the company and do verify under oath that my company is in compliance with each of the minimum criteria listed in the law.

_____

(*name of the person, partnership or corporation submitting this proposal*)

_____

(*business address*)

Signed: _____ _____

(bidder or authorized representative) *Date*

GENERAL CONDITIONS INDEX

Article		Page No.
1.	Definitions	GC-2
2.	Progress and Submission Schedule Pre-Construction Conference Time of Starting Work	GC-5
3.	Plans and Specifications	GC-6
4.	Detailed Drawings and Instructions	GC-6
5.	Ownership and Copies of Documents, Record Documents and Security Thereof	GC-7
6.	Patent Fees and Royalties	GC-8
7.	Work by Others and Subcontractors	GC-8
8.	Materials, Equipment and Labor	GC-10
9.	Errors, Omissions. Etc.	GC-10
10.	Permits Laws Taxes and Regulations	GC-10
11.	Availability of Lands	GC-11
12.	Use of Premises	GC-11
13.	Engineer's Status During Construction	GC-12
14.	Engineer's Interpretations and Decisions	GC-12
15.	Shop Drawings and Samples	GC-13
16.	Tests and Inspections	GC-13
17.	Contractor's Supervision and Superintendence	GC-14
18.	Safety and Protection Emergencies	GC-15
19.	Access to the Work - Uncovering Finished Work	GC-16
20.	Changes in the Work	GC-16
21.	Change of the Contract Price	GC-17
22.	Change of Contract Time	GC-18
23.	Neglected Work	GC-18
24.	Warranty and Guarantee Correction, Removal or Acceptance of Defective Work	GC-18
25.	Application for Partial Payment	GC-19
26	Prompt Payment to Subcontractors	GC-20
27.	Approval of Payment	GC-20
28.	Project Completion	GC-21
29.	Final Payment	GC-21
30.	Retention of a Portion of the Contract Sum	GC-22
31.	Liquidated Damages	GC-22
32.	Waivers of Claims and Continuing Obligations	GC-22
33.	Indemnification	GC-23
34.	Contract Bonds	GC-24
35.	Insurance	GC-24
36.	Contractor and Subcontractor Insurance	GC-24
37.	Compensation and Employer's Liability Insurance	GC-25
38.	Public Liability (including Automotive) and Property Damage Insurance	GC-25
39.	Builders Risk All Risk Insurance	GC-25
40.	Insurance Coverage for Special Conditions	GC-25
41.	Cleaning Up	GC-26
42.	Owner's Right to Stop or Suspend Work	GC-26
43.	Owner's Right to Terminate	GC-26
44.	Contractor's Right to Terminate	GC-27
45.	Miscellaneous	GC-27

ARTICLE 1. Definitions

The following words, phrases or terms hereinafter used in the agreement of any contract documents shall be interpreted according to each designated meaning as follows:

1.1 Addenda: Written or graphic instruments issued prior to the execution of the agreement which modify or interpret the contract documents, drawings and specifications, by additions, deletions, clarifications or corrections.

1.2 Agreement: The written agreement between the Owner and the Contractor covering the work to be performed, including all contract documents.

1.3 Bid Guaranty: The term means the security designated in the contract documents to be furnished by the bidder as a guaranty of good faith to enter into a contract with the Owner if the work is awarded to him.

1.4 Bid Proposal: The offer or proposal of the bidder submitted on the prescribed form setting forth the prices for the work to be performed.

1.5 Bidder: Any individual, partnership, or corporation submitting a proposal for the work to be completed.

1.6 Calendar Day: Every day shown on the calendar.

1.7 Change Order: A written order to the Contractor signed by the Owner authorizing an addition, deletion or revision in the work, or an adjustment in the contract price or the contract time issued after execution of this agreement.

1.8 Contract Bonds: Performance, labor and material payment bonds, maintenance or guarantee-instruments of security, furnished by the Contractor and his surety in accordance with the contract documents.

1.9 Contract Documents: The contract documents shall consist of the following:

(1) Legal and Procedural Documents
   a. Advertisements for Bids
   b. Information for Bidders
   c. Executed Bid Form
   d. Executed Bid Guaranty
   e. Executed Agreement
   f. Executed Bond
   g. Notice of Award
   h. Notice to Proceed
(2) Special Provisions
(3) Technical Provisions
(4) General Conditions
(5) Executed Payment Forms

(6) Drawing(s)
(7) All addenda issued by the Engineer prior to the time of the opening of the bids.
(8) Supplemental Agreements & Change Orders

1.10 Contract Price: The total monies payable to the Contractor under the contract documents.

1.11 Contract Time: The number of calendar days stated in the contract documents for the completion of the work.

1.12 Contractor: The individual, partnership, or corporation undertaking the execution of the work under the terms of the contract and acting directly or through a duly authorized representative.

1.13 Engineer: By the term "Engineer" is meant City Engineer for the City of Ramsey, who has been appointed by the Owner to take charge of the work contemplated by these specifications and accompanying drawings and is designated and referred to in these specifications as the "Engineer". (The Engineer or Owner may appoint an authorized representative or inspector, limited in authority, assigned to make inspection of the work performed and materials furnished by the Contractor. Such a representative has no authority to order or permit deviation from plans and specifications.)

1.14 Field Order: A written order affecting a change in the work not involving an adjustment in the contract price or an extension of the contract time, issued by the Engineer to the Contractor during construction.

1.15 Final Completion: That date as certified by the Engineer when construction of the project is complete in accordance with the contract documents, such that all work has been paid, minus retainage.

1.16 Notice of Award: The written notice of the acceptance of the bid issued by the Owner to the Successful bidder.

1.17 Notice to Proceed: The written notice issued by the Owner to the Contractor authorizing him to proceed with the work and establishing the date of commencement of the work.

1.18 Owner: A private, public or quasi-public body or authority, corporation, association, partnership, or individual for whom the work is to be performed.

1.19 Plans: The term means the official drawings, plans, profiles, elevation, cross sections and supplemental drawings, or reproductions thereof, approved by the Engineer, which show the location, character, dimensions and details of work to be performed. All such drawings, as listed elsewhere in the contract documents, are a part of the plans whether attached to the contract documents or separate therefrom.

1.20 Project: The undertaking to be performed as provided in the contract documents.

1.21 Project Representative: The term means an authorized representative of the Engineer, assigned to make any or all necessary inspections of the work performed and the materials furnished by the Contractor.

1.22 Shop Drawings: All drawings, diagrams, illustrations, brochures, schedules and other data which are prepared by the Contractor, a subcontractor, manufacturer, supplier or distributor and which illustrate the equipment, material or some portion of the work.

1.23 Special Provisions: The term means contract requirements peculiar to the project which are not otherwise thoroughly or satisfactorily detailed and set forth in the standard detail specifications or plans.

1.24 Specifications: The term means the directions, provisions, and requirements contained herein, together with all written agreements made or to be made pertaining to the method and manner of performing the work, or to the quantities and qualities of materials to be furnished under the contract.

1.25 Subcontractor: The term means those having a direct contract with the Contractor and it includes one who furnished materials worked to a special design according to the plans and specifications of this work, but does not include one who merely furnishes material so worked.

1.26 Substantial Completion: That date as certified in writing by the Engineer when the construction of the project or a specified part thereof is sufficiently complete in accordance with the contract documents for use by the Owner.

1.27 Supplemental General Conditions: Modification to the general conditions that supplement, add to, delete from or change the articles therein.

1.28 Surety: The Guarantor for the Contractor who, with the Contractor, signs an instrument or instruments known as the bond or bonds guaranteeing that the Contractor will fully comply with the plans, specifications and agreements.

1.29 Work: The entire completed construction or the various separately identifiable parts thereof required to be furnished under the Contract Documents. Work is the result of performing services, furnishing labor and furnishing and incorporating materials and equipment into the construction, all as required by the Contract Documents.

Abbreviations

A.A.S.H.O.: The American Association of State Highway Officials. All references to A.S.S.H.O. specifications or methods of tests shall be understood to refer to their latest published edition of the "Standard Specifications for Highway Materials and Methods of Sampling and Testing".

A.N.S.I.: American National Standards Institute, Inc. All references to A.N.S.I. specifications shall be understood to refer to their latest published edition.

A.S.A.: The American Standards Association. All references to A.S.A. specifications shall be understood to refer to their latest published edition.

A.S.T.M.: The American Society for Testing Materials. All references to A.S.T.M. specifications or methods shall be understood to refer to their latest published edition of the A.S.T.M. Standards.

A.W.W.A.: The American Water Works Association. All references to A.W.W.A. specifications shall be understood to refer to their latest published edition.

MnDOT: The Minnesota Department of Transportation. All references to MnDOT specifications shall be understood to refer to their latest published edition.

M.S.S.: Minnesota State Statutes. All references to M.S.S. shall be understood to refer to the latest published edition.

ARTICLE 2. Progress and Submission Schedule; Pre-Construction Conference; Time of Starting Work

2.1 Within 10 Calendar Days after execution of this Agreement, the Contractor shall prepare and submit to the Engineer for review an estimated progress schedule indicating the starting and completion dates of the various stages of the Work and a schedule of Shop Drawing submissions.

2.2 Before starting the Work, a conference will be held to review the above schedules, to establish procedures for handling Shop Drawings and other submissions and to establish a working understanding between the parties as to the Project. Present at the conference will be the Engineer, Project Representative, the Contractor, his superintendent, the Owner and any others who may have an interest in the Project.

2.3 Prior to starting the Work, the Contractor will furnish the Engineer certificates of insurance as required by the appropriate provisions of the Contract Documents.

2.4 The Work contemplated hereunder shall be commenced within ten (10) Calendar Days after receipt by the Contractor of written Notice to Proceed from the Engineer and shall be completed within the time limits set forth in the Special Provisions or as specified elsewhere in the Contract Documents.

2.5 If the Contractor is delayed in the performance of the Work by any neglect of Owner or Engineer, or by an employee, agent or representative of either, or by changes ordered in the Work, or by the combined action of workmen (either those employed on the Work or in any industry essential to the conduct of the Work) in no way caused by or resulting from the default or collusion on the part of the Contractor, or by strikes, lockouts, embargoes, fire, unavoidable casualties, unusual delays in transportation, national emergency, or by any other causes which Contractor could not reasonably control or circumvent, the scheduled completion date and interim completion dates shall be extended for a period equal to the length of such delay if within five Calendar Days after expiration of any such delay Contractor delivers to Engineer a written request for extension for such delay, and such request is approved by the Owner or Engineer, which approval shall not be unreasonably withheld by Owner or Engineer. In case of a continuing cause of delay of a particular nature, Contractor shall be required to make only one such request with respect thereto. Extension of time shall be the Contractor's sole remedy for any such delay (except for Contractor's right to terminate this Agreement pursuant to the provisions of Article 43 hereinafter), unless the same shall be caused by acts constituting intentional interference by the Owner or Engineer with Contractor's performance of the Work and where to the extent that such acts continue after Contractor's notice to Owner or Engineer of such interference. Owner' s or Engineer's exercise of any of its rights under Article 20, Changes in the Work, regardless

of the extent or number of such changes, or Owner's exercise of any of its remedies of suspension of the Work, or requirement of correction or re-execution of any defective Work, shall not under any circumstances be construed as intentional interference with Contractor's performance of the Work.

2.6 All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party.

ARTICLE 3. Plans and Specifications

3.1 It is the intent of the Specifications and Plans to describe a complete Project to be constructed in accordance with the Contract Documents.

3.2 The Contract Documents are complementary; what is called for by one is as binding as if called for by all. If the Contractor finds a conflict, error or discrepancy in the Contract Documents, he will call it to the Engineer's attention in writing before proceeding with the Work affected thereby. In resolving such conflicts, errors and discrepancies, the Contract Documents shall be given precedence in the following order: Agreement, Specifications, Plans. Within the Specifications, the order of precedence shall be as follows: Special Provisions, Addenda, General Conditions, Technical Specifications Provisions. Figure dimensions on Plans shall govern over scale dimensions, and detailed Plans shall govern over general Plans. Any Work that may reasonably be inferred from the Specifications or Plans as being required to produce the intended results shall be supplied whether or not it is specifically called for. Work, materials or equipment described in words which so applied have a well-known technical or trade meaning shall be deemed to refer to such recognized standards.

ARTICLE 4. Detailed Drawings and Instructions

4.1 Unless otherwise provided, the Contractor shall furnish all labor, materials, equipment, tools, transportation, supplies and incidentals which may be necessary to construct and complete the Work in accordance with the Contract Documents.

4.2 The Engineer will furnish to the Contractor with reasonable promptness additional instructions by means of drawings and/or otherwise necessary information for the proper execution of the Work when, in the opinion of the Engineer, such are required. All drawings and instructions shall be consistent with the Plans and Specifications, true developments thereof, and reasonably inferable therefrom. The Contractor shall do no Work without proper drawings and instructions. In giving such additional instructions, the Engineer shall have authority to make minor changes in the Work, not involving extra cost, and not inconsistent with the purpose of the Work.

4.3 The Contractor shall submit, with such promptness as to cause no delay in the Work or in that of any other Contractor, three (3) copies of all Shop (or setting) Drawings and schedules required for the Work of the various trades and the Engineer shall pass upon them with reasonable promptness. The Contractor shall make any corrections required by the Engineer, file with the Engineer two (2) corrected copies and furnish such other copies as may be needed. The Engineer's approval of such drawings or schedules shall not relieve the Contractor from responsibility for deviation from Plans or Specifications, unless the Contractor has, in writing, called the Engineer's attention to such deviation at the time of

submission, nor shall it relieve the Contractor from responsibility for errors of any sort in Shop Drawings or schedules.

4.4 Unless otherwise set forth in the Contract Documents or bidding documents, it shall be the Contractor's sole responsibility to determine subsoil conditions prior to the bidding of the job. If under the terms of the Contract Documents, the responsibility for subsoil conditions is with the Contractor, Contractor hereby represents that he has inspected the location or locations of the Work and has satisfied himself as to the condition thereof, including subsoil conditions, and that the Contract Price as set forth herein is just and reasonable compensation for all Work, including all foreseen or unforeseeable risks, hazards, and difficulties in connection therewith.

4.5 The Engineer will furnish and set stakes as may be necessary for the Contractor in order that the Contractor may construct the Work to the proper grade and alignment.

4.6 The Contractor shall carefully preserve benchmarks, reference points and stakes and, in case of willful or careless destruction, he shall be charged with the resulting expense and shall be responsible for any mistakes that may be caused by their unnecessary loss or disturbance.

4.7 The Engineer shall furnish such survey lines and grades as may be necessary for the proper control of the Work; but this shall not relieve the Contractor of responsibility for making careful and accurate measurements and for constructing the Work accurately to the lines furnished by the Engineer. The Contractor shall give the Engineer reasonable notice of his requirements for such survey lines and grade as the Contractor may require.

4.8 The Contractor shall furnish and place, as directed, all necessary guide boards and appurtenances and give such other incidental assistance at the Work site as may be required by the Engineer, for staking out the Work. The Contractor's working operations which interfere with the activities of the Engineer shall be temporarily suspended for such reasonable time as the Engineer may deem necessary. The Contractor shall carefully preserve the points furnished by the Engineer and shall receive no extra compensation for any materials or services furnished by the Contractor incidental to these operations of the Engineer.

ARTICLE 5. Ownership and Copies of Documents, Record Documents and Security Thereof

5.1 All Specifications, Plans and copies thereof furnished by the Owner, through the Engineer, shall remain the Owner's property. They shall not be used on another project, and, with the exception of those sets which have been signed in connection with the execution of the Agreement, shall be returned to the Owner upon completion of the Project.

5.2 The Owner, through the Engineer, will furnish to the Contractor up to three (3) copies of the Specifications and Plans as are reasonably necessary for the execution of the Work. Additional copies will be furnished, upon request, at the cost of reproduction.

5.3 The Contractor will keep one record copy of all Specifications, Plans, Addenda, modifications, and Shop Drawings at the Work site in good order and annotated to show all changes made during the construction process. These shall be made available to the Engineer as the Project is completed.

ARTICLE 6. Patent Fees and Royalties

The Contractor will pay all license fees and royalties and assume all costs incidental to the use of any invention, design, process or device which is the subject of patent rights or copyrights held by others. The Contractor will indemnify and hold harmless the Owner and the Engineer and anyone directly or indirectly employed by the Owner from and against all claims, damages, losses and expenses (including attorney's fees) arising out of any infringement of such rights during or after completion of the Work, and shall defend all such claims in connection with any alleged infringement of such rights.

ARTICLE 7. Work by Others and Subcontractors

7.1 The Owner may perform additional work related to the Project or may let other direct contracts therefrom which shall contain general conditions similar to these. The Contractor will afford the other contractors who are parties to such direct contracts (or the Owner, if performing the additional work), reasonable opportunity for the introduction and storage of materials and equipment and the execution of work, and shall properly connect and coordinate the Work with other contractors.

7.2 If any part of the Contractor's Work depends upon the work of any such other contractor (or the Owner) for proper execution or results, the Contractor will inspect and promptly report to the Engineer in writing any defects or deficiencies in such work that render it unsuitable for such proper execution and results. The Contractor's failure to report shall constitute an acceptance of the other work as fit and proper for the relationship of his Work except as to defects and deficiencies which may appear in the other work after the execution of this Work.

7.3 The Contractor will do all cutting, fitting and patching of the Work that may be required to make several parts come together properly and fit to receive or be received by such other work. The Contractor will not endanger any work of others by cutting, excavating or otherwise altering other's work and will only cut or alter their work with the written consent of the Engineer.

7.4 Within 10 Calendar Days of execution of this Agreement, the Contractor will submit to the Engineer for acceptance a list of the names of Subcontractors and such other persons and organizations (including those who are to furnish materials or equipment fabricated to a special design) proposed for those portions of the Work for which the identity of the Subcontractors and other persons and organizations must be submitted as specified in the Contract Documents. Prior to the execution of the Work, the Engineer will notify the Contractor in writing if either the Owner or the Engineer, after due investigation, has reasonable objection to any Subcontractor, person or organization on such list. The failure of the Owner or the Engineer to make objection to any Subcontractor, person or organization on the list prior to the execution of the Work shall constitute an acceptance of such Subcontractor, person or organization. Acceptance of any such Subcontractor, person or organization shall not constitute a waiver of any right of the Owner or the Engineer to reject defective workmanship, material, equipment, employees of the Contractor, or Work, material or equipment not in conformance with the requirements of the Contract Documents.

7.5 If, prior to the commencing of the Work, the Owner or the Engineer has reasonable objection to and refuses to accept any Subcontractor, person or organization on such list, the Contractor may,

prior to such commencement, either 1) submit an acceptable substitute without an increase in his Contract Price or 2) withdraw his bid and forfeit his bid security. If, after the commencement of the Work, the Owner or the Engineer refuses to accept any Subcontractor, person or organization on such list, the Contractor will submit an acceptable substitute and the Contract Price shall be increased or decreased by the difference in cost occasioned by such substitution and an appropriate Change Order shall be issued; however, no such increase in the Contract Price shall be allowed in respect of any substitution unless the Contractor has acted promptly and reasonably in submitting a name with respect thereto prior to the execution of the Work.

7.6 The Contractor will not employ any Subcontractor (whether initially or as a substitute) against whom the Owner or the Engineer may have reasonable objection, nor will the Contractor be required to employ any Subcontractor against whom the Contractor has reasonable objection. The Contractor will not make any substitution for any Subcontractor who has been accepted by the Owner and the Engineer, unless the Engineer determines that there is good cause for doing so.

7.7 The Contractor will be fully responsible for all acts and omissions of his Subcontractors and of persons directly employed by them and of persons for whose acts any of them may be liable to the same extent that the Contractor is responsible for the acts and omissions of persons directly employed by the Contractor. Nothing in the Contract Documents shall create any contractual relationship between any Subcontractor and the Owner or the Engineer or any obligation on the part of the Owner.

7.8 The divisions and sections of the Specifications and the identifications of any Plans shall not control the Contractor in dividing the Work among Subcontractors or delineating the Work to be performed by any trade.

7.9 The Contractor agrees to specifically bind every Subcontractor to all of the applicable terms and conditions of the Contract Documents. Every Subcontractor, by undertaking to perform any of the Work, will thereby automatically be deemed to be bound by such terms and conditions.

7.10 All Work performed for the Contractor by a Subcontractor shall be pursuant to an appropriate agreement between the Contractor and the Subcontractor which shall contain provisions that waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by insurance provided in accordance with Contract Documents. The Contractor shall upon request from the Engineer provide copies of the written subcontract agreements to the Engineer. The Contractor will pay each Subcontractor a just share of any insurance monies received by the Contractor.

ARTICLE 8: Materials, Equipment and Labor; Substitute Material or Equipment

8.1 The Contractor will provide and pay for all materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water and sanitary facilities and all other facilities and incidentals necessary for the execution, testing, initial operation and completion of the Work.

8.2 The Contractor covenants that all Work shall be done in a good and workmanlike manner and that all materials furnished and used in connection therewith shall be new and approved by the Engineer, except as otherwise expressly provided for in the Plans and Specifications.

8.3 If it is indicated in the Specifications that the Contractor may furnish or use a substitute that is equal to any material or equipment specified, and if the Contractor wishes to furnish or use a proposed substitute, the Contractor will, promptly after the Notice of Award, make written application to the Engineer for approval of such a substitute certifying in writing that the proposed substitute will perform adequately the duties imposed by the general design, be similar and/or equal substance to that specified and be suited to the same use and capable of performing the same function as that specified. No substitute shall be ordered or installed without the written approval of the Engineer who shall be the judge of equality.

8.4 All materials and equipment shall be applied, installed, connected, erected, used, cleaned and conditioned in accordance with the instructions of the applicable manufacturer, fabricator or processors, except as otherwise specifically provided in the Contract Documents.

ARTICLE 9. Errors, Omissions, Etc.

Should it appear that the Work here intended to be done or any of the materials or matters relative thereto are not sufficiently detailed or explained on the Plans or in the Specifications, or should any error, discrepancy or inconsistency appear between any of the Plans and the Specifications, the Engineer shall furnish additional drawings, details or explanations and shall have power to interpret, correct, adjust and explain all errors, omissions, discrepancies, doubts and misunderstandings between such Plans and Specifications, or between several drawings and Specifications, or between several drawings, and the decision of the Engineer therein shall be final and conclusive.

ARTICLE 10. Permits Laws Taxes and Regulations

10.1 The Contractor will secure and pay for all construction permits and licenses and will pay all governmental and public utility charges and inspection fees necessary for the performance of the Work.

10.2 If the Contractor observes that the Specifications or Plans are at variance therewith, the Contractor will give the Engineer prompt written notice thereof, and any necessary changes shall be adjusted by an appropriate modification. If the Contractor performs any of the Work knowing or when with the exercise of due care he should have known, it be contrary to any such laws, ordinances, rules and regulations applicable to said Work and fails to give the Owner or Engineer notice thereof prior to the performance thereof, Contractor shall bear all costs, including reasonable attorney's fees, arising therefrom. Further, Contractor shall observe and abide by and perform all of its obligations hereunder in accordance with all applicable laws, rules and regulations of all governmental authorities having jurisdiction, including the Federal Occupational, Safety and Health Act. Contractor agrees to take affirmative action to not discriminate against any employee or applicant for employment because of race, creed, color or national origin. To the extent applicable, Contractor will comply with all provisions of any executive orders and any rules, regulations, orders, instructions, designations and other directives promulgated by any governmental unit with jurisdiction thereof. Violation of this

provision, after notice, shall be a material breach of this Agreement and may result, at the Owner's option, in a termination or suspension of this Agreement in whole or in part.

10.3 The Contractor will pay all sales, consumer, use and other similar taxes required by the law of the place where the Work is to be performed.

ARTICLE 11. Availability of Lands; Physical and Subsurface Conditions; Reference Points

11.1 The Owner will provide, as indicated in the Contract Documents and not later than the date when needed by the Contractor, the lands upon which the Work is to be done, rights-of-way for access thereto, and such other lands which are designated for the use of the Contractor, the Contractor will provide all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

11.2 The Contractor will properly notify the Owner and Engineer in writing of any subsurface or latent physical conditions at the site differing materially from those indicated in the Contract Documents. The Engineer will promptly investigate those conditions and advise the Owner in writing if further surveys or subsurface tests are necessary. Promptly thereafter, the Owner will obtain the necessary additional surveys and tests and furnish copies to the Engineer and the Contractor. If the Engineer finds that the results of such surveys or tests indicate subsurface or latent physical conditions differing significantly from those indicated in the Contract Documents, a Change Order shall be issued incorporating the necessary revisions.

11.3 The Engineer will establish such general reference points as in his judgment will enable the Contractor to proceed with the Work. The Contractor will be responsible for the layout cf the Work and will protect and preserve the established reference points and will make no changes or relocations without the prior written approval of the Owner and Engineer. He will report to the Engineer whenever any reference point is lost or destroyed or requires relocation because of necessary changes in grades or locations. The Contractor will replace and accurately relocate all reference points so lost, destroyed or moved.

ARTICLE 12. Use of Premises

12.1 The Contractor will confine his equipment, the storage of materials and equipment and the operations of his workmen to areas permitted by law, ordinances, permits or the requirements of the Contract Documents, and shall not unreasonably encumber the premises with materials or equipment.

12.2 The Contractor will not load nor permit any part of the structure to be loaded with weights that will endanger the structure, nor will he subject any part of the Work to stresses or pressures that will endanger it.

ARTICLE 13. Engineer's Status During Construction

13.1 The Engineer shall be the Owner's representative during the construction period. All instructions of the Owner to the Contractor shall be issued through the Engineer. The duties and responsibilities and the limitations of authority of the Engineer as the Owner's representative during

construction are set forth in all Articles of these General Conditions and shall not be extended without written consent of the Owner and the Engineer.

13.2 The Engineer will make regular visits to the Work site to observe the progress and quality of the executed Work and to determine, in general, if the Work is proceeding in accordance with the Contract Documents. The Engineer's efforts will be directed toward providing assurance for the Owner that the completed Project will conform to the requirements of the Contract Documents. On the basis of the Engineer's on-site observations as an experienced and qualified design professional, he will advise the Owner as to the progress of the Work and the performance of the Contractor.

13.3 The Engineer will have authority to disapprove of or reject Work which is defective; i.e., is unsatisfactory, faulty or defective, or does not conform to the requirements of the Contract Documents or does not meet the requirements of any inspection, test or approval. The Engineer will also have authority to require special inspection or testing of the Work whether or not the Work is fabricated, installed or completed.

13.4 The Engineer will provide one or more full-time resident Project Representatives to assist the Engineer in carrying out his responsibilities at the Work site during construction activity. The duties, responsibilities and limitations of authority of any such resident project representative shall be as set forth in the pre-construction meeting held by the Engineer.

13.5 Neither the Engineer's authority to act under this article nor any decision made by him in good faith either to exercise or not exercise such authority shall give rise to any duty or responsibility of the Engineer to the Contractor, any Subcontractor, any of their agents or employees or any other person performing any of the Work.

ARTICLE 14. Engineer's Interpretations and Decisions

14.1 The Engineer will issue with reasonable promptness such written clarifications or interpretations to be consistent with or reasonably inferable from the overall intent of the Contract Documents.

14.2 The Engineer will be the initial interpreter of the terms and conditions of the Contract Documents and the judge of the performance thereunder. In his capacity as interpreter and judge, the Engineer will exercise his best efforts to insure faithful performance by the Contractor. The Engineer will not show partiality and shall not be liable for the result of any interpretation or decision rendered in good faith. Claims, disputes and other matters relating to the execution and progress of the Work or the interpretation of or performance under the Contract Documents shall be referred initially to the Engineer for decision, which the Engineer shall render in writing within a reasonable time.

ARTICLE 15. Shop Drawings and Samples

15.1 After checking and verifying all field measurements, the Contractor will submit to the Engineer for approval, in accordance with the accepted schedule of Shop Drawing submissions, five copies (or at the Engineer's option, one reproducible copy) of all Shop Drawings, which shall have been checked by and stamped with the approval of the Contractor and identified as the Engineer may require. The

data shown on the Shop Drawings will be complete with respect to dimensions, design criteria, materials of construction and the like to enable the Engineer to review the information as required.

15.2 The Contractor will also submit to the Engineer for approval, with such promptness as to cause no delay in Work, all samples required by the Contract Documents. All samples will have been checked by and stamped with the approval of the Contractor, identified clearly as to material, manufacturer, any pertinent catalog numbers and the use for which intended.

15.3 At the time of each submission, the Contractor will, in writing, call the Engineer's attention to any deviations that the Shop Drawing or sample may have from the requirements of the Contract Documents.

15.4 The Engineer will check and approve with reasonable promptness Shop Drawings and samples; however, checking and approval shall be only for conformance with the design concept of the Project and for compliance with the information given in the Contract Documents. The approval of a separate item as such will not indicate approval of the assembly in which the item functions. The Contractor will make any corrections required by the Engineer and will return the required number of corrected copies of Shop Drawings and resubmit new samples until approved. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections called for by the Engineer on previous submissions.

15.5 No Work requiring a Shop Drawing or sample submission shall be commenced until the submission has been approved by the Engineer.

15.6 The Engineer's approval of Shop Drawings or samples shall not relieve the Contractor from his responsibility for any deviations from the requirements of the Contract Documents unless the Contractor has in writing the Engineer's attention to such deviations at the time of submission and the Engineer has given written approval to the specific deviation, nor shall any approval by the Engineer relieve the Contractor from responsibility for errors or omissions in the Shop Drawings.

ARTICLE 16. Tests and Inspections

16.1 If the Contract Documents, laws, ordinances, rules, regulations or orders of any public authority having jurisdiction require any Work to specifically be inspected, tested, or approved by someone other than the Contractor, the Contractor will give the Engineer timely notice of readiness thereof. The Contractor will give the Engineer the required certificates of inspection, testing or approval. All such tests will be in accordance with the methods prescribed by the American Society for Testing and Materials or such other applicable organization as may be required by law or the Contract Documents. If any such Work required so to be inspected, tested, or approved is covered up without written approval or consent of the Engineer, it must, if directed by the Engineer, be uncovered at the Contractor's expense for observation. The cost of all such inspections, test and approvals shall be borne by the Owner unless otherwise provided.

16.2 Any Work which fails to meet the requirements of any such test, inspection or approval and any Work which meets the requirements of any such test or approval but does not meet the requirements of the Contract Documents shall be considered defective. Such defective Work may be rejected, corrected

or accepted as provided elsewhere in the Contract Documents. The costs of all retests and follow up inspections shall be borne by the Contractor.

16.3 Neither observations by the Engineer nor inspections, tests or approvals by persons other than the Contractor shall relieve the Contractor from his obligations to perform the Work in accordance with the requirements of the Contract Documents.

ARTICLE 17 Contractor's Supervision and Superintendence

17.1 The Contractor will supervise and direct the Work efficiently and with skill and attention. The Contractor will be solely responsible for the means, methods, techniques, sequences and procedures of construction. Before undertaking the Work the Contractor will carefully study and compare the Contract Documents and check and verify all figures shown thereon and all field measurements. The Contractor will at once report in writing to the Engineer any conflict, error or discrepancy which he may discover. The Contractor will be responsible to see that the finished Work complies accurately with the Contract Documents.

17.2 The Contractor will keep on the Work site at all times during its progress a resident superintendent satisfactory to the Engineer. The superintendent shall not be replaced without the consent of the Engineer except under extraordinary circumstances. The superintendent will be the Contractor's representative at the site and shall have authority to act on behalf of the Contractor. All communications given to the superintendent shall be as binding as if given to the Contractor.

17.3 The Contractor will provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. He will at all times maintain good discipline and order among his employees and the employees of his Subcontractors at the Work site.

17.4 The Engineer and/or Owner will not be responsible for the acts or omissions of the Contractor, or any Subcontractors, or any agents or employees or any other persons performing any of the Work.

ARTICLE 18. Safety and Protection: Emergencies

18.1 The Contractor will be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. The Contractor will take all necessary precautions for the safety of, and will provide the necessary protection to prevent damage, injury or loss to:

18.1.1 All employees on the Work and other persons who may be affected thereby;

18.1.2 All the Work and all materials or equipment to be incorporated therein, whether in storage on or off the Work site; and

18.1.3 Other property at the Work site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

18.2 The Contractor will comply with all applicable laws, ordinances, rules, regulations and orders of any public body having jurisdiction for the safety of persons or property or to protect them from damage, injury or loss. The Contractor will erect and maintain, as required by the conditions and progress of the Work, all necessary safeguards for safety and protection, including posting danger signs and other warnings against hazards and promulgating safety regulations. The Contractor will notify owners of adjacent utilities when execution of Work may affect them. When the use or storage of explosives or other hazardous materials is necessary for the performance of the Work, the Contractor will exercise the utmost care and will carry on such activities under the supervision of properly qualified personnel. All damage, injury or loss to any property referred to in this paragraph caused, directly or indirectly, in whole or in part, by the Contractor, or Subcontractor or anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, will be remedied by the Contractor, except damage or loss attributable to the fault of Plans or Specifications or to the acts or omissions of the Owner or the Engineer or anyone employed by either of them or for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor.

18.3 The Contractor will designate a responsible employee at the Work site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated in writing by the Contractor to the Owner and the Engineer.

18.4 In emergencies affecting the safety of persons or the Work or property at the Work site or adjacent thereto, the Contractor, without special instruction or authorization from the Engineer, is obligated to act, at his discretion, to prevent threatened damage, injury or loss. The Contractor will give the Engineer prompt written notice of any significant changes in the Work or deviations from the Contract Documents caused thereby, and a Change Order shall thereupon be issued covering the changes and deviations involved if said emergency is not a direct cause of the neglect of the Contractor or Subcontractor or a deviation by the Contractor from any of the provisions of the Contract Documents.

ARTICLE 19. Access to the Work: Uncovering Finished Work

19.1 The Engineer will at all times have access to the Work. The Contractor will provide proper facilities for such access and observation of the Work and also for any inspection, or testing thereof by others.

19.2 If any Work is covered contrary to the request of the Engineer, it must, if requested by the Engineer, be uncovered for observation and replaced at the Contractor's expense.

19.3 If any Work has been covered which the engineer has not specifically requested to observe prior to its being covered, or if the Engineer considers it necessary or advisable that covered Work be inspected or tested by others, the Contractor, at the Engineer's request, will uncover, expose or otherwise make available for observation, inspection or testing as the Engineer may require, that portion of the Work in question, furnishing all necessary labor, material and equipment. If it is found that such

Work is defective or does not meet the requirements of the Contract Documents, the Contractor will bear all the expenses of such uncovering, exposure, observation, inspection and testing and of satisfactory reconstruction, including compensation for additional professional services, and an appropriate Change Order shall be issued depicting all such costs from the Contract Price. If, however, such Work is found to be non-defective and meets the requirements of the Contract Documents, the Contractor will be allowed an increase in the Contract Price or extension of the Contract Time directly attributable to such uncovering, exposure, observation, inspection, testing and reconstruction, provided the Engineer first obtained uncovering approval from the Owner.

ARTICLE 20. Changes in the Work

20.1 Without invalidating the Agreement, the Owner may, at any time or from time to time, order additions, deletions or revisions in the Work; these will be authorized by Change Orders. Upon receipt of a Change Order, the Contractor will proceed with the Work involved. All such Work shall be executed under the applicable conditions of the Contract Documents. If any Change Order causes an increase or decrease in the Contract Price or an extension or shortening of the Contract Time, an equitable adjustment will be made as provided in the Contract Documents.

20.2 The Engineer may authorize minor changes or alterations in the Work not involving extra cost and not inconsistent with the overall intent of the Contract Documents. These may be accomplished by a Field Order.

20.3 Additional Work performed by the Contractor without authorization of a Change Order will not entitle him to an increase in the Contract Price or an extension of the Contract Time, except in the case of an emergency as provided in elsewhere herein.

20.4 The Owner will execute any appropriate Change Order prepared by the Engineer covering changes in the Work to be performed and work performed in an emergency and any other claim of the Contractor for a change in the Contract Time or the Contract Price which is approved by the Owner and Engineer.

20.5 It is the Contractor's responsibility to notify his Surety of any changes affecting the general scope of the Work or changes in the Contract Price and the amount of the applicable bonds shall be adjusted accordingly. The Contractor will furnish proof of such adjustment to the Engineer upon its occurrence.

ARTICLE 21. Change of the Contract Price

21.1 The Contract Price constitutes the total compensation payable to the Contractor for performing the Work. All duties, responsibilities and obligations assigned to or undertaken by the Contractor shall be at the Contractor's expense without change in the Contract Price.

21.2 The Contract Price may only be changed by a Change Order. If the Contractor is entitled by the Contract Documents to a change in the Contract Price, the claim shall be in writing delivered to the Engineer within five (5) calendar days of the occurrence of the event giving rise to the claim. All valid

claims for adjustments in the Contract Price shall be determined by the Engineer. Any change in the Contract Price resulting from any such claim shall be incorporated in a Change Order.

21.3 The value of any Work covered by a Change Order or of any claims for a change in the Contract Price shall be determined in one of the following ways:

21.3.1 Where the Work involved is covered by unit prices contained in the Contract Documents, by application of unit prices to the quantities of the items involved;

21.3.2 By mutual acceptance of a lump sum;

21.3.3 By cost and a mutually acceptable fixed amount for overhead and profit;

21.3.4 If none of the above methods is agreed upon, the value shall be determined by the Engineer on the basis of costs and a percentage for overhead and profit. Costs shall only include labor (payroll, payroll taxes, fringe benefits, workmen's compensation, etc.), materials, equipment, directly related to the Work involved. The maximum percentage which shall be allowed for Contractors combined overhead and profit shall be as follows:

21.3.4.1 For all such Work done by his own organization, the Contractor may add up to fifteen percent (15%) of actual net costs for combined overhead and profit; provided that no overhead or profit shall be allowed on costs incurred in connection with premiums for public liability insurance or other special insurance directly related to such Work. In such case and also under this paragraph, the Contractor will submit in the form prescribed by the Engineer, an itemized cost breakdown together with supporting data.

21.4 The amount of credit to be allowed by the Contractor to the Owner for any such changes in cost, will be the amount of the actual net cost plus fifteen percent (15%).

ARTICLE 22. Change of Contract Time

22.1 The Contract Time may only be changed by a Change Order. If the Contractor is entitled by the Contract Documents to make a claim for an extension in the Contract Time, the claim shall be in writing delivered to the Engineer within five (5) calendar days after expiration of any such delay of the occurrence of the event giving rise to the claim. All valid claims for adjustment in the Contract Time shall be determined by the Engineer. Any change in the Contract Time resulting from any such claim shall be incorporated into a Change Order.

22.2 The Contract Time will be extended in an amount equal to time lost due to delays beyond the control of the Contractor, if he makes a claim therefrom as provided in this Agreement. Such delays shall include, but not be restricted to, acts or neglect by any separate Contractor employed by the Owner, fires, floods, labor disputes, epidemics, abnormal weather conditions, or acts of God.

22.3 All time limits stated in the Contract Documents are of the essence of the Agreement. The provisions of this Article shall not exclude recovery for damages (including compensation for additional professional services) for delay by either party.

ARTICLE 23. Neglected Work

If the Contractor should neglect to prosecute the Work in accordance with the Contract Documents, including any requirements of the progress schedule, the Owner, after five (5) Calendar Day's written notice to the Contractor may, without prejudice to any other remedy, make good such deficiencies and the cost thereof (including compensation for additional professional services) shall be charged against the Contractor, in which case a Change Order shall be issued incorporating the necessary revisions in the Contract Documents including an appropriate reduction in the Contract Price. If the payments then or thereafter due to the Contractor are not sufficient to cover such amount, the Contractor will pay the difference to the Owner.

ARTICLE 24. Warranty and Guarantee: Correction, Removal or Acceptance of Defective Work

24.1 The Contractor warrants and guarantees to the Owner that all materials and equipment will be new unless otherwise specified and that all Work will be of good quality and free from faults or defects and in accordance with the requirements of the Contract Documents and of any inspections, tests or approvals referred to elsewhere in the Contract Documents. All unsatisfactory Work, all faulty or defective Work and all Work not conforming to the requirements of the Contract Documents or of such inspections, tests or approvals shall be considered defective. Prompt notice of all defects shall be given to the Contractor. All defective Work, whether or not in place, may be rejected.

24.2 If required by the Engineer, prior to approval of final payment, the Contractor will promptly, without cost to the Owner and as required by the Engineer, either correct any defective Work, whether or not fabricated, installed or completed, or, if the Work has been rejected by the Engineer, remove it from the Work site and replace it with non-defective Work. If the Contractor does not correct such defective Work or remove and replace such rejected Work within a reasonable time, all as required by written notice from the Engineer, the Owner may have the deficiency corrected or the rejected Work removed and replaced. All direct or indirect costs of such correction or removal and replacement, including compensation for additional professional services shall be paid by the Contractor, and an appropriate Change Order shall be issued deducting all such costs from the Contract Price. The Contractor will also bear the expenses of making good all Work of others destroyed or damaged by his correction, removal or replacement of his defective Work.

24.3 If, after the approval of final payment and prior to the expiration of one (1) year after the date of Substantial Completion or such longer period of time as may be prescribed by law or by the terms of any applicable special guarantee required by the Contract Documents, any Work is found to be defective, the Contractor will, promptly, without cost to the Owner and in accordance with the Owner's written instructions, either correct such defective Work, or, if it has been rejected by the Owner, remove it from the Work site and replace it with non-defective Work. If the Contractor does not promptly comply with the terms of such instructions, the Owner may have the defective Work corrected or the

rejected Work removed and replaced, and all direct and indirect costs of such removal and replacement, including compensation for additional professional services, will be paid by the Contractor.

24.4 If, instead of requiring correction or removal and replacement of defective Work, the Owner (prior to approval of final payment) and also the Engineer prefer to accept it, they may do so. In such case, if acceptance occurs prior to approval of final payment, a Change Order shall be issued incorporating the necessary revisions in the Contract Documents, including appropriate reduction in the Contract Price; or, if the acceptance occurs after approval of final payment, an appropriate amount shall be paid by the Contractor.

ARTICLE 25. Application for Partial Payment

25.1 Prior to the first Friday of the following month for which payment is to be requested, the Contractor shall submit to the Engineer a detailed estimate of the amount earned for the separate portions of the Work for the previous month, and request payment. As used in this Article, the words "amount earned" means the value, on the date of the estimate for partial payment, of the Work completed in accordance with the Contract Documents, and the value of approved materials delivered to the Project site suitably stored and protected prior to incorporation into the Work. If the Contractor's estimate of amount earned conforms with the Engineer's evaluation, the Engineer will calculate the amount due the Contractor and make recommendation to the Owner for payment.

25.2 After deducting the retain amounts and the amount of all previous partial payments made to the Contractor, the amount earned as of the end of the previous month will be made payable to the Contractor after the fourth Tuesday of the following month.

25.3 The Contractor warrants and guarantees that title to all Work, materials and equipment covered by an application for payment, will have passed to the Owner prior to the making of the application for payment free and clear of all liens, claims, security interests and encumbrances (hereafter in these General Conditions referred to as "liens"); and that no Work, materials or equipment covered by an application for payment will have been acquired by the Contractor or by any other person performing the Work at the Work site or furnishing materials and equipment for the Project, subject to an agreement under which an interest therein or encumbrance thereon is retained by the seller or otherwise imposed by the Contractor or such other person.

25.4 The Engineer will, within fifteen (15) Calendar Days after receipt of application for payment, either indicate in writing his approval of payment and present the application to the Owner, or return the application to the Contractor indicating in writing his reasons for refusing to approve payment. In the latter case, the Contractor may make the necessary corrections and resubmit the application. The Owner will pay the Contractor the amount approved by the Engineer and Owner.

ARTICLE 26. Prompt Payment to Subcontractors

The Contractor shall pay any subcontractor within ten days of the prime contractor’s receipt of payment from the municipality for undisputed services provided by the subcontractor. The contract must require the prime contractor to pay interest of 1 ½ percent per month or any part of a month to the subcontractor on any undisputed amount not paid on time to the subcontractor. The minimum monthly interest penalty

payment for an unpaid balance of $100 or more is $10. For an unpaid balance of less than $100, the prime contractor shall pay the actual penalty due to the subcontractor. A subcontractor who prevails in a civil action to collect interest penalties from a prime contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action.

ARTICLE 27. Approval of Payment

27.1 The Engineer's approval of any payment requested in an application for payment shall constitute a representation by the Engineer to the Owner, based on the Engineer's on-site observations of the Work in progress as an experienced and qualified design professional and on their review of the application for payment and the supporting data, that the Work has progressed to the point indicated; that, to the best of their knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning Project upon completion, to the results of any subsequent tests called for in the Contract Documents and any qualifications stated in his approval); and that the Contractor is entitled to payment of the amount approved.

27.2 The Engineer's approval of final payment shall constitute an additional representation by the Engineer to the Owner that the conditions precedent to the Contractor's being entitled to final payment as set forth in the Agreement have been fulfilled.

27.3 The Engineer may refuse to approve the payment if, in the Engineer's opinion, the Engineer is unable to make such representations to the Owner. They may also refuse to approve any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, nullify any such payment previously approved, to such extent as may be necessary in their opinion to protect the Owner from loss because:

27.3.1 The Work is defective;

27.3.2 Claims have been filed or there is reasonable evidence to suggest such filing thereof;

27.3.3 The Contract Price has been reduced because of modifications or changes;

27.3.4 The Owner has been required to correct defective Work or complete the Work;

27.3.5 Unsatisfactory performance of the Work, including failure to clean up.

ARTICLE 28. Project Completion

28.1 Prior to final payment, the Contractor may, in writing to the Owner and the Engineer, certify that the entire Project is complete and request that the Engineer issue a certificate of completion. Within a reasonable time thereafter, the Owner, Contractor and Engineer will make an inspection of the Project to determine the status of completion. If the Engineer and Owner do not consider the Project complete, they will notify the Contractor in writing giving reasons thereof. If the Engineer and Owner consider the Project complete, they will prepare and deliver to the Owner an application for final payment.

28.2 The Owner shall have the right to exclude the Contractor from the Project after the date of completion, but the Owner will allow the Contractor reasonable access to complete or correct items of repair and maintenance.

ARTICLE 29. Final Payment

29.1 After the Contractor has completed any corrections to the satisfaction of the Engineer and delivered all maintenance and operating instruction, schedules, guarantees, bonds, certificates of inspection and other documents, all as required by the Contract Documents, he may make application for final payment. The final application for payment shall be accomplished by such supporting data as the Engineer may require, together with complete and legally effective releases or waivers (satisfactory to the Owner) of all liens arising out of the Contract Documents and the labor and services performed and the material and equipment furnished thereunder. In lieu thereof and as approved by the Owner, the Contractor may furnish receipts of releases in full; an affidavit of the Contractor that the releases and receipts include all labor, services, material and equipment for which a lien could be filed, and that all payrolls, State and Federal withholding taxes, material and equipment bills, and other indebtedness connected with the Work for which the Owner or his property might in any way be responsible, have been paid or otherwise satisfied; and consent of the Surety, if any, to final payment. If any Subcontractor or supplier fails to furnish a release or receipt in full, the Contractor may furnish a bond satisfactory to the Owner to indemnify him against any lien.

29.2 If, on the basis of his observation and review of the Work during construction, his final inspection and his review of the final application for payment all as required by the Contract Documents, the Engineer is satisfied that the Work has been completed and the Contractor has fulfilled all of his obligations under the Contract Documents, he will, within fifteen (15) Calendar Days after receipt of the final application for payment, indicate in writing his approval of payment and present the application to the Owner for payment. Otherwise, he will return the application to the Contractor, indicating in writing his reasons for refusing to approve final payment, in which case the Contractor will make the necessary corrections and resubmit the application. The Owner, will, within twenty (20) Calendar Days of presentation of an approved application for payment, and receipt of final payment documents pay the Contractor the amount approved by the Engineer.

ARTICLE 30. Retention of a Portion of the Contract Sum

The Owner may retain up to a maximum of ten percent (10%) of value of Work completed and requested for payment. After fifty percent (50%) of the Work has been completed, the Contractor may request consideration for a reduction in the retained amount. Where the Owner is subject to the provisions of Minnesota State Statutes 429.041 the maximum retained amount shall be five percent (5%) released with approval of the governing body. Those amounts released shall be considered not required to be retained to protect the Owner's interest in satisfactory completion of the Agreement.

ARTICLE 31. Liquidated Damages

The parties hereto recognize that failure on the part of the Contractor to complete the Work within the time period set forth herein above, shall cause damage to the Owner; and should the contractor not complete the Work within that period of time, or otherwise be guilty of substantial violation of this Agreement, the Owner may deduct amounts per the following schedule per calendar day after the completion date and all legal and Engineering costs related thereto, for each day exceeding said completion date, from the total Contract Price to be paid to the Contractor, and among its other

remedies, terminate this Agreement and complete the Work by whatever method the Owner may deem expedient, at the expense of the Contractor; and such action by Owner shall not relieve Contractor of its liability to Owner for any damages caused by the Contractor's default, including, but not limited to, the excess expense of finishing the Work over the unpaid balance of the Contract Price. In the event a dispute arises between the Contractor and Owner regarding an alleged default by the Contractor or the assessment of liquidated damages, and if said dispute is submitted for litigation, and in the further event that the Owner prevails thereon, liquidated damages shall include court costs and reasonable attorney's fees as allowed by law. In the event the Owner elects to complete the Work following Contractor's default as above set forth, the Contractor agrees to extend its full cooperation of the Work contemplated under this Agreement. The amount deducted under this paragraph shall not be construed as a penalty, but rather as liquidated damages resulting from the noncompletion of the Work within the specified time. The schedule of damages shall be as specified below based upon the original contract amount:

From More Than	*Up To and Including*	*Charge per Calender Day*
$0	$500,000	$200
$500,000	$1,000,000	$300
$1,000,000	Unlimited	$500

ARTICLE 32. Waivers of Claims and Continuing Obligations

32.1 The Contractor's obligation to perform the Work and complete the Project in accordance with the Contract Documents shall be absolute. Neither approval of any payment by the Engineer, nor the issuance of a certificate of completion, nor any payment by the Owner to the Contractor under the Contract Documents, nor any use or occupancy of the Project or any part thereof by the Owner, nor any act of acceptance by the Owner nor any failure to do so, nor any correction of faulty or defective Work by the Owner shall constitute an acceptance of Work not in accordance with the Contract Documents.

32.2 The making and acceptance of payments shall constitute:

32.2.1 A waiver of all claims by the Owner against the Contractor other than those arising from unsettled liens, from faulty or defective Work appearing after final payment or from failure to comply with the requirements of the Contract Documents or the terms of any special guarantees specified therein; and

32.2.2 A waiver of all claims by the Contractor against the Owner other than those previously made in writing and still unsettled.

ARTICLE 33. Indemnification

33.1 To the fullest extent permitted by law, the Contractor shall indemnify and save harmless, the Owner and Engineer of and from loss or damage caused to any person or property by reasons of any carelessness or neglect in the doing or making of this improvement or furnishing of material and by reason or failure to pay all laborers, materials, mechanics, and subcontractors, and all persons who shall supply said Contractor with materials, provisions and supplies for the performance and completion of said Agreement to promptly pay all just debts, dues and demands incurred in the performance of said Agreement, and of and from all expenses of inspection and/or of whatever kind of nature, which shall

be caused by delay or failure in the performance and completion of this Agreement, and further to indemnify and save harmless of and from all suits and action of the Owner and Engineer on account of any injuries or damages sustained by any person or persons by reason of any act, omission, or negligence or by the use of improper or defective materials on the part of said Contractor in the performance of any part of this Agreement, and further to indemnify and protect and save the Owner and Engineer harmless against any or all demands, fees, or royalties for any patented invention, materials, methods, arrangements, or process of manufacturer of any infringement thereon, that may be used or be in any manner connected with the construction, erection, or maintenance of the Work, material, or any part thereon encompassed by this Project.

33.2 The Contractor shall indemnify and hold harmless the Owner and the Engineer and their agents and employees from and against all claims, damages, losses and expenses including attorney's fees arising out of or resulting from the performance of the Work, provided that any such claim, damage, loss or expense (a) is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom and (b) is caused in whole or in part by any negligent act or omission of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them may be liable, regardless of whether or not it is caused in part by a party indemnified hereunder.

33.3 In any and all claims against the Owner or the Engineer of any of their agents or employees by any employee of the Contractor, any Subcontractor, anyone directly or indirectly employed by any of them or anyone for whose acts any of them be liable, the indemnification obligation under this Article shall not be limited in any way by any limitation on the amount or type of damages, compensation or benefits payable by or from the Contractor or any Subcontractor under Worker's Compensation acts, disability benefit acts or other employee benefit acts.

33.4 The obligations of the Contractor under this Article shall not extend to the liability of the Engineer, his agents or employees arising out of (a) the preparation or approval or maps, drawings, opinions, reports, surveys, Change Orders, designs or Plans and Specifications or (b) the giving of or the failure to give directions or instructions by the Engineer, his agents or employees, provided such giving or failure to give is the primary cause of injury or damage.

ARTICLE 34. Contract Bonds

The Contractor will furnish performance, payment and maintenance bonds as security for the faithful performance, payment and maintenance of all his obligations under the Contract Documents. These bonds shall be in amounts of at least 100% of the Contract Price and in such form and with such Sureties as approved by the Securities Exchange and by the Insurance Commissioner of the State in which the Project is located. Prior to execution of the Contract Documents, the Owner may require the Contractor to furnish such other bonds, in such form and with such Sureties as he may require.

ARTICLE 35. Insurance

35.1 The Contractor shall provide (from insurance companies acceptable to the Owner) the insurance coverage designated hereinafter and pay all costs.

35.2 Before commencing Work under this Agreement, the Contractor shall furnish the Owner with certificates of insurance specified herein showing the type, amount, class of operations covered, effective dates, and date of expiration of policies, and containing substantially the following statement:

"The insurance covered by this certificate will not be cancelled or materially altered, except after 10 days written notice has been received by the Owner."

35.3 In case of the breach of any provision of this Article, the Owner, at his option, may take out and maintain, at the expense of the Contractor, such insurance as the Owner may deem proper and may deduct the cost of such insurance from any monies which may be due or become due the Contractor under this Agreement.

ARTICLE 36. Contractor and Subcontractor Insurance

The Contractor shall not commence Work on this Agreement until he has obtained all the insurance and it has been reviewed by the Owner, nor shall the Contractor allow any Subcontractor to commence Work on his subcontract until all similar insurance required for that portion of the Work has been so obtained and reviewed. Review of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.

ARTICLE 37. Compensation and Employer's Liability Insurance

The Contractor shall maintain during the life of this Agreement the statutory Worker's Compensation, in addition to, Employer's Liability Insurance in an amount not less than $100,000 for each occurrence and a combined single limit of liability of $1,000,000 for each occurrence for all of his employees to be engaged in Work on the Project under this Agreement and, in case any such Work is sublet, the Contractor shall require the Subcontractor similarly to provide Worker's Compensation and Employer's Liability Insurance for all of the latter's employees to be engaged in such Work. Where Work under this Agreement includes any water or navigational exposure, coverage shall be included to cover the Federal Longshoremen's and Harborworker's Act and the Federal Jones Act.

ARTICLE 38. Public Liability (including Automotive) and Property Damage Insurance

38.1 The Contractor shall maintain during the life of this Agreement such public liability and property damage insurance and automobile public liability and property damage insurance and shall protect him, the Owner, the Engineer, and any Subcontractor performing Work covered by this Agreement from claims for damages for personal injury, including accidental death, as well as from claims for property damage, which may arise from negligent operations under this Agreement, whether such operations are by himself or by any Subcontractor or by anyone directly or indirectly employed by either of them, and the amounts of such insurance shall be not less than:

(1) Public liability insurance in an amount not less than $500,000 for injuries, including wrongful death to any one person, and subject to the same limit for each person in an amount not less than $1,000,000 for each occurrence.

(2) "Broad Form" property damage liability insurance in an amount not less than $500,000 for each occurrence.

38.2 The Contractor's public liability insurance and property damage insurance shall provide the primary coverage on all claims arising out of the performance of the Agreement, and shall name the Owner, its officers, agents and employees, and the Engineer as additional insureds therein.

ARTICLE 39. Builders Risk All Risk Insurance

Unless otherwise modified in the Special Provisions, the Contractor shall secure and maintain during the life of this Agreement, Builders Risk All Risk Insurance coverage for 100 percent of the Contract Price. Such insurance shall not exclude coverage for earthquake, landslide, flood, collapse, or loss due to the results of faulty workmanship, and shall provide for losses to be paid to the Contractor and the Owner as their interest may appear.

ARTICLE 40. Insurance Coverage for Special Conditions

When the construction is to be accomplished within a public or private right-of-way requiring insurance coverage, the Contractor shall conform to the particular requirements and provide the required insurance. The Contractor shall include in his liability policy all endorsements that the said authority may require for the protection of the authority, its officers, agents and employees. Insurance coverage for special conditions, when required, shall be provided as set forth in the Special Provisions.

ARTICLE 41. Cleaning Up

The Contractor will keep the premises free from accumulations of waste materials, rubbish and other debris resulting from the Work, and at the completion of the Work he will remove all waste materials, rubbish and debris from and about the premises and will remove all items of personal property such as all tools, construction equipment and machinery, and surplus materials, and further will leave the site broom-clean and ready for occupancy by the Owner. The Contractor will restore to the original condition those portions of the Work site not designated for alteration by the Contract Documents.

ARTICLE 42. Owner's Right to Stop or Suspend Work

42.1 If the Work is defective, or the Contractor fails to supply sufficiently skilled workmen or suitable materials or equipment, or if the Contractor fails to make prompt payments to Subcontractors, or for labor, materials or equipment, the Owner may order the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated.

42.2 The Owner may, at any time and without cause, suspend the Work or any portion thereof, for a period of not more than one hundred eighty (180) days by notice in writing to the Contractor and the Engineer which shall fix the date on which Work shall be resumed. The Contractor will resume the Work on the date so fixed.

ARTICLE 43. Owner's Right to Terminate

43.1 If the Contractor is adjudged bankrupt or insolvent, or if he makes a general assignment for the benefit of his creditors, or if a trustee or receiver is appointed for the Contractor or for any of his property, or if he files a petition to take advantage of any debtor's act, or to reorganize under the bankruptcy or similar laws, or if he repeatedly fails to supply sufficiently skilled workmen or suitable materials or equipment, or if he repeatedly fails to make prompt payments to Subcontractors, or for labor, materials or equipment, or if he disregards laws, ordinances, rules, regulations or orders of any public body having jurisdiction, or if he disregards the authority of the Engineer, or if he otherwise violates any provision of the Contract Documents, then the Owner may, without prejudice to any other right or remedy and after giving the Contractor and his Surety seven (7) Calendar Days written notice, terminate the services of the Contractor and take possession of the Project and of all materials, equipment, tools, construction equipment and machinery thereon owned by the Contractor, and finish the Work by whatever method he may deem expedient. In such case, the Contractor shall not be entitled to receive any further payment until the Work is finished. If the unpaid balance of the Contract Price exceeds the direct and indirect costs of completing the Project, including compensation for additional professional services, such excess shall be paid to the Contractor. If such costs exceed such unpaid balance, the Contractor will pay the difference to the Owner. Such costs incurred by the Owner will be determined by the Engineer and incorporated into a Change Order.

43.2 Where the Contractor's services have been so terminated by the Owner, said termination shall not affect any rights of the Owner against the Contractor or his Surety then existing or which may thereafter accrue. Any retention or payment of monies by the Owner due the Contractor will not release the Contractor or his Surety from liability.

43.3 Upon seven (7) Calendar Days written notice to the Contractor and the Engineer, the Owner may, without cause and without prejudice to any other right or remedy, elect to abandon the Project and terminate the Agreement. In such case, the Contractor and Engineer shall be paid for all Work executed and any expense sustained plus a reasonable profit.

ARTICLE 44. Contractor's Right to Terminate

If, through no act or fault of the Contractor, the Work is suspended for a period of more than one hundred eighty (180) Calendar Days by the Owner or under an order of court or other public authority, or the Engineer fails to act on any application for payment within thirty (30) Calendar Days after it is submitted, or the Owner fails to pay the Contractor any sum approved by the Engineer within sixty (60) Calendar Days of its approval and presentation, then the Contractor may, upon seven (7) Calendar Days written notice to the Owner and the Engineer, terminate the Agreement and recover from the Owner payment for all Work executed.

ARTICLE 45. Miscellaneous

45.1 Whenever any provision of the Contract Documents requires the giving of written notice it shall be deemed to have been validly given if delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended, or if delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to him who gives the notice.

45.2 The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder, and in particular but without limitation, the warranties, guarantees, and obligations imposed upon the Contractor and the rights and remedies available to the Owner and Engineer thereon, shall be in addition to and not a limitation of any otherwise imposed or available by law, by special guarantee or other provisions of the Contract Documents.

45.3 The Contract Documents shall be governed by the law of the place where the Project is located.

45.4 Except as otherwise provided, or approved in writing, Contractor shall not assign this Agreement or sublet it as a whole without the written consent of the Owner; nor shall the Contractor assign any monies due or to become due to it hereunder, without the previous written consent of the Owner. Owner may, however, assign this Agreement to any other party or entity, provided Owner continues to be responsible for the performance by such assignee of all undertakings of the Owner hereunder. Subject to the foregoing, this Agreement shall inure to the benefit of and be binding on the parties hereto and their respective successors and assigns.

45.5 Contractor shall treat all information relating to the Project and all information supplied to the Contractor by the Owner and/or Engineer as confidential and propriety information of the Owner and/or Engineer and shall not permit its release to any other parties or make any public announcement or any publicity releases without the Owner's written authorization. Contractor shall also require Subcontractors and vendors to comply with this Agreement.

45.6 In performing its obligations hereunder, Contractor shall be deemed an independent Contractor and not an agent or employee of Owner and/or Engineer. Contractor shall have the exclusive authority to manage, direct and control the Work subject to the terms and conditions of this Agreement and approval of Owner and/or Engineer as provided herein. Owner is interested in only the results obtained and not in the methods used in achieving the results.

CITY SPECIAL PROVISIONS

1. General

These Special Provisions contain items of specific instruction and subject matter concerning construction detail and/or are modifications to the General Conditions and Standard Specifications. The Contractor shall conduct his work in conformance with the specifications set forth herein and in accordance with the Minnesota Department of Transportation Standard Specifications for Construction, 2016 Edition, which is incorporated by reference to these specifications, and also in accordance with the Standard Utility Specifications prepared by the City Engineers Association of Minnesota (CEAM).

2. Project Schedule

The City of Ramsey anticipates, but does not guarantee award of this project on July 25, 2017. Construction is anticipated to commence on or about August 7, 2017.

3. Time for Completion and Liquidated Damages

The Contractor shall complete the work on or before August 25, 2017. Failure to complete the project within this specified time shall result in the payment as liquidated damages according to the schedule contained in Table 1807-1 of the Minnesota Department of Transportation Standard Specifications for Construction, 2016 Edition.

4. Working Hours

The work shall be carried out during normal daylight working hours in accordance with local ordinance and so as not to cause any unreasonable nuisance to affected residents. Under emergency conditions, this limitation may be waived in writing by the Engineer in conjunction with qualified local authority. Normal working hours in the City of Ramsey are considered to be from 7:00 a.m. to 10:00 p.m. on Monday through Saturday. The contractor shall provide 72 hour advance notice before working on Saturday. City Council approval is required for Sunday work.

5. Maintenance of Traffic

All traffic control devices shall conform and be installed in accordance to:

- The "Minnesota Manual on Uniform Traffic Control Devices" (MN MUTCD);
- Part 6, "Field Manual for Temporary Traffic Control Zone Layouts" (Field Manual);
- The Speed Limits in Work Zones Guideline;
- The Minnesota Flagging Handbook;
- The Minnesota Standard Signs Manual;

- The Traffic Engineering Manual;

The Contractor shall submit the proposed traffic control layout, designed by a traffic engineer, to the Engineer for approval at least seven (7) days prior to the start of construction. At least 24 hours prior to placement, all traffic control devices shall be available on the Project for inspection by the Engineer. The Contractor shall modify his/her proposed traffic control layout and/or devices as deemed necessary by the Engineer.

The Contractor shall have an operator on call at all times to insure traffic movement within the project area. Local access to pedestrian facilities shall be maintained at all times. The Contractor shall be responsible for the immediate repair or replacement of all traffic control devices that become damaged, moved or destroyed, of all lights that cease to function properly, and of all barricade weights that are damaged, destroyed, or otherwise fail to stabilize the barricades. Material storage for the project shall be along the edge of the existing roadway. Barricades with flashers shall be placed at each end of materials and equipment stored on the edge of the road. Cones shall be placed at each end directing traffic towards the middle of the road and at intervals along the length of the materials as specified in the MNDOT manual. If there is a break large enough for parallel parking a vehicle between stored materials, then a flasher shall be placed at each end of the space.

The Contractor shall notify the local Police and Fire Departments prior to commencing construction that will restrict traffic on any City street to the degree that emergency traffic could not be immediately facilitated. The Contractor shall provide necessary signs, flashers and barricades for any parking or driving lane closures. All signing shall conform to the MnDOT Manual of Uniform Traffic Control Devices. All plans for lane closures shall be submitted to the Engineer for approval a minimum of 48 hours prior to any closures.

The cost of all work related to continuation and control of traffic, including maintenance of traffic, provision of continued access, and the placement, maintenance or removal of traffic control devices should be included in the bid item unit price for Traffic Control. In the event the Contractor fails to maintain the street or provide signing, the Owner may perform the work and deduct the cost from any amount due the Contractor.

6. Cleanup and Restoration

When the work has been completed, the Contractor shall remove from the site all extra materials, equipment, debris and other supplies. All surfaces disturbed during the construction period shall be returned to their original condition or better.

7. Work Area

The right of way width is 80 feet. The Contractor's operations shall be confined to these public right-of-ways. The Contractor shall secure the permission of the Engineer prior to entering onto any other lands, including easement areas.

8. Permits

The Contractor will be required to obtain a City contractor's license.

9. Barricades, Guards and Safety Equipment

To protect persons from injury and to avoid property damage, adequate barricades, construction signs, warning lights, and guards as required shall be placed and maintained by the contractor during the progress of the construction work. All material piles, excavation equipment, and materials which may serve as obstructions to traffic or hazards shall be enclosed by fences or barricades and shall be protected by adequate lighting when visibility is poor. The rules and regulations of local authorities respecting safety provisions shall be observed.

10. Preconstruction Conference Required

Prior to initiating the work a preconstruction conference shall be scheduled and held with the contractor and his subcontractors, the City, utility companies (including fiber optic lines) or others with an interest in the project. The Contractor shall submit documentation for review at the preconstruction conference which: identifies construction personnel responsible for the work and project safety; provides a list of emergency or after hour contacts with their afterhours phone numbers; and identifies subcontractors and material suppliers. The Contractor shall prepare and submit a written schedule of the work, identifying work components and showing work start and completion dates required to comply with the schedule in the contract documents. The Contractor shall prepare and submit a list of material submittals that are required to comply with specified standards and will submit certificates of compliance or a schedule for compliance submittal.

No work is authorized on the project until the Notice to Proceed is issued. Once work has commenced, the Contractor shall continuously pursue completion in accordance with the approved schedule.

11. Construction Staking

Construction staking shall be provided by the City Engineering department. The Contractor shall provide a 48 hour notice for initial grade stakes and 24 hour notice for replacement stakes. All replacement staking shall be paid for by the Contractor.

12. Protection of Utilities

The Contractor is advised that utilities which include electric, gas, telephone, cable TV, fiber optic lines, sanitary sewer, storm sewer, and watermain are located within or near the project area anticipated for excavation. It is the Contractor's responsibility to obtain all locations from the respective utility companies. It is understood that no additional compensation shall be due the

Contractor because of the presence and protection of those utilities and appurtenances. The Contractor shall comply with the provisions of Minnesota Statues Chapter 216 related to underground construction and utility protection (Gopher State One call).

13. Maintenance during Construction

Once the Contractor commences work on the project, the construction area shall be maintained for the remainder of the project by the Contractor at their expense. Necessary signs and barricades shall be furnished by the Contractor. All existing surfaces not scheduled for removal shall be protected. All equipment which operates on bituminous or concrete surfaces shall be equipped with rubber tires. The Contractor shall provide reasonable access to all properties adjacent to the work. The cost of providing and maintaining continuous access where applicable, shall be included in the lump sum bid item price for Traffic Control. Any disturbed paved areas at intersections with public or private roads/driveway accesses must be brought to grade with class 5 at the end of each work day, unless road is closed for construction.

All unpaved surfaces shall be bladed and made passable at the end of each business day, unless road is closed for construction. Grading the surface will also be as directed by the Engineer when the travel lane is deemed impassable.

14. Surface Water and Sedimentation Control

The Contractor shall take reasonable efforts to prevent soils from being deposited onto street surfaces. Temporary earth stockpiles shall have suitable erosion control measures in place to prevent this material from migrating onto the street and into the storm sewer system. The Contractor shall have a sweeper on site during construction or must have the availability of one on site within three hours. Streets shall be left clean at the end of each working day.

Contractor will be expected to provide a water truck for dust control. Water is available at the automated water fill station located at the Public Works Facility on Jaspar Street and 142nd Avenue NW. Water will not be allowed to be drawn from City hydrants.

15. Tree Protection

The contractor shall employ the following tree protection measures to encourage the survival of trees affected by construction. Roots larger than one half inch in diameter which have been fractured as a result of grading operations shall be sawed flush with a bow saw or loppers as soon as possible after being disturbed. No unnecessary vehicles shall be allowed in the tree root zone to avoid compaction of soil.

16. Basis of Payment

Payment shall be made for the work on the basis specified below. The cost of any additional labor materials, tool and supplies which have not been specifically identified in this section for payment, but required to complete the project as per the plans and specifications shall be considered incidental to the project.

1. *Mobilization* – Payment shall be made on a lump sum basis for the mobilization of equipment.

2. *Traffic Control* – Payment shall be made on a lump sum basis as compensation for all equipment, material and labor costs required for the installation and maintenance of traffic control measures (signage, barricades, flasher, etc.), as directed by the Engineer, for any local traffic disruptions or temporary closures.

3. *Remove Pavement Marking* – Payment shall be made on a per square foot basis as compensation for all equipment, material, and labor costs required for the removal of pavement marking messages, i.e. turn arrows.

4. *Remove Pavement Marking* – Payment shall be made on a per lineal foot basis as compensation for all equipment, material, and labor costs required for the removal of pavement marking striping, i.e. 4" solid lines.

5. *Pavement Marking* – Payment shall be made on a per each basis as compensation for all equipment, material, and labor costs required for the transportation, and placement of the required pavement markings shown on the plans.

6. *Pavement Striping* – Payment shall be made on a per lineal foot basis as compensation for all equipment, material, and labor costs required for the transportation, and placement of the required pavement striping shown on the plans, based upon type, and size.

CONSTRUCTION CONTRACT

THIS AGREEMENT (the "Agreement") is made and entered into this __ day of _____, 2017, by and between _____, a Minnesota Corporation (the"Contractor") and the City of Ramsey, a Minnesota Municipal Corporation, 7550 Sunwood Drive NW, Ramsey, Minnesota 55303 (the "Owner").

WITNESSETH

WHEREAS, the City of Ramsey proposes to improve striping along 0.59 miles of Sunwood Drive east of Zeolite Street and west of Rhinestone Street, with City Improvement Project No. 17-04 (the "Project"); and

WHEREAS, the plans and specifications necessary for construction of the Project are defined in the Contract Documents and Technicial Specifications dated June 27, 2017 (the "Contract Documents"); and

WHEREAS, the work required to complete the Project is defined in the Contract Documents (the "Work"); and

WHEREAS, the Contractor has made a written proposal and bid to the Owner to furnish the material, equipment, labor and everything necessary for the completion of the Work for the price and within the time schedule required by the Contract Documents; and

WHEREAS, the Contractor, as the lowest responsible bidder, has been awarded the contract for the Work by the City; and

WHEREAS, Contractor, in consideration of the payments hereinafter provided, for itself and its successors, as the case may be, hereby covenants and agrees to and with the Owner to perform the Work and furnish the material, under the supervision of the City Engineer; and

WHEREAS, Contractor acknowledges:

1. That it understands the Contract Documents;

2. That it has the equipment, technical ability, personnel and facilities to construct the Project in accordance with the Contract Documents and that it is licensed by all applicable agencies and governmental entities;

3. That the Contract Documents are, in its opinion, appropriate and adequate for the complete construction of the Project in a sound and suitable manner.

NOW, THEREFORE, in consideration of the mutual covenants contained herein, it is agreed and understood as follows:

1. Work Performance. Contractor shall perform the Work as described in the Contract Documents which are incorporated herein by reference. Contractor agrees to comply

with all federal, state, and local laws and ordinances applicable to the services to be performed under this Agreement, including all safety standards. The Contractor shall be solely and completely responsible for conditions of the job site, including the safety of all persons and property during the performance of the services.

2. Commencement of Work. The Contractor shall commence work on the Project within ten (10) days of the date of the Notice to Proceed given by the City Engineer and shall have the Work substantially complete within the period specified in the Contract Documents. Failure to complete the work within this period will be cause for the Contractor to forfeit the amount as required by the Special Provisions terms of the Contract Documents and that it is appropriately licensed by all applicable agencies and governmental entities.

3. Contractor Compensation. The Owner shall compensate Contractor for the Work in the amount of $_____ based upon the Contractor's accepted bid subject to any additions or deductions provided therein, payment shall be made pursuant to the payment provisions outlined in the Contract Documents.

4. Independent Contractor Relationship. It is expressly understood that the Contractor is an "independent contractor" and not an employee of the City. The Contractor shall have control over the manner in which the services are performed under this Agreement. The Contractor shall supply, at its own expense, all materials, supplies, equipment and tools required to accomplish the work contemplated by this Agreement. The Contractor shall not be entitled to any benefits from the City, including, without limitation, insurance benefits, sick and vacation leave, workers' compensation benefits, unemployment compensation, disability, severance pay, or retirement benefits.

5. Insurance Requirements.

   A. Liability. The Contractor agrees to maintain commercial general liability insurance in a minimum amount of $1,500,000 per occurrence; $2,000,000 annual aggregate. The policy shall cover liability arising from premises, operations, products-completed operations, personal injury, advertising injury, and contractually assumed liability. The City shall be named as an additional insured.
   B. Automobile Liability. If the Contractor operates a motor vehicle in performing the services under this Agreement, the Contractor shall maintain commercial automobile liability insurance, including owned, hired, and non-owned automobiles, with a minimum liability limit of $1,000,000, combined single limit.
   C. Workers' Compensation. The Contractor agrees to comply with all applicable workers' compensation laws in Minnesota.
   D. Certificate of Insurance. The Contractor shall, prior to commencing services, deliver to the City a Certificate of Insurance as evidence that the above coverage's are in full force and effect.

6. Indemnification. To the fullest extent permitted by law, the Contractor agrees to defend, indemnify and hold harmless the City, and its employees, officials, volunteers and agents from and against all claims, actions, damages, losses and expenses, including attorney fees, arising out of the Contractor's negligence or the Contractor's performance or failure to perform its obligations under this Agreement. The Contractor's indemnification obligation shall apply to the Contractor's subcontractor(s), or anyone directly or indirectly employed or hired by the Contractor, or anyone for whose acts the Contractor

may be liable. The Contractor agrees this indemnity obligation shall survive the completion or termination of this Agreement.

7. Dispute Resolution. The Parties shall cooperate and use their best efforts to ensure that the various provisions of the Agreement are fulfilled. The Parties agree to act in good faith to undertake resolution of disputes, in an equitable and timely manner and in accordance with the provisions of this Agreement. If disputes cannot be resolved informally by the Parties, the following procedures shall be used:

   A. Whenever there is a failure between the Parties to resolve a dispute on their own, the Parties shall first attempt to mediate the dispute. The parties shall agree upon a mediator, or if they cannot agree, shall obtain a list of court-approved mediators from the Anoka County District Court Administrator and select a mediator by alternately striking names until one remains. The City shall strike the first name followed by the Contractor, and shall continue in that order until one name remains.
   B. Litigation. If the dispute is not resolved within thirty (30) days after the end of mediation proceedings, the Parties may litigate the matter.

8. General Provisions.

   A. Entire Agreement. This Agreement supersedes any prior or contemporaneous representations or agreements, whether written or oral, between the Parties and contains the entire agreement.

   B. Assignment. The Contractor may not assign this Agreement to any other person unless written consent is obtained from the City.

   C. Amendments. Any modification or amendment to this Agreement shall require a written agreement signed by both Parties.

   D. Nondiscrimination. In the hiring of employees to perform work under this Agreement, the Contractor shall not discriminate against any person by reason of any characteristic protected by state or federal law.

   E. Force Majeure. Except for payment of sums due, neither party shall be liable to the other or deemed in default under this Agreement, if and to the extent that such party's performance is prevented by reason of Force Majeure, as determined by the City.

   F. Notices. All notices and other communications under this Agreement must be in writing and must be given by registered or certified mail, postage prepaid, or delivered by hand at the addresses set forth below:

      Notice to City: City of Ramsey
      Attention: City Engineer
      7550 Sunwood Drive NW
      Ramsey, MN 55303

      Notice to Contractor: _____
      _____
      _____

G. Governing Law. This Agreement shall be governed by and interpreted in accordance with the laws of the State of Minnesota. All proceedings related to this Agreement shall be venued in the State of Minnesota.

H. Waivers. The waiver by either party of any breach or failure to comply with any provision of this Agreement by the other party shall not be construed as, or constitute a continuing waiver of such provision or a waiver of any other breach of or failure to comply with any other provision of this Agreement.

I. Ownership of Documents. All reports, plans, specifications, data, maps, and other documents produced by the Contractor in the performance of services under this Agreement shall be the property of the City.

J. Government Data. The Contractor agrees to maintain all data received from the City in the same manner as the City as required under the Minnesota Government Data Practices Act, Minnesota Statutes, Chapter 13.

K. Counterparts. This Agreement may be signed in counterparts, each of which shall be deemed an original, and which taken together shall be deemed to be one and the same document.

L. Savings Clause. If any court finds any portion of this Agreement to be contrary to law, invalid, or unenforceable, the remainder of the Agreement will remain in full force and effect.

IN WITNESS WHEREOF, the parties hereto have caused this instrument to be executed in triplicate counterparts the day and year first above written.

CONTRACTOR:

_____

By:_____

Its:_____

OWNER:

CITY OF RAMSEY

By:_____
Sarah Strommen, Its Mayor

ATTEST:

By:_____
Kurt Ulrich, Its City Administrator

CERTIFICATE OF OWNER'S ATTORNEY

I, the undersigned, Joseph J. Langel, the duly authorized and acting legal representative of the City of Ramsey, do hereby certify that I have reviewed the attached contract dated _____ ___, 2017, between the City of Ramsey as Owner, and _____ as Contractor. In addition, I have examined the attached Performance Bond of said Contractor as Principal, and _____ as Surety, dated _____ ___, 2017, and which is the Surety's Bond _____. In addition, I have examined the attached Payment Bond of said Contractor as Principal, and _____ as Surety, dated _____ ___, 2017, and which is the Surety's Bond _____. Based upon said review, I approve these documents to be Legal Form.

Dated: _____ ____, 2017

_____
Ramsey City Attorney

Prompt Payment
December 2002

NOTICE TO BIDDERS

Minnesota Statutes that require prompt payment to subcontractors:

16A.1245 Prompt payment to subcontractors.

Each state agency contract must require the prime contractor to pay any subcontractor within ten days of the prime contractor's receipt of payment from the state for undisputed services provided by the subcontractor. The contract must require the prime contractor to pay interest of 1-1/2 percent per month or any part of a month to the subcontractor on any undisputed amount not paid on time to the subcontractor. The minimum monthly interest penalty payment for an unpaid balance of $100 or more is $10. For an unpaid balance of less than $100, the prime contractor shall pay the actual penalty due to the subcontractor. A subcontractor who prevails in a civil action to collect interest penalties from a prime contractor must be awarded its costs and disbursements, including attorney's fees, incurred in bringing the action.

HIST: 1990 c 541 s 1

337.10 Building and construction contracts; prohibited provisions.

Subd. 3. Prompt payment to subcontractors. A building and construction contract shall be deemed to require the prime contractor and all subcontractors to promptly pay any subcontractor or material supplier contract within ten days of receipt by the party responsible for payment of payment for undisputed services provided by the party requesting payment. The contract shall be deemed to require the party responsible for payment to pay interest of 1-1/2 percent per month to the party requesting payment on any undisputed amount not paid on time. The minimum monthly interest penalty payment for an unpaid balance of $100 or more is $10. For an unpaid balance of less than $100, the party responsible for payment shall pay the actual penalty due to the party requesting payment. A party requesting payment who prevails in a civil action to collect interest penalties from a party responsible for payment must be awarded its costs and disbursements, including attorney fees incurred in bringing the action. This subdivision does not apply to construction of or improvements to residential real estate as defined in section 326.83, subdivision 17, or to construction of or improvements to attached single-family dwellings, if those dwellings are used for residential purposes and have fewer than 13 units per structure.

HIST: 1997 c 127 s 1; 1998 c 289 s 1,2; 1999 c 116 s 2

Public Works Committee **5. 4.**

Meeting Date: 06/20/2017

By: Bruce Westby, Engineering/Public Works

Title:

Consider Recommending City Council Authorization to Prepare Plans and Specifications for Puma Street Utility Extensions, Improvement Project #17-10

Purpose/Background:

Purpose:

The purpose of this case is to consider recommending City Council authorization to prepare plans and specifications for Puma Street Utility Extensions, Improvement Project #17-10.

Background:

Two official development proposals currently exist for the Future Business Park area.

Capstone Homes is proposing a residential development consisting of 293 single-family homes west of Puma Street. This development, known as Riverstone, is located within the area bordered by the Northfork golf course, Alpine Drive, Puma Street, and Highway 10. This development is in the City's MUSA area and as such is proposed to be served by City water and sanitary sewer.

PSD LLC is proposing a new business park development. This development proposal, currently at concept stage, is located on 45 acres of land between Bunker Lake Boulevard and Highway 10, east of Puma Street.

When Bunker Lake Boulevard and Puma Street were constructed in 2006 only a portion of Bunker Lake Boulevard was constructed to a permanent condition. The remainder of Bunker Lake Boulevard, and all of Puma Street, were constructed with temporary pavement sections and no utilities. The trunk sanitary sewer and watermain utilities under Bunker Lake Boulevard terminated approximately 1,400 feet east of Puma Street. The existing watermain is 16-inch DIP. The existing sanitary sewer is 18-inch PVC. These utilities were intended to be extended along Bunker Lake Boulevard and Puma Street, and the streets constructed to a permanent condition, as abutting parcels developed.

Plans are currently being advertised for bids to extend existing utilities along Bunker Lake Boulevard to Puma Street as part of City Improvement Project #17-09. This will allow the south third or so of the Riverstone development to be served by utilities. Phase 1A in the attached Future Business Park Proposal addresses this.

Utilities must be extended north along Puma Street to serve additional homes in the Riverstone development. Phase 1B in the attached Future Business Park Proposal addresses this work. These are the utilities Staff proposes to prepare final design plans and specifications for with City Improvement Project #17-10.

All costs to extend utilities are proposed to be paid through City sewer and water funds. The developer's share of these public infrastructure costs will be recovered through their trunk utility fees at the time of development. This will account for the vast majority of the costs for Improvement Project #17-10. However, some costs are required to remove existing pavement and replace it with temporary aggregate surfacing. This work would otherwise not be required if Capstone were not developing Riverstone at this time. Forty percent of these costs will be recovered from Capstone via an assessment agreement.

City staff is currently working with Capstone Homes to develop this agreement. This will allow the City to construct the necessary street, storm sewer, and trail infrastructure in phases 1A and 1B to support the Riverstone

development while assessing Capstone for forty-percent of the costs. This assessment agreement will be presented to the City Council for consideration of approval at a later date.

In order for the City to issue Certificates of Occupancy for homes in Rivestone they must first be served by City sewer and water. This will require the existing trunk utilities to be extended along Bunker Lake Boulevard and Puma Street. Extending utilities along Puma Street as a City improvement project will allow Capstone Homes to be able to connect more homes in the Riverstone development to City sewer and water in late 2017 or early 2018.

Timeframe:

Staff estimates this case will take 10 minutes to present and respond to questions.

Observations/Alternatives:

Observations:

City Staff proposes to utilize Bolton & Menk to prepare plans and specifications for this work. An estimate of their proposed engineering fees will be available at the meeting.

City staff proposes to administer the project and to inspect construction.

Staff will work with property owners along Puma Street during development of plans and specifications to properly design utility service stubs.

Staff proposes to use aggregate base as a temporary street surface on Puma Street over the winter months since the street typically has low traffic volumes and is proposed to be reconstructed next spring/summer.

Alternatives:

Alternative #1 – Motion to recommend City Council authorization to prepare plans and specifications for Puma Street Utility Extensions, Improvement Project #17-10.

Alternative #2 – Motion of other.

Funding Source:

A reasonable estimate of costs to extend utilities along Puma Street was not available when this case was prepared. However, an estimate will be presented to the Public Works Committee during their meeting.

All costs required to extend utilities are proposed to be paid through City sewer and water funds. Forty percent of the costs required to remove the temporary bituminous pavement and replace it with a temporary aggregate surface will be paid by Capstone via their assessment agreement.

Recommendation:

Staff recommends that the Public Works Committee recommend Council authorization to prepare plans and specifications for Puma Street Utility Extensions, Improvement Project #17-10, as this will support development of the Future Business Park.

Action:

Motion to recommend City Council authorization to prepare plans and specifications for Puma Street Utility Extensions, Improvement Project #17-10.

Attachments

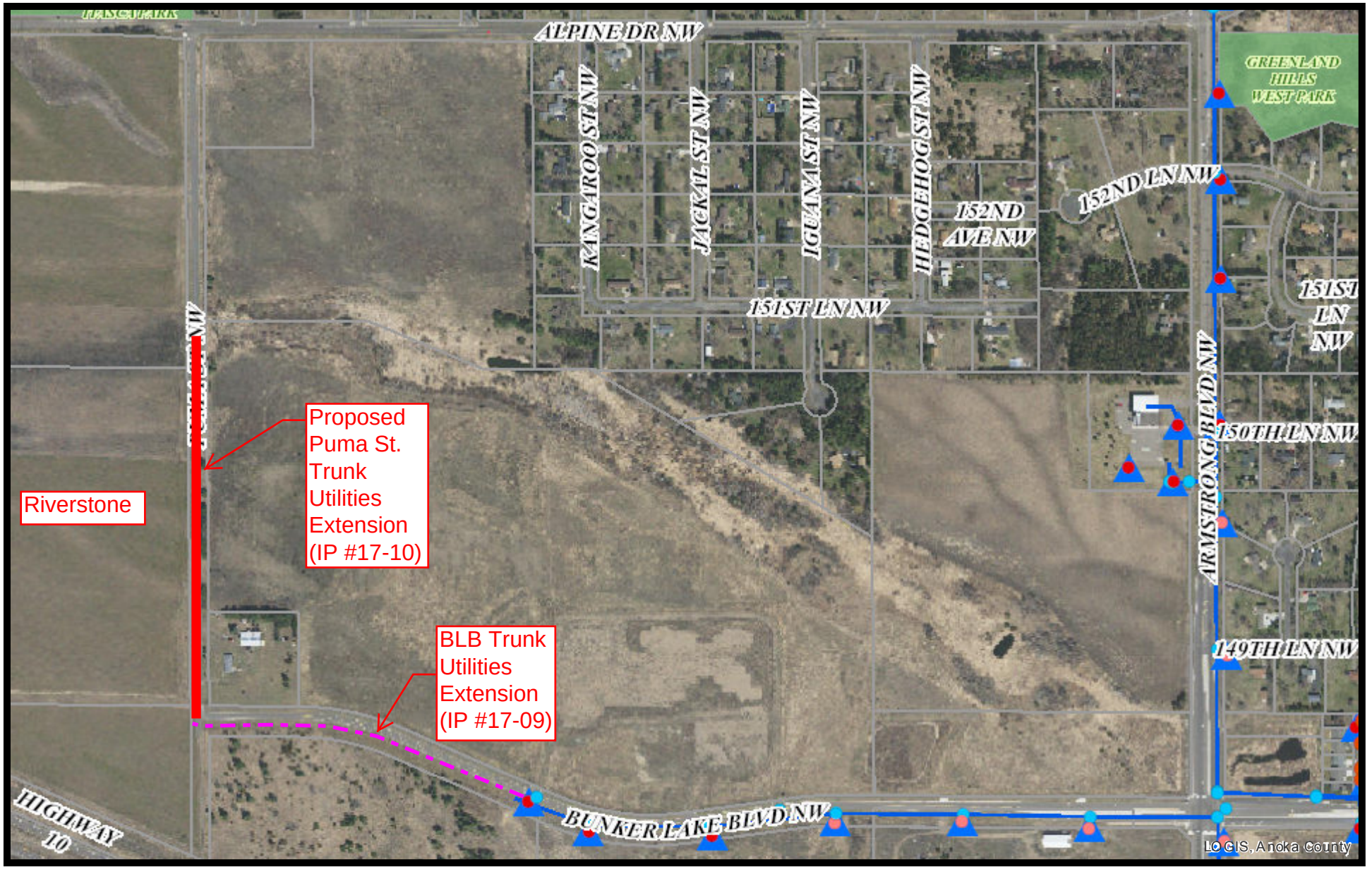
Figure 1

W Business Park Study

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	06/15/2017 02:37 PM
Kurt Ulrich	Kurt Ulrich	06/15/2017 03:45 PM
Form Started By: Bruce Westby		Started On: 06/15/2017 05:02 AM
Final Approval Date: 06/15/2017		

Puma Street Utility Extensions



Print Date: June 15, 2017

0 190 380 760 1,140 1,520 Feet

FIGURE 1

BOLTON & MENK

Real People. Real Solutions.

City of Ramsey

Future Business Park

March 2017 Update

Analysis and Report

Submitted by:
Bolton & Menk, Inc.
7533 Sunwood Drive NW
Suite 206
Ramsey, MN 55303
P: 763-433-2851

Table of Contents

EXECUTIVE SUMMARY 1
I. INTRODUCTION 2
II. LAND USE UPDATES 2
III. PRELIMINARY CONSIDERATIONS 2
IV. DISCUSSION OF PHASES/IMPROVEMENTS 3
A. Phase 1A 3
B. Phase 1B 3
C. Phase 2 3
D. Future Phase 4
E. Area of Additional Consideration 4
V. ASSUMPTIONS CARRIED FORWARD 4
VI. ADDITIONAL ANALYSIS 5
a. Traffic Analysis Update 5
b. Short Term Improvements 5
c. Mid-Term Improvements 6
d. Long-Term Improvements 6
e. Discussion of Findings 6
VII. ADDITIONAL IMPROVEMENT CONSIDERATIONS 7
VIII. COST CONSIDERATIONS 8
IX. COST ALLOCATION ALTERNATIVES 9

Appendix

Appendix A: Figures
Appendix B: Traffic Study

EXECUTIVE SUMMARY

The City of Ramsey identified the need to prepare for the development of a new business park within the City. A large area of privately owned green-field space located on the north side of Trunk Highway 10, west of Armstrong Boulevard, was identified for a future Ramsey Business Park. A report was prepared in late 2015 and early 2016 which reviewed traffic impacts and outlined infrastructure needs related to business park area.

Development pressures have resulted in proposed land use changes for a portion of the study area. Phasing of the development activities in this area is also different than previously anticipated. As a result, the City requested an update to the previous analysis.

This update primarily includes a study of traffic impacts resulting from the revised anticipated land uses in the business park.

The updated analysis indicates the required improvements within the study area can be implemented based on the phasing plan currently proposed. Each series of improvements for Bunker Lake Boulevard and Puma Street can be implemented as the properties immediately adjacent to the roadways are developed.

Future improvements required to serve the area include:

- Expansion of Bunker Lake Boulevard (west of Armstrong Boulevard) to a four lane section,
- Expansion of the west end of Bunker Lake Boulevard and Puma Street to three lane sections,
- Construction of right turn lanes at entrances,
- Extension of an 18-inch sanitary sewer line along Bunker Lake Boulevard and Puma Street,
- North of the Puma Street/Bunker Lake Boulevard intersection, construction of a lift station,
- North of the lift station, extension of a 12-inch sanitary sewer gravity main,
- Extension of a 16-inch water main along Bunker Lake Boulevard and Puma Street,
- Use of regional rate control basins to maintaining existing flow rates into the COR,
- Installation of street lighting, trails/sidewalks, and landscaping consistent with City Policy, and
- Obtaining of ROW required for improvements during the platting process.

Total costs for all public improvements are approximately $6,819,000, assuming the project is constructed according to the phases described in this report. The costs are considered project costs and include 30% contingencies and project development costs (administrative, engineering, and fiscal).

Costs related to trunk sanitary sewer and trunk watermain were assumed to be paid from City utility funds. The City will need to develop a funding strategy for the remaining $5,419,000 in public improvement costs.

The information presented in this report is intended to allow for discussions with property owners and developers, as well as allow the City to begin considering funding options.

I. INTRODUCTION

The Ramsey City Council and Ramsey Economic Development Authority (EDA) identified the need to prepare for the development of a new business park within the City. The City identified a large area of privately owned green-field space located on the north side of Trunk Highway 10, west of Armstrong Boulevard, for a future Ramsey Business Park. A report was prepared in late 2015 and early 2016 which reviewed traffic impacts and outlined infrastructure needs related to the business park area. That report is incorporated by reference to this update.

Development pressures have resulted in proposed land use changes for a portion of the study area. Phasing of the development activities in this area is also different than previously anticipated. As a result, the City requested an update to the previous analysis.

The previous report provided a comprehensive analysis of the study area. This update focuses primarily on areas located adjacent to Puma Street, with a more cursory review of the remaining study area. Infrastructure needed and potential cost allocations related to the required improvements are included in this review.

The overall study area boundary remains unchanged from the previous study (see Figure 1).

II. LAND USE UPDATES

The primary land use changes relate to the area west of Puma Street and north of Bunker Lake Boulevard. The area west of Puma Street was previously a combination of Business Park and Medium Density Residential, and will now be all Medium Density Residential. The area north of Bunker Lake Boulevard had been Public, and will now be Business Park (see Figure 2 for updated land uses).

III. PRELIMINARY CONSIDERATIONS

The previous study described the roadway and public utility improvements required to serve the study area.

Public utility improvements are based on information contained in the City's Comprehensive Plans for sanitary sewer and water. The proposed updates in land use for this specific area are not anticipated to change the strategies contained in those Comprehensive Plans. The sanitary sewer and water system improvements, as outlined in the previous study, are still considered as base requirements for developments occurring in this area.

Roadway improvements require additional analysis based on the new land uses. Both the Average Annual Daily Traffic (AADT) and the Peak Hour turning movements are expected to change due to the updated land uses. The required roadway geometrics (number of through lanes, turns lanes, etc.) will be reviewed and compared to those described in the previous study.

Traffic patterns are expected to change as a result of the changes in land use. For example:

- For Business Park uses, traffic would be expected to enter the area in the morning (AM Peak Hour) and leave in the evening (PM Peak Hour).
- For Residential uses, traffic would be expected to leave the area during the AM Peak Hour and return during the PM Peak Hour.
- For Public, or School, uses, traffic would be expected to enter the area during the AM Peak Hour, leave during an early PM Peak Hour, and not impact the traditional PM Peak Hour. Also,

special events at School properties typically occur at off-peak times, creating congestion outside of the typical peak hours.

The updated land uses include Business Park areas being converted to residential, and also Public areas being converted to Business Park.

IV. DISCUSSION OF PHASES/IMPROVEMENTS

The previous analysis considered a phasing plan beginning a quarter of a mile west of Armstrong Boulevard and then systematically extending to the west along Bunker Lake Boulevard and then north along Puma Street. New development pressures create a revised phasing strategy for implementation of infrastructure improvements.

A Preliminary Plat is anticipated for the 87.8 acre property immediately west of Puma Street and extending from the Union Pacific Railroad tracks to Alpine Avenue. This area is anticipated to ultimately contain 351 lots and be phased from south to north.

The current phasing strategy is depicted on Figure 3. A discussion of the phasing, along with required infrastructure improvements is described below:

A. Phase 1A

The phase 1A improvements are as depicted on Figure 4. The developments will include both Residential and Business Park uses.

The public utility improvements will consist of extending the sanitary sewer and water mains to Puma Street. The utilities will need to be extended beyond the future roadway improvements to avoid the need to impact those facilities when future phases occur.

The roadway improvements will include construction of Bunker Lake Boulevard from the previously constructed west access to the former school property to Puma Street.

B. Phase 1B

See Figure 5 for the anticipated Phase 1B development area. The improvements will include both Residential and Business Park uses, extending north from the Phase 1A development area. The Phase 1B development area is anticipated to extend to the low area along Puma Street.

The public utility improvements will consist of extending the sanitary sewer and water mains north along Puma Street. The utilities will need to be extended beyond the future roadway improvements to avoid the need to impact those facilities when future phases occur.

The roadway improvements will include construction of Puma Street from Bunker Lake Boulevard to the low area along Puma Street.

C. Phase 2

See Figure 6 for the anticipated Phase 2 development area. The improvements are anticipated to consist entirely of residential uses, extending from the low area along Puma Street to Alpine Drive.

The public utility improvements will consist of extending the sanitary sewer and water mains north along Puma Street. The utilities will need to be extended to Alpine Drive, with consideration given to future extensions along Alpine Drive.

The roadway improvements will include construction of Puma Street from the low area

along Puma Street to Alpine Drive.

D. Future Phase

The future phase of development is depicted on figure 7, and includes an area east of the Phase 1A, Phase 1B and Phase 2 improvements.

The area includes Business Park uses. The north half of Bunker Lake Boulevard, along with sanitary sewer and water mains have been constructed through this area. Roadway improvements will include construction of the south half of Bunker Lake Boulevard.

E. Area of Additional Consideration

This area is depicted on Figure 8 and is comprised of the areas along the first ¼ mile of Bunker Lake Boulevard west of Armstrong Boulevard which may access Bunker Lake Boulevard in the future. There is the potential for this area to be developed as a commercial/retail center, which would be a significant traffic generator. There is also the potential for the property located south of Bunker Lake Boulevard to access Armstrong Boulevard at 147th Avenue, which would relieve stress on the Bunker Lake Boulevard and Armstrong Avenue intersection.

V. ASSUMPTIONS CARRIED FORWARD

The primary focus of this analysis is related to providing infrastructure to serve development along Puma Street in the near future. In the previous study, assumptions were made that should be considered by the City as developments are brought forward. The following is a summary of those items:

Right-of-Way Requirements

We have assumed that most of the required improvements will be development driven and Right of Way will be secured through the platting process. The City will need to review the right of way required and secure needed easements during the Preliminary Platting process.

Phased Improvements

A general understanding of the improvements required to ultimately serve the area along with an anticipated sequencing of the improvements is described above. Changes in the sequencing of the improvements could impact the facilities needed for each phase and the costs associated with those improvements.

Jurisdictional Authority/Approvals/Permits

As the project moves from the planning stages to design and construction, permits will be required from various agencies. The following agencies will be permitting entities for considered improvements:

- Minnesota Department of Transportation State Aid: Bunker Lake Boulevard and Puma Street are State Aid routes,
- Minnesota Pollution Control Agency: NPDES Storm Water Permit,
- Minnesota Pollution Control Agency: Sanitary Sewer Extension Permit,
- Minnesota Department of Health (MDH): Watermain Extension and Dewatering,
- Anoka County: Work in Right of Way, and
- Lower Rum River Watershed Management Organization: Storm Water.

Both MnDOT and Anoka County were engaged during the previous study process. Comments from both agencies are reflected in the improvements considered in this report.

Previous Improvements

Significant consideration and planning was completed prior to completion of the improvements constructed in 2011. Those improvements included street, trail, sanitary sewer and water distribution. Additionally, consideration was given to storm water management strategies and a potential 30-inch raw watermain from a future intake on the Mississippi River to the proposed site of the water treatment plant, just south of Fire Station No. 1. All previous analyses and reports are considered as a part of this analysis.

VI. ADDITIONAL ANALYSIS

In the previous analysis, we completed traffic and storm water studies and reviewed City Comprehensive Plans for sanitary sewer and water main needs for the study area. Based on the changes in proposed land use, the traffic study requires revisions. The storm water requirements, along with the sanitary sewer and water main needs, are unchanged as a result of the revised land uses. The following paragraphs relate key findings of the traffic analysis. The complete analysis is included in Appendix B of this report.

a. Traffic Analysis Update

The traffic analysis was completed to determine required lane geometry for Bunker Lake Boulevard and Puma Street, along with turn lane requirements at four intersections in the study area.

The revised land uses result in an increase of 18,100 trips per day into and out of the area at full build. This is at the low end of the range previously calculated for the area (18,500 to 23,300).

Note: Short term improvements are intended to mitigate current safety or operations problems, along with full development of the Study Area. Mid-term improvements are anticipated safety related improvements that may be required within the study area. Long-term improvements are anticipated safety improvements required as a result of growth in the region.

b. Short Term Improvements

- Armstrong Boulevard & Bunker Lake Boulevard:
    - Bunker Lake Boulevard is proposed to be reconstructed in the near future by Anoka County to a four lane divided road between Ramsey Boulevard and Armstrong Boulevard. The dual southbound left turn lanes at this intersection will be striped when Bunker Lake Boulevard is reconstructed. A southbound double left turn lane will help reduce queues entering the COR development.
    - Plan for eastbound dual-right turn lanes, two eastbound through lanes, and a 300 ft. left turn lane.
- Bunker Lake Boulevard (west of Armstrong Boulevard):
    - Expand to a four lane section for development to the first full access to the west of Armstrong Boulevard. This will be between 540 ft. to 775 ft., depending on access from the COR to Bunker Lake Boulevard.

- The eastbound approach should include a left turn lane, two through lanes, and one right turn lane.

- Bunker Lake Boulevard (west of commercial section to Puma Street):
  - Expand to a three lane section for development.
  - Right turn lanes (locations and lengths) will be determined based on development type. Right turn lanes will typically be required where development related trips are anticipated to be more than 100 per day.

- Puma Street:
  - Expand to a three lane section for development (two through lanes and one center left turn lane). Depending on what type of developments occur on the east side of Puma Street, and where those accesses are located, Puma Street could potentially remain as a two lane roadway.
  - Right turn lanes (locations and lengths) will be determined based on development type.

- Bunker Lake Boulevard & Puma Street Intersection:
  - An all-way stop or single lane roundabout will operate adequately at this intersection for the 2040 Full-Build conditions. A southbound left turn lane and westbound right turn lane are recommended for an all way stop.

c. Mid-Term Improvements

- See attached Traffic Memorandum in Appendix B.

d. Long-Term Improvements

- See attached Traffic Memorandum in Appendix B.

e. Discussion of Findings

- The required improvements within the study area can be implemented based on the phasing plan described above. Each series of improvements for Bunker Lake Boulevard and Puma Street can be implemented as the properties immediately adjacent to the roadways are developed.
- Puma Street could potentially be developed as a two lane section with right and left turn lanes at key access points. This will depend on access point locations, type of development on the east side of Puma Street, and location of accesses along the corridor. We recommend proceeding with the three lane section at this time due to the uncertainties of development in the area.
- For Phase 1A, right turn lanes will most likely be required both eastbound and westbound along Bunker Lake Boulevard and southbound along Puma Street at proposed access locations. Temporary paving will be required to transition back to the existing Bunker Lake Boulevard and the existing Puma Street.
- For Phase 1B, right turn lanes will most likely be required both northbound and southbound along Puma Street at proposed development access locations. Temporary paving will be required to transition back to the existing Puma Street.
- For Phase 2, right turn lanes will most likely be required both northbound and southbound along Puma Street at proposed development access locations.

- For the Future Phase, right turn lanes will most likely be required along Bunker Lake Boulevard in both the eastbound and westbound directions. Temporary paving will be required to transition back to the existing Bunker Lake Boulevard.
- Our analysis indicates that, while nearing capacity, the intersection of Bunker Lake Boulevard and Armstrong Boulevard will not require improvements until the Area of Additional Consideration is developed.

VII. ADDITIONAL IMPROVEMENT CONSIDERATIONS

For more detailed information of each of the following items, please reference the previous study report.

Street Lighting

The costs included for street lighting were derived from recent projects within the City of Ramsey.

Trails/Sidewalks

Project costs shown in this report include trails along the south side of Bunker Lake Boulevard and the east side of Puma Street.

Phase Transitions

Bunker Lake Boulevard and Puma Street will be constructed to wider sections than currently exist. Because the roadways will be constructed in phases, they will need to taper to meet the existing, narrower roadway widths. These taper sections will then be removed as the next phase of improvements is completed. Costs were included in each phase for these tapering roadway sections.

Right Turn Lane Additions

Right turn lanes will be required at each access off of Bunker Lake Boulevard and Puma Street. The actual access locations will be dependent upon the type of land use and internal site characteristics. We included allowances for the right turn lanes in each phase for budgeting purposes.

Landscaping

The improvements considered with this report include a very utilitarian landscaping approach to the area. Bituminous trails and lighting were included, but other features, such as trees, shrubs, decorative features and monuments are not included in the estimated project costs.

Right of Way and Easements

We assumed that required rights of way would be dedicated as a portion of the development process and no costs are included in the project costs for acquisitions.

VIII. COST CONSIDERATIONS

Costs were developed based upon phased implementation. The phasing is as depicted on the figures in Appendix A. All costs presented in the following pages are 2017 costs, with no allowance for inflation.

Phases 1A, 1B and 2

Improvement Type	Phase 1A	Phase 1B	Phase 2
Roadway	$ 795,000	$ 940,000	$ 675,000
Roadway Transitions	$ 66,000	$ 78,000	$ 56,000
Right Turn Lanes	$ 132,000	$ 156,000	$ 112,000
Trails/Sidewalks	$ 106,000	$ 125,000	$ 90,000
Storm Water Management	$ 0	$ 48,000	$ 16,000
Street Lighting	$ 76,000	$ 90,000	$ 65,000
Trunk Water	$ 154,000	$ 182,000	$ 131,000
Trunk Sanitary Sewer	$ 179,000	$ 545,000	$ 179,000
Total Costs/Phase	**$ 1,508,000**	**$ 2,164,000**	**$ 1,324,000**
Total Costs less Public Utilities	**$ 1,175,000**	**$ 1,437,000**	**$ 1,014,000**

Future Phases

Improvement Type	Future East	Additional Area
Roadway	$ 628,000	$ 580,000
Roadway Transitions	$ 62,000	$ 58,000
Right Turn Lanes	$ 52,000	$ 48,000
Trails/Sidewalks	$ 115,000	$ 106,000
Storm Water Management	$ 0	$ 0
Street Lighting	$ 75,000	$ 69,000
Trunk Water	$ 19,000	$ 0
Trunk Sanitary Sewer	$ 11,000	$ 0
Total Costs/Phase	**$ 962,000**	**$ 861,000**
Total Costs less Public Utilities	**$ 932,000**	**$ 861,000**

Total Cost all Phases	**$ 6,819,000**
Total Cost all Phases less Public Utilities	**$ 5,419,000**

The above costs are considered project costs and include 30% contingencies and project development costs. Project development costs include administrative, engineering, and fiscal related costs.

The roadway transition costs are allotments for phase transitions associated with tapering pavements sections to match in-place sections where required, and subsequent removals of the transition areas.

The right turn lane costs depicted in the tables include a 150 ft turn lane with 1:10 taper sections.

Street lighting costs are based upon recent installations within the City of Ramsey.

For storm water management, costs were included for manholes, catch basins, and pipe within the street sections and included in the roadway costs. For Phases 1B and 2, ponding costs were included for excavation related activities. We assumed a ponding area would be acquired through the platting process, and ponding within a development site would be expanded to include volume for roadway drainage.

The Phase 1A limits are based upon the area that can be served by a gravity sanitary sewer system. The Phase 1B sanitary sewer costs include a lift station and forcemain.

IX. COST ALLOCATION ALTERNATIVES

The costs, or a portion of the costs, of the improvements are typically allocated back to adjacent properties through the use of assessments, fees and other methods. The costs are typically allocated in a way that is equitable to the properties benefitting from the improvements. Public improvements that will become City owned and maintained are typically constructed through a public process, while secondary improvements are constructed by the developer. For our analysis, we assumed the following items would be constructed through the public process:

- Bunker Lake Boulevard and Puma Street, including storm water conveyance systems,
- Trunk Water Facilities,
- Trunk Sanitary Sewer Facilities,
- Trails, and
- Street Lighting.

While the street lights will most likely be installed by a private utility and the trails could potentially be constructed by the property owner, we have included these items as public improvements.

Other improvements were considered secondary and are typically the property owner's responsibility to install:

- Sanitary Sewer Service Extensions,
- Water Service Extensions,
- Natural Gas Lines to Buildings,
- Telephone Service to Buildings,
- Electric Service to Buildings,
- Site Grading,
- Site Landscaping,
- Site Storm Water Conveyance,
- Storm Water Ponding, and
- Easement Dedication.

These types of improvements are typically inspected by the City for conformity with applicable codes and standards, but are constructed by the property owner.

Figure 9 depicts the parcels considered for this report and also provides additional information related to each parcel. Similar information is presented in the following table:

Identification Number	Zoning Classification	Gross Area less NWI Area (Acres)	Adjusted Frontage (Ft)
Phase 1A			
1	B-2 Business District	20.307	1,358
2	B-2 Business District	10.843	1,002
4	R-2 Medium Density Residential	9.231	120
5	R-2 Medium Density Residential	19.691	399
Phase 1A Totals		**60.072**	**2,879**
Phase 1B			
6	B-2 Business District	27.116	1,141
7	R-2 Medium Density Residential	16.022	928
Phase 1B Totals		**43.138**	**2,069**
Phase 2			
8	R-1 Low Density Residential	28.338	683
9	R-1 Low Density Residential	4.107	419
10	R-2 Medium Density Residential	35.285	1,289
Phase 2 Totals		**67.730**	**2,391**
Future			
11	B-2 Business District	24.801	1,343
12	B-2 Business District	23.324	1,345
13	B-2 Business District	11.529	0
Future Phase Totals		**59.654**	**2,688**
Additional Area			
14	COR	7.507	1,263
15	R-1 MUSA	7.878	1,261
Additional Area Totals		**15.385**	**2,524**
Totals all Phases		**245.979**	**12,551**

Note: The table above includes a column for Gross Area – NWI Area. This represents the total area of the parcel based on GIS mapping, less the wetland area per the National Wetland Inventory (NWI) GIS mapping.

The zoning classifications listed in the table above are based on anticipated future zoning for the study area. Gross areas and frontages are based on GIS information and will most likely be refined during subsequent phases of project development.

A portion of the improvements will be paid by the City either through utility funds or other means. A list of assumptions is as follows:

- All trunk water and sanitary sewer system costs will be paid for through the City utility funds,
- Storm water management costs are related to ponding and are considered integral to roadway construction,
- Assessments will be made to benefitting properties as each phase is constructed,
- Two standard methods of assessments were analyzed including: Frontage and Area.
- The City's existing assessment policy very closely matches the Frontage method, and
- Gross acreage (less NWI Wetland acreage) was used in lieu of net developable acreage in the calculations below.
- Lot 3 was not considered in the assessments as the lot is zoned residential. The resultant assessment amounts are considered negligible related to the entire Business Park area.
- Lots 14 and 15 abut Armstrong Boulevard, a County roadway, and will access off of Bunker Lake Boulevard. Lots 1 and 4 abut a portion of the Puma Street right of way that is anticipated to be vacated. Lots 8, 9 and 10 abut Alpine Drive, but access will be limited to Puma Street.

The table below depicts a distribution based on all costs being assessed to the benefitting properties. We have assumed for this analysis the costs would be assessed to properties benefitting from each phase of construction. For instance, properties directly benefitting from Phase 1 improvements would be assessed for Phase 1 costs at the time of Phase 1 improvements.

Calculations were based on the areas and front footages, along with the costs per phase as developed earlier within this report. Trunk sanitary sewer and trunk watermain were considered City costs and were not included in the calculations. While this study focuses primarily on Phases 1 – 3, the future phase and the area of additional consideration were included for comparison. A summary of the unit costs used in the calculations is presented below:

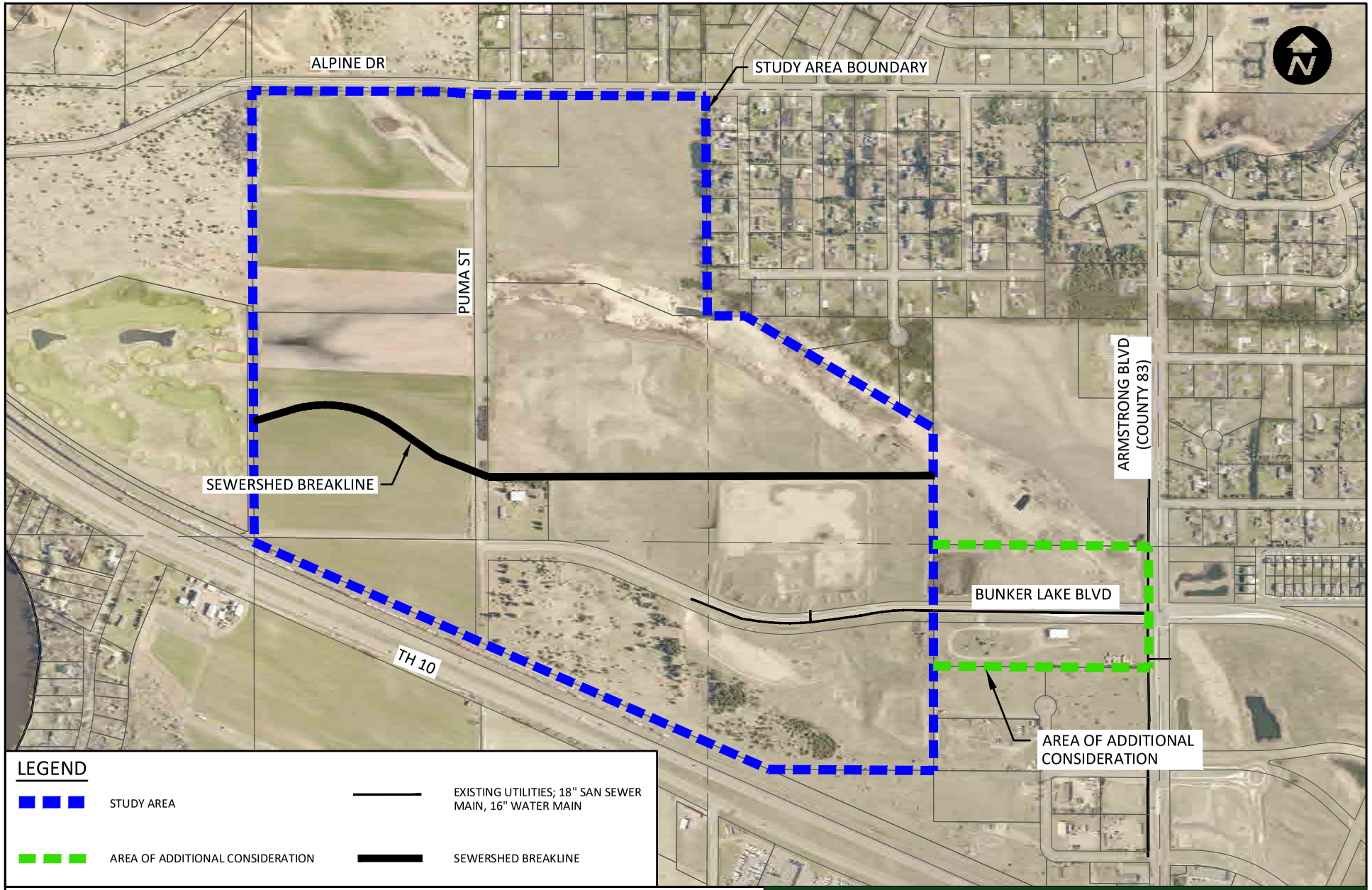
Phase	Frontage Method (Cost/FF)	Area Method (Cost/Acre)
1A	$ 408.13	$ 19,559.86
1B	$ 694.54	$ 33,311.70
2	$ 424.09	$ 14,971.21
Future	$ 346.73	$ 15,623.43
Additional Area	$ 341.13	$ 55,963.60

Based on the above cost distribution, the potential assessments per lot per phase is depicted below:

Identification Number	Frontage Method	Area Method
Phase 1A		
1	$ 554,200	$ 397,200
2	$ 409,000	$ 212,100
4	$ 49,000	$ 180,500
5	$ 162,800	$ 385,200
Phase 1A Totals	**$ 1,175,000**	**$ 1,175,000**
Phase 1B		
6	$ 792,500	$ 903,300
7	$ 644,500	$ 533,700
Phase 1B Totals	**$ 1,437,000**	**$ 1,437,000**
Phase 2		
8	$ 289,700	$ 424,300
9	$ 177,700	$ 61,500
10	$ 546,700	$ 528,300
Phase 2 Totals	**$ 1,014,000**	**$ 1,014,000**
Future Phase		
11	$ 465,700	$ 387,500
12	$ 466,400	$ 364,400
13	$ 0	$ 180,100
Future Phase Totals	**$ 932,000**	**$ 932,000**
Additional Area		
14	$ 430,800	$ 420,100
15	$ 430,200	$ 440,900
Additional Area Totals	**$ 861,000**	**$ 861,000**
Total all Phases	**$ 5,419,000**	**$ 5,419,000**

The information presented in this section of the report is intended to allow for discussions with property owners and developers to be initiated. Refinement of the amounts presented is anticipated based on those discussions.

Appendix A: Figures



BOLTON & MENK

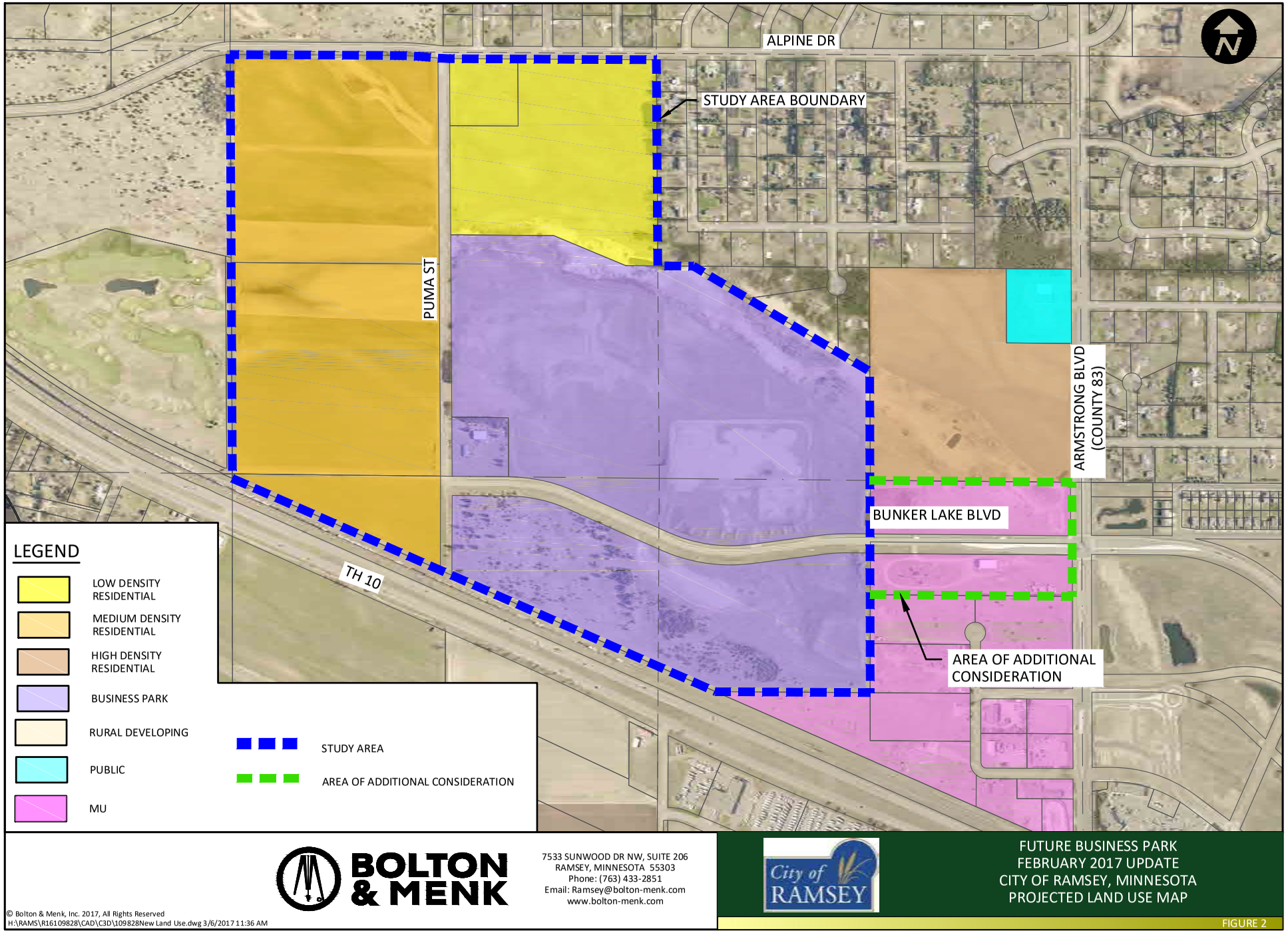
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
LOCATION & EXISTING CONDITIONS

FIGURE 1

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM



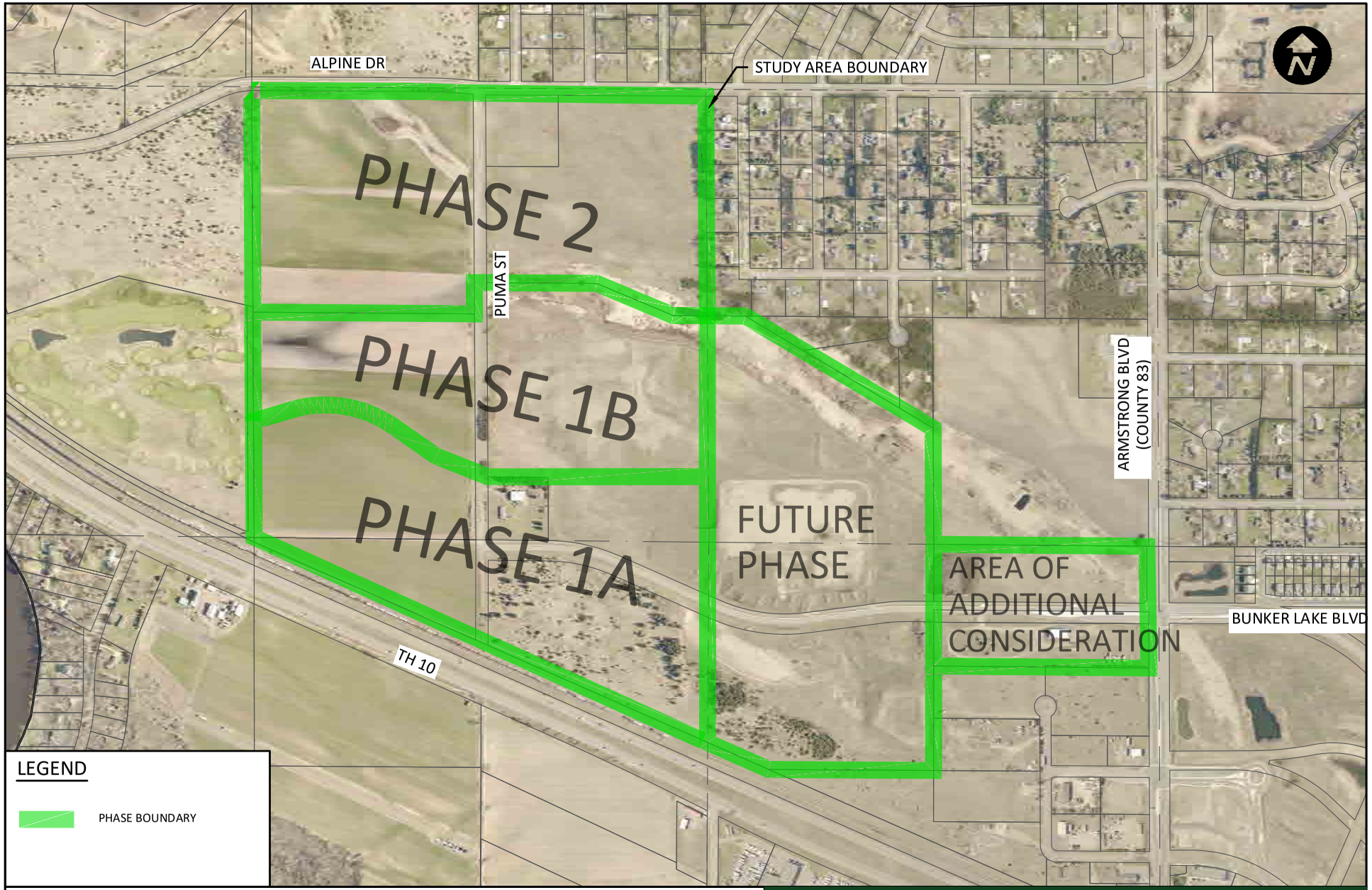
BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
PROJECTED LAND USE MAP

FIGURE 2

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM



BOLTON & MENK

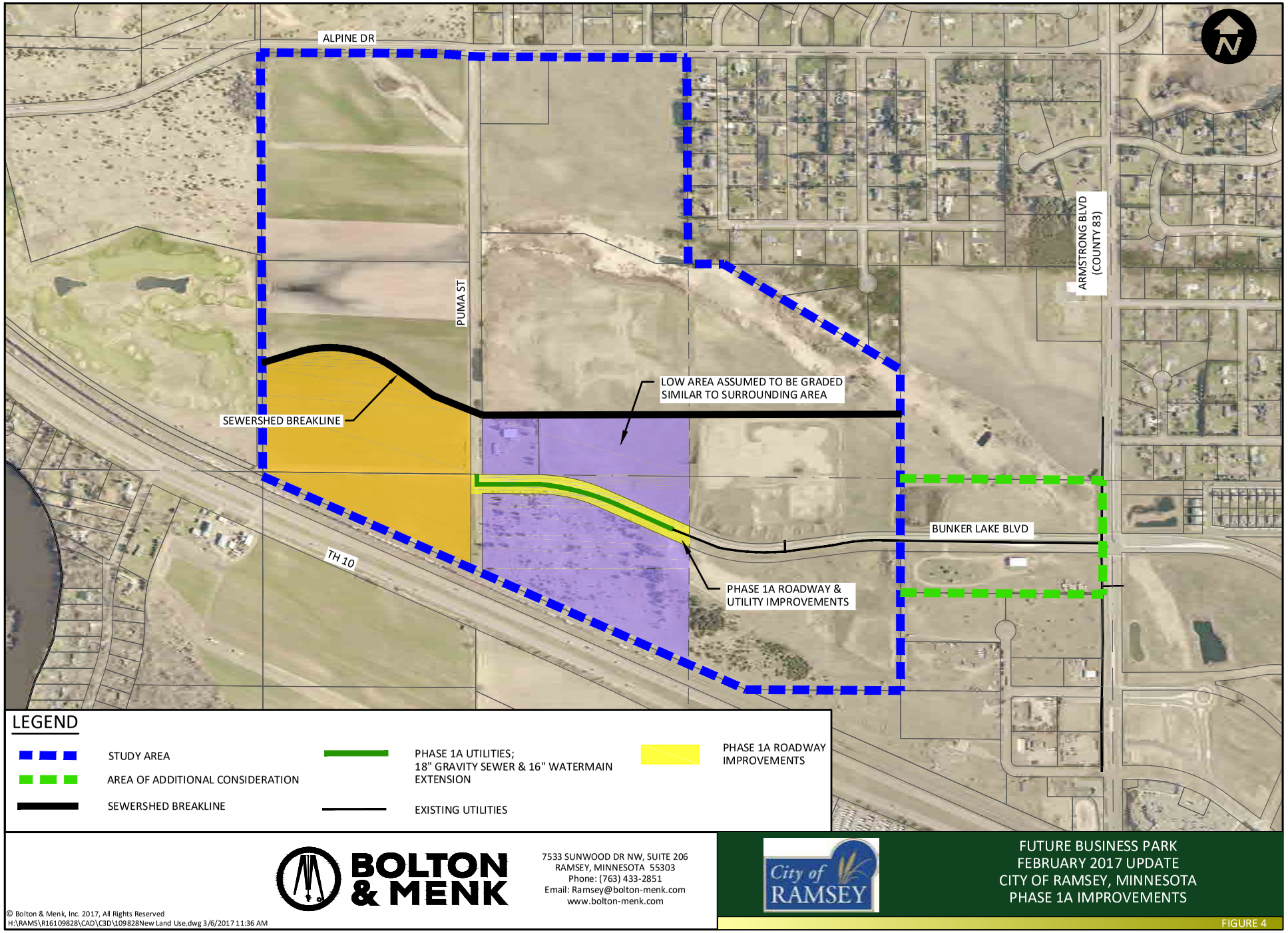
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
PHASING MAP

FIGURE 3

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM



BOLTON & MENK

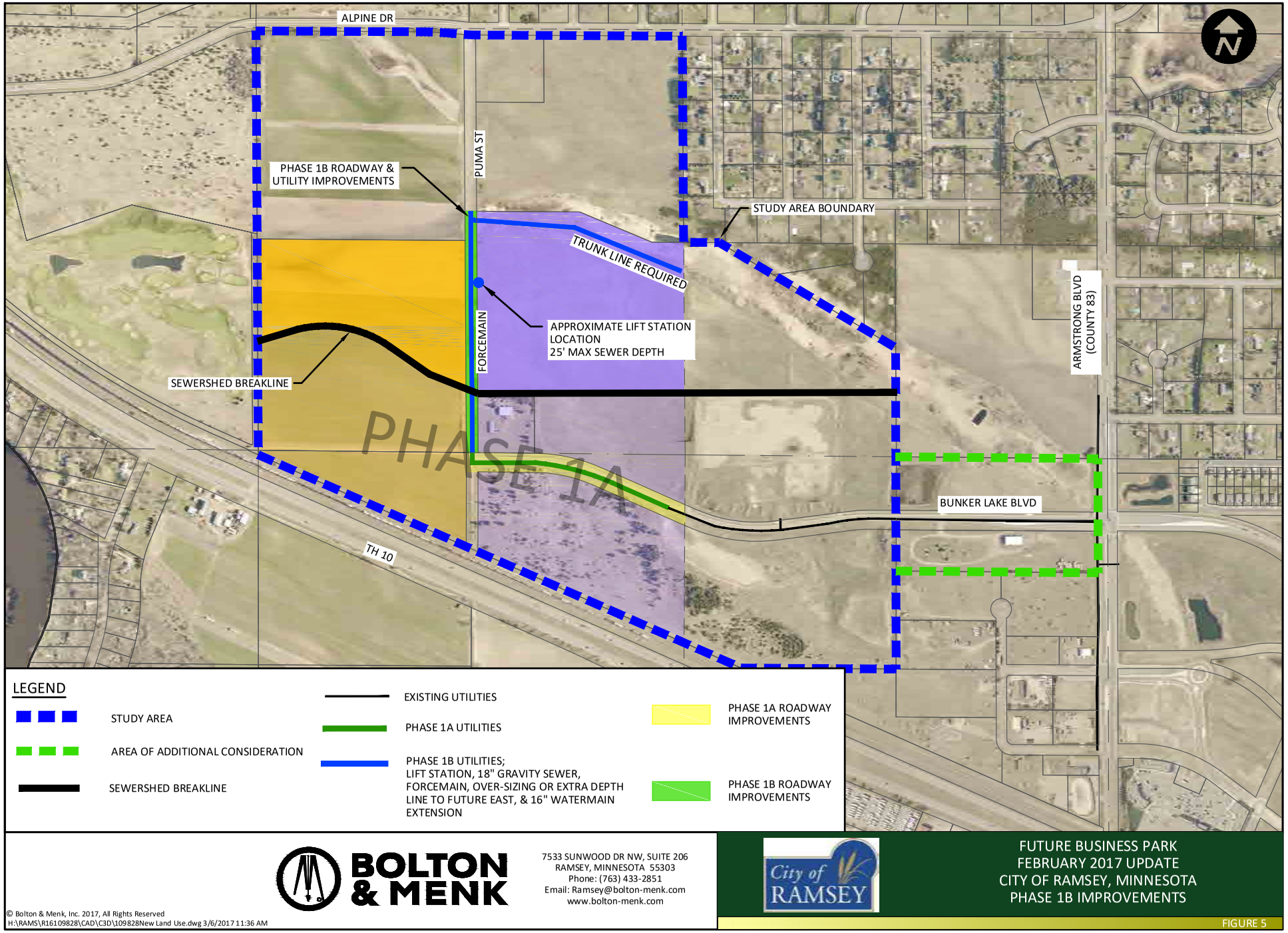
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
PHASE 1A IMPROVEMENTS

FIGURE 4

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM



BOLTON & MENK

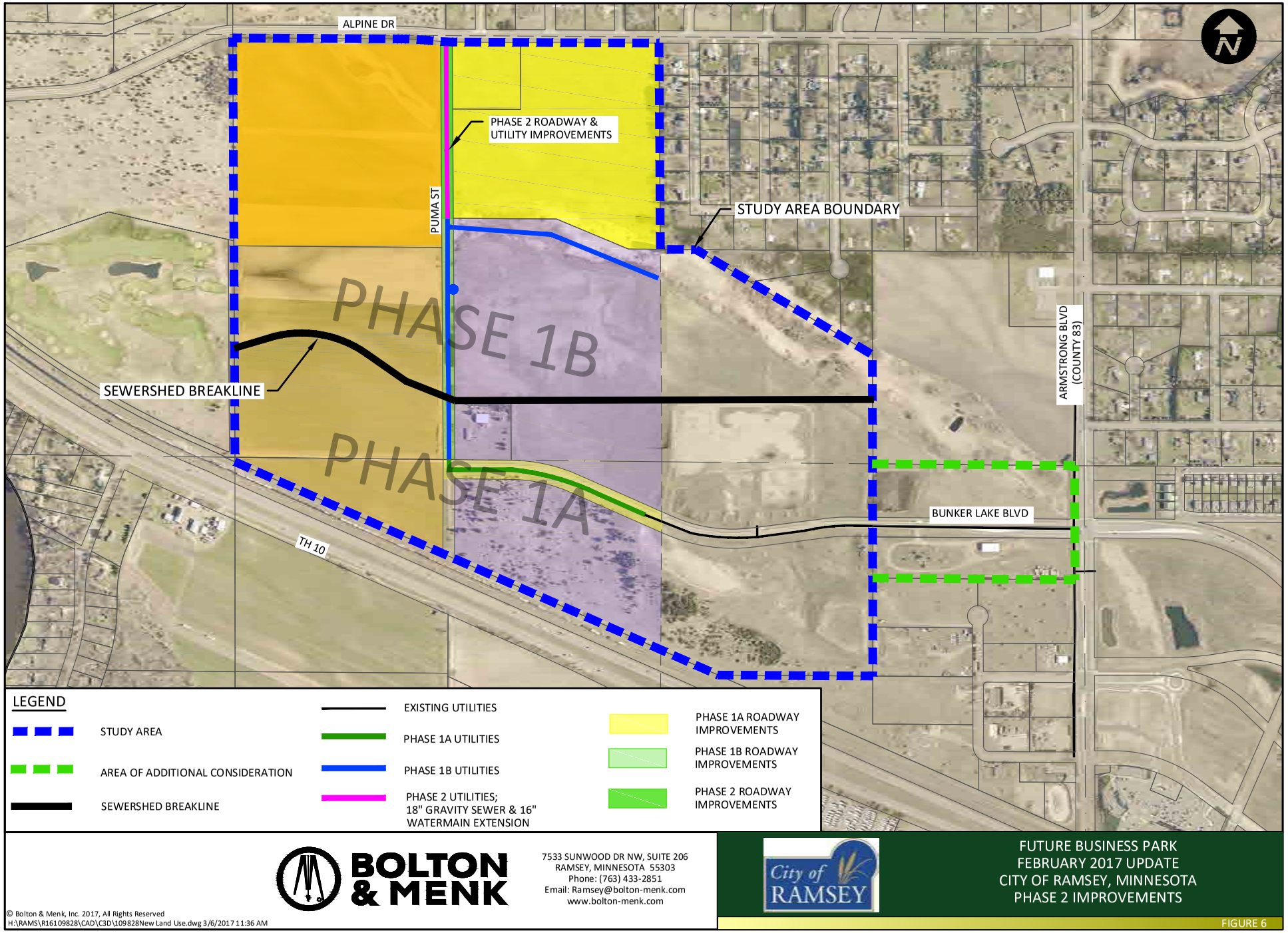
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
PHASE 1B IMPROVEMENTS

FIGURE 5

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM



BOLTON & MENK

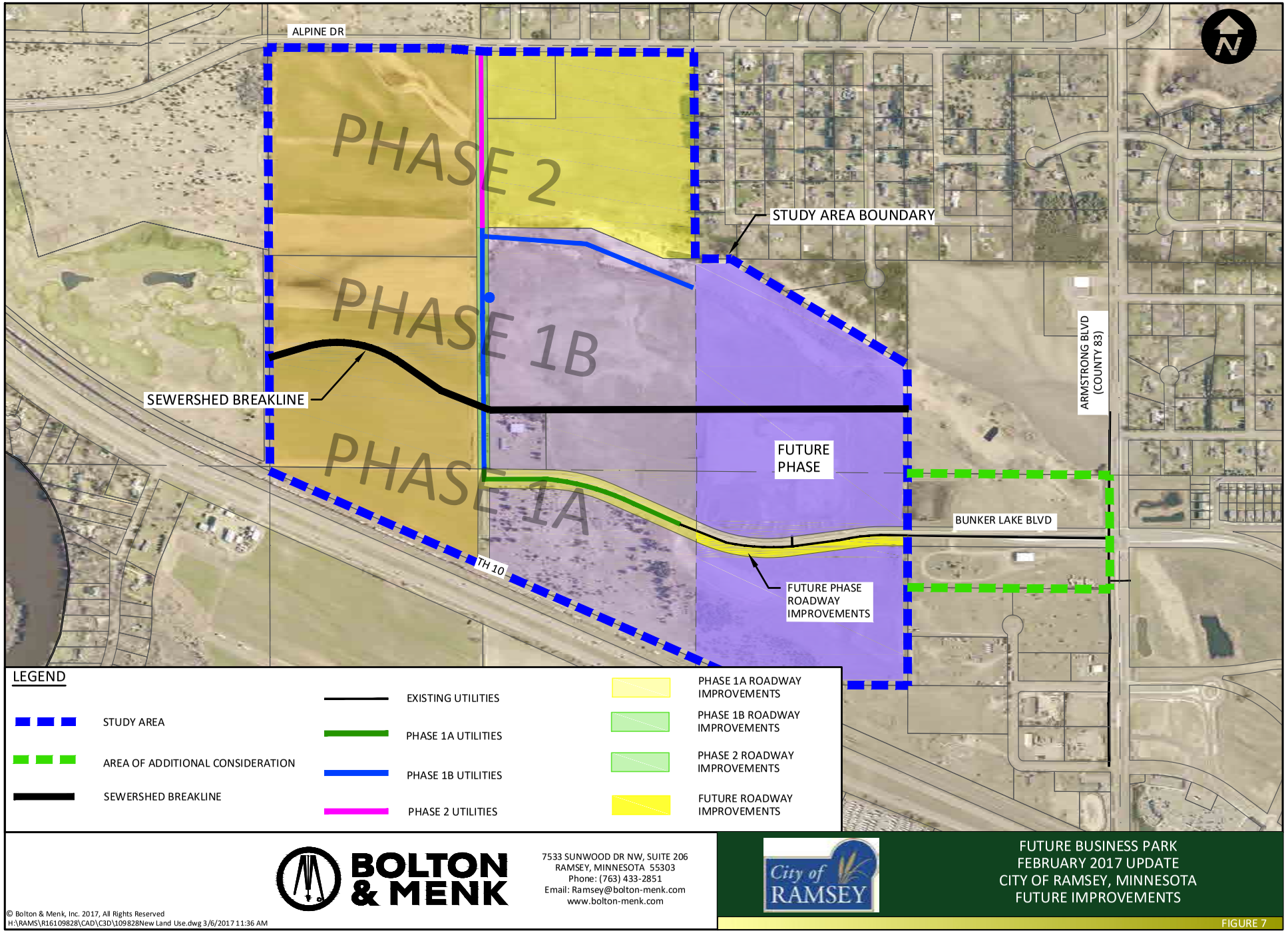
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
PHASE 2 IMPROVEMENTS

FIGURE 6

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM



BOLTON & MENK

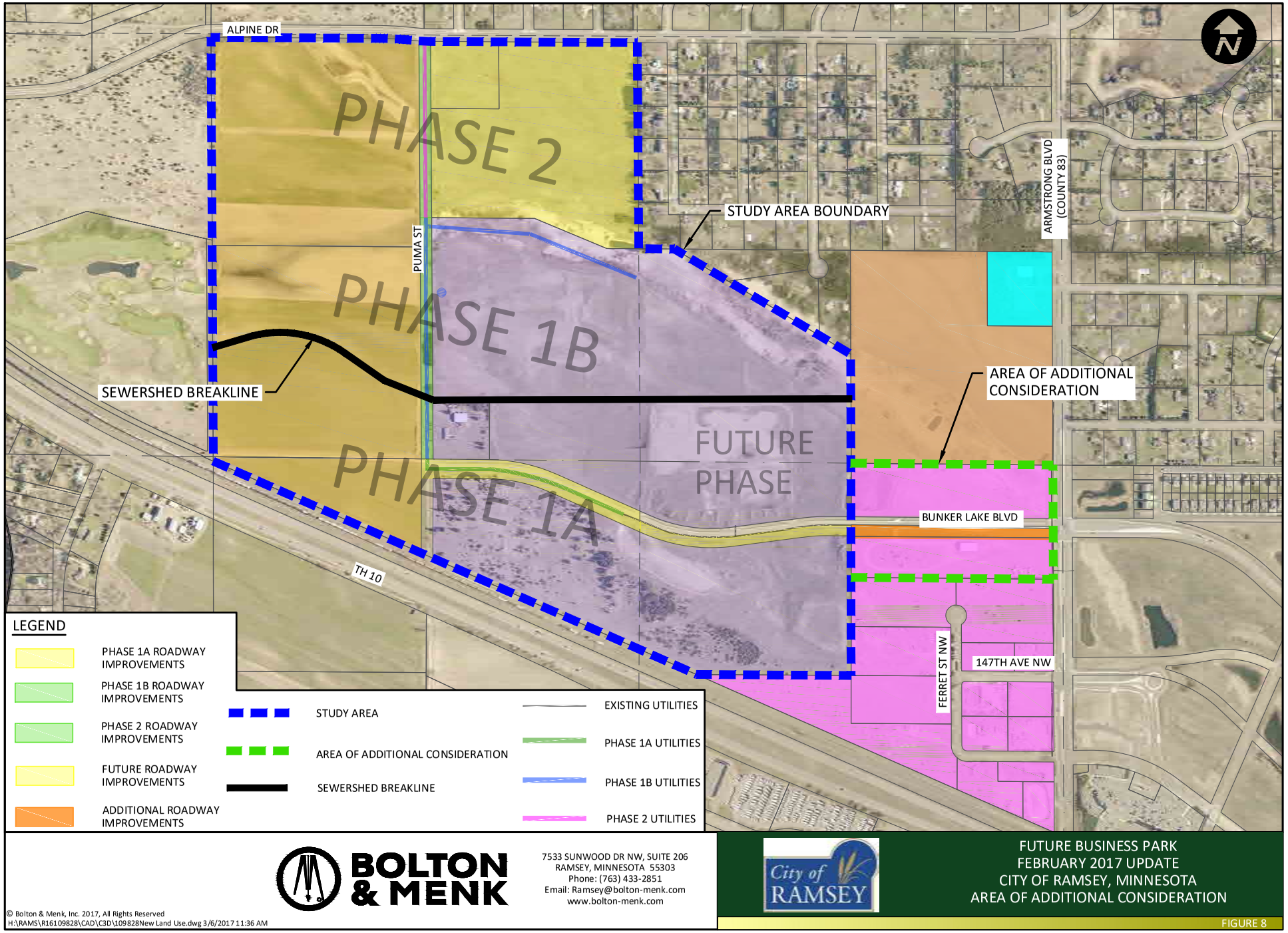
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
FUTURE IMPROVEMENTS

FIGURE 7

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM



BOLTON & MENK

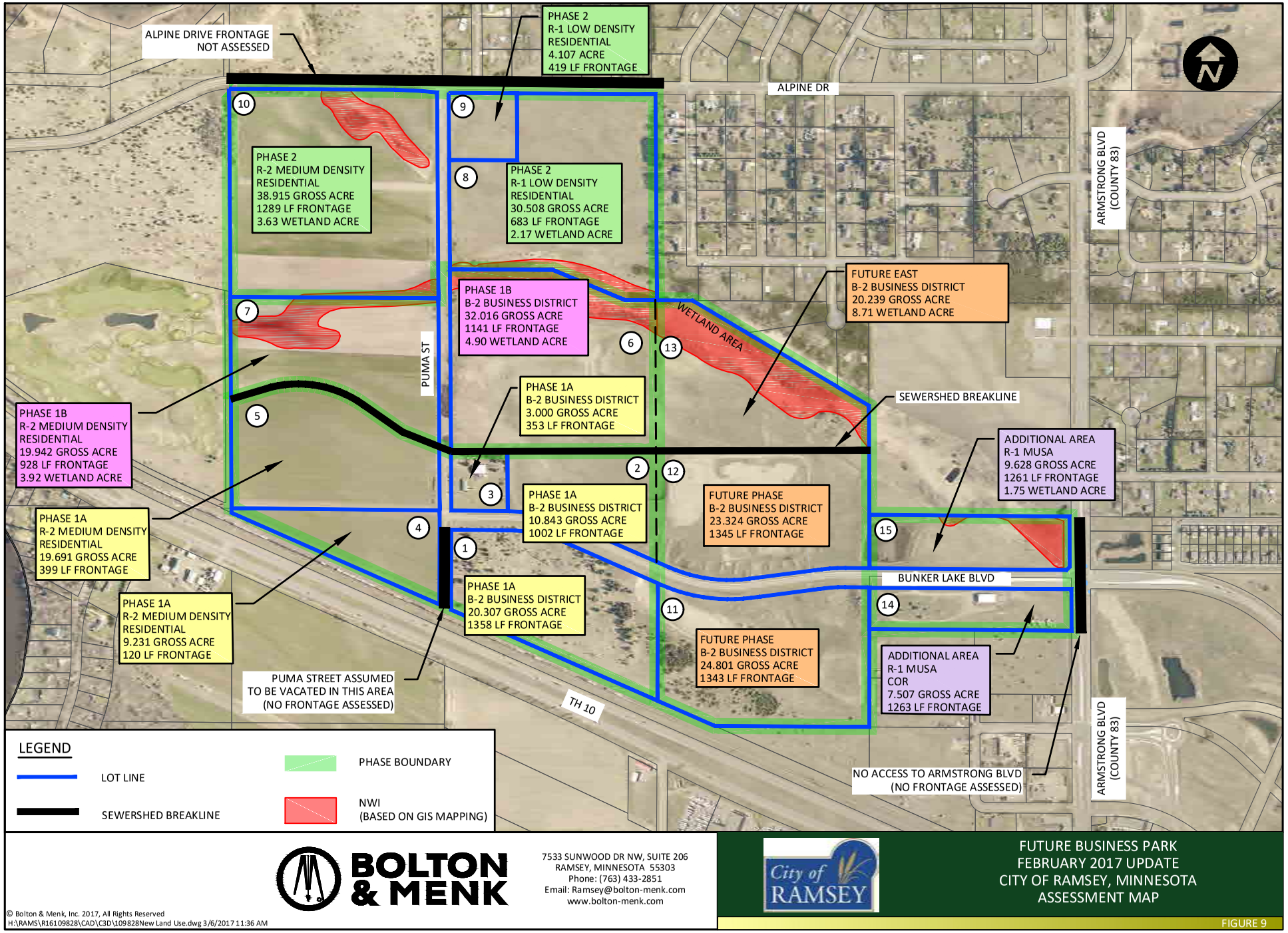
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
AREA OF ADDITIONAL CONSIDERATION

FIGURE 8

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM



BOLTON & MENK
7533 SUNWOOD DR NW, SUITE 206
RAMSEY, MINNESOTA 55303
Phone: (763) 433-2851
Email: Ramsey@bolton-menk.com
www.bolton-menk.com

© Bolton & Menk, Inc. 2017, All Rights Reserved
H:\RAMS\R16109828\CAD\C3D\109828New Land Use.dwg 3/6/2017 11:36 AM

City of RAMSEY

FUTURE BUSINESS PARK
FEBRUARY 2017 UPDATE
CITY OF RAMSEY, MINNESOTA
ASSESSMENT MAP

FIGURE 9

Appendix B: Traffic Study

BOLTON & MENK
Real People. Real Solutions.

12224 Nicollet Avenue
Burnsville, MN 55337-1649

Ph: (952) 890-0509
Fax: (952) 890-8065
Bolton-Menk.com

TRAFFIC MEMORANDUM

Date: January 27, 2017

To: City of Ramsey

From: Bryan Nemeth, P.E., PTOE

Subject: Supplemental Traffic Memorandum
Traffic Impact Study for Future Business Park: October 21, 2015
City of Ramsey, MN
Project No.: R16.109828

I hereby certify that this plan, specification or report was prepared by me or under my direct supervision, and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

By: _____
Bryan T. Nemeth, P.E., PTOE
License No. 43354

Date: January 27, 2017

Bolton & Menk is an equal opportunity employer.

I. Introduction

This traffic memorandum provides an update to the Traffic Impact Study for Future Business Park, October 21, 2015, in Ramsey, MN. The update includes analysis of a revised Proposed Future Land Use plan for the area.

The revised analysis results in an increase of approximately 18,100 trips per day into and out of the area at 2040 Full Build. This is an overall reduction in trips compared to the previous land use alternatives proposed.

The analysis evaluates the mitigation needs Bunker Lake Blvd west of Armstrong Boulevard (CSAH 83) and Puma Street south of Alpine Drive. This includes the intersection of Armstrong Blvd (CSAH 83) at Bunker Lake Blvd (CSAH 116).

II. Recommendations

A. Intersection and roadway improvements along Bunker Lake Blvd (west of Armstrong Blvd) and Puma St. (south of Alpine Dr.) are revised as follows.

1. Short Term

a) Armstrong Blvd & Bunker Lake Blvd: Stripe the southbound left with dual left turn lanes. No other roadway improvements needed in the short term. Signal timing updates recommended.

(1) Plan for eastbound dual right turn lanes or free-right turn lane and two eastbound thru lanes in the future (See Long Term Recommendations).

b) Bunker Lake Blvd (west of Armstrong Blvd)

(1) COR area:

(a) With COR access to Bunker Lake Blvd: 4-lane divided roadway to full access intersection. Full access 775 ft. from Armstrong Blvd. Right-in/right-out access at least 475 ft. from Armstrong Blvd. Continuous median to full access.

(b) Without COR access to Bunker Lake Blvd: 4-lane Divided to full access intersection. Full access 540 ft. from Armstrong Blvd. Right-in/right-out access at least 475 ft. from Armstrong Blvd. Continuous median to full access.

(2) COR to Llama St. Alignment: 3-lane undivided roadway, right turn lanes into development roadways. Primary intersection spacing of 1/8 mile.

(3) Llama St. Alignment to Puma St.: 3-lane undivided roadway, right turn lanes into development roadways where development trips anticipated to be over 100 per day. Primary intersection spacing of 1/8 mile.

c) Puma St.: Potentially remain a 2-lane undivided roadway. Left turn lanes into Business Park accesses. Right turn lanes provided where development trips anticipated to be over 100 per day.

d) Bunker Lake Blvd & Puma St.: Single lane roundabout or all-way stop

control. Southbound left turn lane and westbound right turn lane recommended with all-way stop control.

2. Mid-Term

a) Armstrong Blvd & Alpine Dr.: Single lane roundabout. Intersection control evaluation study should be completed to verify.

b) Alpine Dr. & Puma St.: Add eastbound right turn lane. Add a northbound turn lane to separate left and right turns. Add a westbound left turn lane when needed. This need to be based on delay and crash experience, especially if there is trip redistribution due to congestion on Armstrong Blvd.

3. Long-Term

a) Armstrong Blvd & Bunker Lake Blvd: Dual eastbound right turn lanes or free right turn lane. Dual right turn lanes are recommended over the free right due to pedestrian accessibility crossing a heavy free-right and the bridge design of Armstrong Blvd.

b) Plan for two eastbound thru lanes in the future. The two eastbound thru lanes are not necessarily due to traffic volumes but are recommended to give more green time to conflicting movements, specifically the westbound left. Additionally, the high eastbound right turn volumes may result in trip reassignment to use Bunker Lake Blvd and access Highway 10 at Ramsey Blvd instead of Armstrong Blvd. This may also result in more trips using Alpine Dr. to access Highway 10 for trips to and from the west.

III. Analysis

The traffic analysis updates consider a change in land uses within the Future Business Park area as shown on the attached Armstrong West: Proposed Future Land Uses map.

A. Forecasts

The background trip forecasts are consistent with the previous analysis. The trip forecasts to and from each area are included at the end of this memorandum. Forecasts were developed using trip rates from the ITE Trip Generation Manual, consistent with the previous analysis. The additional trips due to the development result in the forecasted trips as shown on the attached map.

B. Traffic Analysis Results

1. 2040 Full Build with Existing Lanes

Table 1: Design Year (2040) with Existing Lanes

Traffic Control Scenario	Peak Hour	Intersection Delay*- LOS		Maximum Delay-LOS**		Limiting Movement ***	Max Approach Queue		
							Direction	Average Queue (ft)	Max Queue (ft) ****
Design Year 2040 Alternative 2									
TH 10/169 South Ramp & CSAH 83 (Armstrong Blvd)	AM	13	B	24	C	EBL	EBL	105	174
Signal	PM	12	B	22	C	EBL	EBL	98	148
TH 10/169 North Ramp & CSAH 83 (Armstrong Blvd)	AM	63	E	143	F	WBR	WBT/R	468	1152
Signal	PM	71	E	124	F	WBR	WBT/R	595	1560
CSAH 83 (Armstrong Blvd & 147th Avenue	AM	55	D	131	F	NBL	NBT	759	1327
Signal	PM	52	D	87	F	NBL	NBT	660	1252
CSAH 83 (Armstrong Blvd) & CSAH 116 (Bunker Lake Blvd)	AM	69	E	184	F	NBL	NBT	784	1086
Signal (assumed double SBL & double WBL were stripped)	PM	100	F	227	F	NBL	NBT	733	1109
CSAH 83 (Armstrong Blvd) & Alpine Drive NW	AM	5	A	20	C	EBT	EBL/T	45	114
TWSC	PM	9	A	46	E	EBL	NBL/T	68	167
Alpine Drive NW & Puma Street NW	AM	2	A	7	A	NBL	NBL/R	31	54
TWSC	PM	3	A	9	A	NBL	NBL/T	51	86
Puma Street NW & Bunker Lake Blvd	AM	3	A	9	A	NBT	SBL/T/R	50	75
Option 1: AWSC	PM	4	A	7	A	WBR	WBT/R	56	86
Puma Street NW & Bunker Lake Blvd	AM	0	A	3	A	EBR	EB L/R	4	18
Option 2: 3 Legged intersection (with curve)	PM	0	A	2	A	EBL	EBL/R	7	24
Puma Street NW & Bunker Lake Blvd	AM	2	A	5	A	NBT	SBL/T/R	16	51
Option 3: Roundabout	PM	2	A	4	A	SBT	SBL/T/R	4	23

*Delay in seconds per vehicle

**Maximum delay and LOS on any approach and/or movement

***Limiting Movement is the highest delay movement.

****Max Queue refers to the 95% Queue (Passenger car stored length = 25 ft, Heavy vehicle stored length = 45 ft)

Analysis indicates that it there are anticipated to be capacity concerns along Armstrong Blvd from Highway 10 to Bunker Lake Blvd. Mitigation is necessary at the intersection of Armstrong Blvd at Bunker Lake Blvd.

2. 2040 Full Build with Mitigation

Table 2: Design Year (2040) with Mitigation

Traffic Control Scenario	Peak Hour	Intersection Delay*- LOS		Maximum Delay-LOS**		Limiting Movement ***	Max Approach Queue		
							Direction	Average Queue (ft)	Max Queue (ft) ****
Design Year 2040 Alternative 2									
TH 10/169 South Ramp & CSAH 83 (Armstrong Blvd)	AM	11	B	22	C	EBL	EBL	95	147
Signal	PM	12	B	23	C	EBL	SBR	47	171
TH 10/169 North Ramp & CSAH 83 (Armstrong Blvd)	AM	21	C	53	D	SBT	SBT	382	727
Signal	PM	49	D	141	F	SBT	SBT	809	1272
CSAH 83 (Armstrong Blvd & 147th Avenue	AM	12	B	33	C	SBL	NBT	199	376
Signal	PM	56	E	111	F	SBT	SBT	664	1232
CSAH 83 (Armstrong Blvd) & CSAH 116 (Bunker Lake Blvd)	AM	38	D	84	F	NBL	NBT	353	868
Signal (Added double EB thru, free right)	PM	50	D	139	F	WBL	WBT	401	915
CSAH 83 (Armstrong Blvd) & Alpine Drive NW	AM	5	A	26	D	WBL	EBR	61	110
TWSC (Added EB/WB RT lane)	PM	10	B	88	F	EBT	NBL/T	77	171
Alpine Drive NW & Puma Street NW	AM	2	A	6	A	WBL	NBL/R	33	56
TWSC	PM	3	A	9	A	NBL	NBL/T	48	80
Puma Street NW & Bunker Lake Blvd	AM	3	A	9	A	WBL	SBL/T/R	50	78
Option 1: AWSC	PM	4	A	8	A	WBL	WBL/T/R	57	83
Puma Street NW & Bunker Lake Blvd	AM	0	A	3	A	EBL	EBL/R	4	18
Option 2: 3 Legged intersection (with curve)	PM	0	A	5	A	EBL	EBL/R	6	24
Puma Street NW & Bunker Lake Blvd	AM	2	A	5	A	NBT	SBL/T/R	11	37
Option 3: Roundabout	PM	2	A	4	A	EBT	SBL/T/R	3	21

*Delay in seconds per vehicle

**Maximum delay and LOS on any approach and/or movement

***Limiting Movement is the highest delay movement.

****Max Queue refers to the 95% Queue (Passenger car stored length = 25 ft, Heavy vehicle stored length = 45 ft)

Analysis indicates

Mitigation includes the lanes and traffic control indicated in the recommendations but also includes a third southbound lane along Armstrong Blvd from Bunker Lake Blvd to the Highway 10 North Ramp terminal. Additional review of the bridge design indicates that a third lane would not be feasible without substantial revisions to the bridge structure over the railroad. Based on this, two eastbound through lanes are recommended at the intersection of Armstrong Blvd and Bunker Lake Blvd to provide an alternative route if needed. The analysis below also considers an eastbound free right into the third lane. This is recommended to be a dual right turn when or if needed based on traffic redistribution in the area.

The resulting queues are shown below for each movement at the intersection of Armstrong Blvd and Bunker Lake Blvd. Dual eastbound right turn lanes would be anticipated to have similar average queues and shorter max queues. The max queues are anticipated to be less if there is traffic redistribution based on congestion.

Table 3: Design Year (2040) Armstrong Blvd & Bunker Lake with Proposed Lanes

Traffic Control Scenario	Peak Hour	Delay-LOS**		Max Approach Queue	
				Average Queue (ft)	Max Queue (ft) ****
CSAH 83 (Armstrong Blvd) & CSAH 116 (Bunker Lake Blvd)					
EBL	AM	41	D	64	122
	PM	37	D	106	191
EBR	AM	3	A		
	PM	47	D	390	916
WBL	AM	45	D	134	215
	PM	131	F	401	915
NBL	AM	84	F	305	412
	PM	52	D	207	307
SBL	AM	31	C	95	145
	PM	46	D	81	128

*Delay in seconds per vehicle

**Maximum delay and LOS on any approach and/or movement

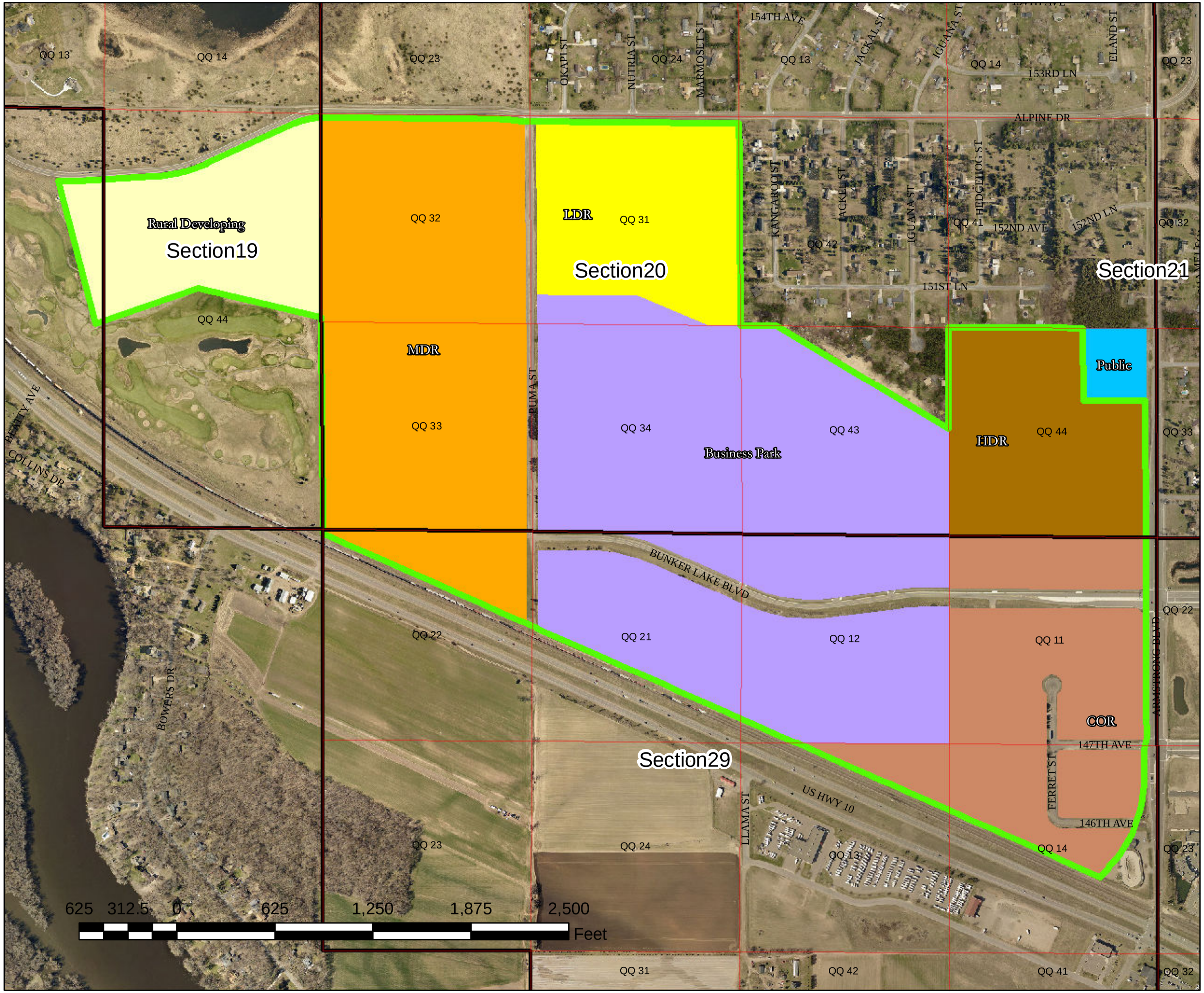
***Limiting Movement is the highest delay movement.

****Max Queue refers to the 95% Queue (Passenger car stored length = 25 ft, Heavy vehicle stored length = 45 ft)

C. Special Considerations

1. The trips from specific developments to Puma and Bunker Lake Blvd have not been analyzed. Trips to and from specific developments should be assigned to appropriate roadways based on the development roadway design. This is especially important for trip assignment at the intersection of Bunker Lake Blvd and Puma St.

2. Mitigation for intersections outside of the area due to development in the area have not been completed.



City of RAMSEY

Armstrong West
Proposed Future Land Uses

Section QQ

Section Only

AUAR Boundary

Future Land Use

- Business Park
- COR
- High Density Residential
- Low Density Residential
- Medium Density Residential
- Public/Quasi-Public
- Rural Developing

N

This is not an approved land use plan. This is a working document only, based on current feedback and concepts (both public and privately developed concepts).

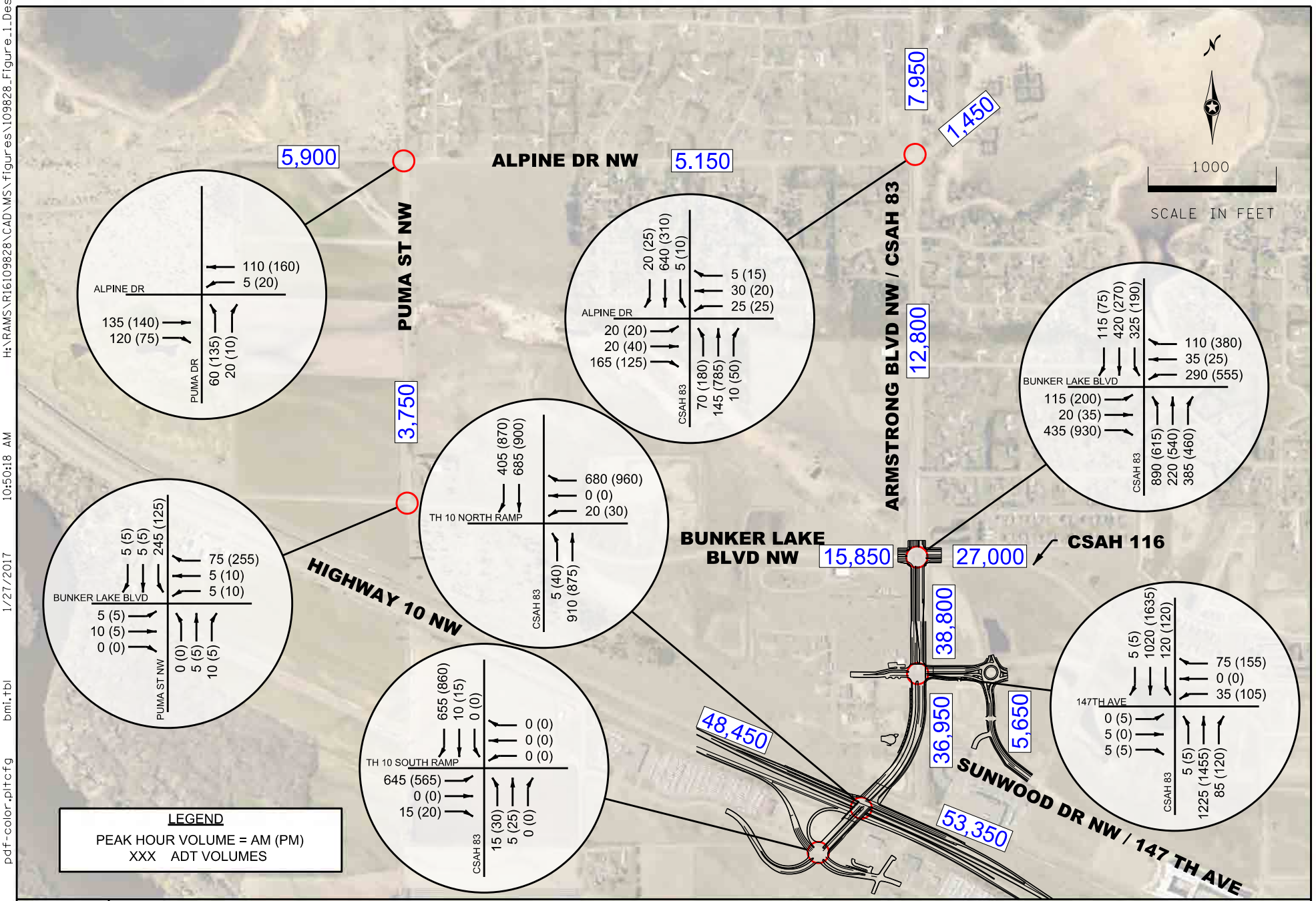


FIGURE 1: DESIGN YEAR (2040) TRAFFIC VOLUMES

FUTURE BUSINESS PARK TRAFFIC STUDY
RAMSEY, MN.

jeremyme pdf-color.pltcfg bmi.tbl 1/27/2017 10:50:18 AM H:\RAMS\R16\109828\CAD\MS\figures\109828_Figure_1_Design Yea

Ramsey EDA Traffic Assumptions

Alternative 2: Business Park (January 2017 Update)

B-2 **Business Park** — 134.54 Acres — ITE Code 130 — Internal-to-Internal Reduction

Based on Acres

	Average Rate	#	% enter	% exit	entering	exiting		entering	exiting		Pass-by entering	Pass-by exiting	New Trips entering	New Trips exiting
AM	8.55	1151	83	17	955	196	10%	860	177	0%	0	0	860	177
Afternoon	4.42	595	50	50	298	298	10%	268	268	0%	0	0	268	268
PM	8.84	1190	21	79	250	940	10%	225	847	0%	0	0	225	847
Weekday	63.11	8491	50	50	4246	4246	15%	3609	3609	0%	0	0	3609	3609

B-2 **Retail/Commercial** — 74.4 K ft^2 — ITE Code X — Internal-to-Internal Reduction

Based on Square Feet — 7.43 Acres

	Average Rate	#	% enter	% exit	entering	exiting		entering	exiting		Pass-by entering	Pass-by exiting	New Trips entering	New Trips exiting
AM	7.41	552	53	47	293	259	20%	235	208	46%	109	96	126	112
Afternoon	5.46	407	50	50	204	204	20%	163	163	40%	66	66	97	97
PM	10.91	813	51	49	415	398	20%	332	319	39%	130	125	202	194
Weekday	124.59	9275	50	50	4638	4638	30%	3247	3247	39%	1267	1267	1980	1980

R-1 **Single Family Detached Housing** — 104 units — ITE Code 210 — 34.62 Acres

Based on Dwelling Units — 3 Units per Acre

	rate	#	% enter	% exit	entering	exiting	New Trips entering	New Trips exiting
AM	0.75	83	25	75	21	62	21	62
Afternoon	0.51	53	31	69	16	37	16	37
PM	1.01	109	63	37	69	40	69	40
Weekday	9.57	1078	50	50	539	539	539	539

R-2 **Residential Townhouse** — 527 units — ITE Code 230 — 87.79 Acres

Based on Dwelling Units — 3 to 7 Units per Acre

	Average Rate	#	% enter	% exit	entering	exiting	Assume 6 Units per Acre	New Trips entering	New Trips exiting
AM	0.44	196	17	83	33	163		33	163
Afternoon	0.26	138	31	69	43	95		43	95
PM	0.52	235	67	33	157	78		157	78
Weekday	5.81	2732	50	50	1366	1366		1366	1366

R-3 **Low Rise Apartment** — 525 units — ITE Code 221 — 43.74 Acres

Based on Dwelling Units — 7 to 15 Units per Acre

	Average Rate	#	% enter	% exit	entering	exiting	Assume 12 Units per Acre	New Trips entering	New Trips exiting
AM	0.46	215	21	79	45	170		45	170
Afternoon	0.29	153	31	69	47	106		47	106
PM	0.58	291	65	35	189	102		189	102
Weekday	6.59	3076	50	50	1538	1538		1538	1538

Rural Developing — ITE Code x

Assumed trips

	entering	exiting
AM	5	20
Afternoon		
PM	20	5
Weekday		

Total

	Pass-by entering	Pass-by exiting	New Trips entering	New Trips exiting
AM	109	96	1090	704
Afternoon	66	66	472	602
PM	130	125	862	1266
Weekday	1267	1267	9032	9032

West of Commercial Area

	Pass-by entering	Pass-by exiting	New Trips entering	New Trips exiting
AM			919	422
Afternoon			327	400
PM			471	970
Weekday			5514	5514

Public Works Committee **6. 1.**

Meeting Date: 06/20/2017

By: Bruce Westby, Engineering/Public Works

Title:

Staff Updates on Improvement Projects and Items of Interest

Purpose/Background:

The purpose of this case is to update the Public Works Committee on current and proposed improvement projects within the City, and on other items of interest to the Committee.

City Improvement Projects

- **Business Park 95 Regional Stormwater Pond Improvements (#16-36)**
  - Work is substantially complete
  - Final payment will occur in 2017 following satisfactory completion of punch list and warranty work
- **Andrie Street & 164th Lane Reconstruction (#16-00 Div. C)**
  - Work is substantially complete
  - Final payment will occur in 2017 following satisfactory completion of punch list and warranty work
- **Mississippi River Trail Phase 3 (#16-54)**
  - Work is substantially complete
  - Final completion scheduled for summer 2017
- **Zeolite Street Storm Sewer Extension Improvements (#16-95)**
  - Work is substantially complete
  - Final payment will occur in 2017 following satisfactory completion of punch list and warranty work
- **Riverdale Drive Extension - Traprock St. to Ramsey Blvd. (#16-20)**
  - Plans and specifications complete
  - Acquired deed for 5.3 acres of roadway right-of-way from Anoka County
  - Construction proposed for 2017 (pending State Aid approval to advance)
- **Alpine Drive Reconstruction (#17-00)**
  - Construction proposed from June/July through September 22nd
- **Sunwood Drive Reconstruction (#17-01)**
  - Construction proposed from June/July through September 22nd
- **Ground Penetrating Radar Pavement Evaluations (#17-11)**
  - Work complete by August 11th
- **Soil Borings / Geotechnical Reports 2018/19 Reconstructs/Overlays (#17-12)**
  - Work complete by August 11th

Anoka County Improvement Projects

- **Hanson Boulevard/CSAH 78 Grade Separation @ BNSF Railway Crossing (2017)**
  - Reconstruct County State Aid Highway 78 (CSAH 78) / Hanson Boulevard to a 4-lane divided section
  - Construct a grade-separated overpass for Burlington Northern Sante Fe (BNSF) railway crossing
- **Hanson Boulevard/CSAH 78 Reconstruction (2018)**
  - Expand CSAH 78 / Hanson Blvd between 139th Ave and CSAH 18 / Crosstown Blvd to 4-lane divided section
- **Foley Boulevard/CSAH 11 Grade Separation @ BNSF Railway Crossing**
  - This project is currently unscheduled and unfunded

MnDOT Improvement Projects

- **Trunk Highway 10 Cable Median Barrier Installation (2018)**
  - Install cable median barrier along Highway 10 between Thurston Avenue and Highway 101
- **Ferry Street / Trunk Highway 47 Grade Separation @ BNSF Railway Crossing (2017)**
  - Preliminary design in progress

Items of Interest

- **Puma St & Bunker Lake Blvd Infrastructure Improvements**
- **Wellhead Protection Plan Update**

Timeframe:

Staff estimates that 5 minutes will be needed for updates and discussion.

Observations/Alternatives:

N/A

Funding Source:

N/A

Recommendation:

N/A

Action:

No formal action is required.

Attachments

No file(s) attached.

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	06/15/2017 07:40 AM
Kurt Ulrich	Kurt Ulrich	06/15/2017 08:56 AM
Form Started By: Bruce Westby		Started On: 06/15/2017 05:04 AM
Final Approval Date: 06/15/2017		

Public Works Committee **6. 2.**

Meeting Date: 06/20/2017

By: Bruce Westby, Engineering/Public Works

Title:

Review Future Topics Calendar

Purpose/Background:

Attached is a list of topics for review and discussion by the Public Works Committee. The list includes topics that were drawn from Committee requests received during meetings or are topics that have previously been discussed by the Committee but have yet to be resolved. Calendar dates have been estimated based on availability of information, staff workload, and competing objectives and are therefore subject to change.

Timeframe:

Staff estimates 5 minutes will be necessary to review the future topics calendar and address Committee questions.

Observations/Alternatives:

N/A

Funding Source:

N/A

Recommendation:

N/A

Action:

For Committee review and discussion purposes only. No formal action is required.

Attachments

PWC Calendar June2017

Form Review

Inbox	Reviewed By	Date
Grant Riemer	Grant Riemer	06/15/2017 07:39 AM
Kurt Ulrich	Kurt Ulrich	06/15/2017 09:00 AM
Form Started By: Bruce Westby		Started On: 06/15/2017 05:05 AM
Final Approval Date: 06/15/2017		

Public Works Committee Future Topics Calendar *

Date	Topics for Discussion – Committee Action
July 2017	Sunfish Lake Sedimentation Basin Improvements *(Westby)*
July 2017	Gibbon Street & 173rd Avenue Drainage Improvements *(Westby)*
September 2017	Well Siting Study - Well #9
September 2017	Sunwood Drive Roundabout Landscaping
Future	County Ditch Maintenance / Buffer Law *(Westby)*
Date	**Topics for Discussion – Regulatory**
Future	Sunfish Lake Boulevard Speed Zone Study Results *(Westby)*
Future	Wellhead Protection Plan Update *(Westby)*
Date	**Topics for Discussion – Policy**
Future	Landscaped Median Maintenance Policy *(Riemer)*
August 2017	Draft Trail Maintenance Policy *(Westby)*
August 2017	Draft Stormwater Pond Maintenance Policy *(Westby)*
Date	**Topics for Discussion – Planning and Budget**
July 2017	Municipal State Aid System (MSAS) Revisions *(Westby)*
Future	Review 1996 and 2007 (unadopted) TH 47 Corridor Studies *(Westby)*
Future	Public Works Facility Review/Update *(Riemer/Brama)*
Future	Comprehensive Plan for Long-Term Water Supply *(Westby)*
Date	**Topics for Discussion – Staff Updates**
Future	Water Conservation Options / Incentives

* Dates are estimated and are subject to change based on availability of information, staff workload, and competing objectives.