



New driveways are proposed on all 4 quadrants of the bridge. Therefore, vehicular access for the adjacent houses and apartment buildings will be disrupted during construction and will require property owners to park on the side streets.

New sidewalks will be constructed on all 4 corners of the bridge. The sidewalks on the west side of IA 1 will be 5' wide. The City requested the sidewalk on the southwest quadrant be extended south to Iowa Avenue. The sidewalk widths on the east side were recommended to be increased to the back of curb to eliminate a small area of driveway. The contractor will be required to maintain pedestrian access to all homes during construction.

There is an existing sanitary sewer utility access that the profile grade should strive to match to avoid any adjustments to the top.

There are existing overhead utility lines that will need to be relocated prior to construction work taking place. The relocation of these overhead utilities will be coordinated with the 3R project. It would be desirable that when the utility poles are replaced that they are located outside of the clear zone.

There is a stream gauge sensor attached to the bridge. Prior to construction, the University of Iowa should be contacted so the sensor can be removed. The sensor will then be replaced once the bridge has been completed.

It appears that no permanent right of way will be required. Temporary right of way will be required.

Northbound IA 1 (Governor Street) will be closed and an offsite detour will be utilized. The detour would begin at the intersection of Gilbert Street and Burlington Street, and proceed north on Gilbert Street to Jefferson Street, then east on Jefferson Street to the intersection with Governor Street. There is no out of distance travel associated with this detour route.

No plans are included in this submittal; however, plan sheets may be viewed as pdf files on projectwise at:  
pw:projectwise.dot.int.lan:PWMain\Documents\projects\5200101014\Design\DesignEvents\D2\D2\_5200101014\_plans.pdf.

This project is currently scheduled for an October 2018 letting. The current estimated construction cost in today's dollars is \$627,600 (\$283,000 for bridge costs and \$344,600 for roadway costs). The concept cost estimate was \$618,700.

Cc:

M. J. Sankey  
D. A. Widick  
E. C. Wright  
J. Holst  
K. Brink  
V. A. Brewer  
N. L. Cuva  
D. E. Sprengeler  
B. Bradley  
J. McCollough  
D. Mulholland  
J. Choate  
S. Flockhart  
H. Gugler  
J. R. Schoenrock  
J. Garton

S. J. Gent  
W.A. Sorenson  
B. R. Smith  
K. D. Nicholson  
J. E. Laaser-Webb  
D. R. Tebben  
M. A. Swenson  
N. L. McDonald  
G. A. Novey  
S. P. Anderson  
K. Yanna  
H. Holak  
P. C. Keen  
N. Abuissa  
Local FHWA  
S. J. Megivern

M. J. Kennerly  
D. L. Maifield  
T. Nicholson  
S. Ryan  
T. Crouch  
M. D. Masteller  
C. B. Brakke  
D. A. Popp  
D. R. Claman  
B. Hofer  
D. McDonald  
M. Bennett  
D. Erenberger  
R. Walton  
W. N. Cameron  
M. K. Solberg

**JOHNSON CO.**

**BRIDGE - UNSPECIFIED  
BRF-001-5(106)--38-52**

LETTING DATE  
10/16/2018



**Highway Division**

PLANS OF PROPOSED IMPROVEMENT ON THE

**PRIMARY ROAD SYSTEM  
JOHNSON COUNTY  
BRIDGE - UNSPECIFIED**

**RALSTON CREEK 2.3 MILES S. OF I-80 (NB)**

SCALES: As Noted

Refer to the Proposal Form for list of applicable specifications.

Value Engineering Saves. Refer to Article 1105.14 of the Specifications.



*KIDP  
PL 10  
PROJECT  
8-19-16  
:)*

*Ken Yanna  
Newman Abuissa  
Heather Gugler  
David Erenberger  
Roger Walton  
Dave Mulholland - Prelim Bridge  
Jason Havel - City of Iowa City*

*District 6*

*Jason Holst  
Stacy Ryan  
Mike Bennett  
Shuang Li  
Jonah Heer  
Kevin Patel  
Jason Choate*

*Design*

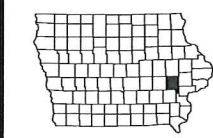
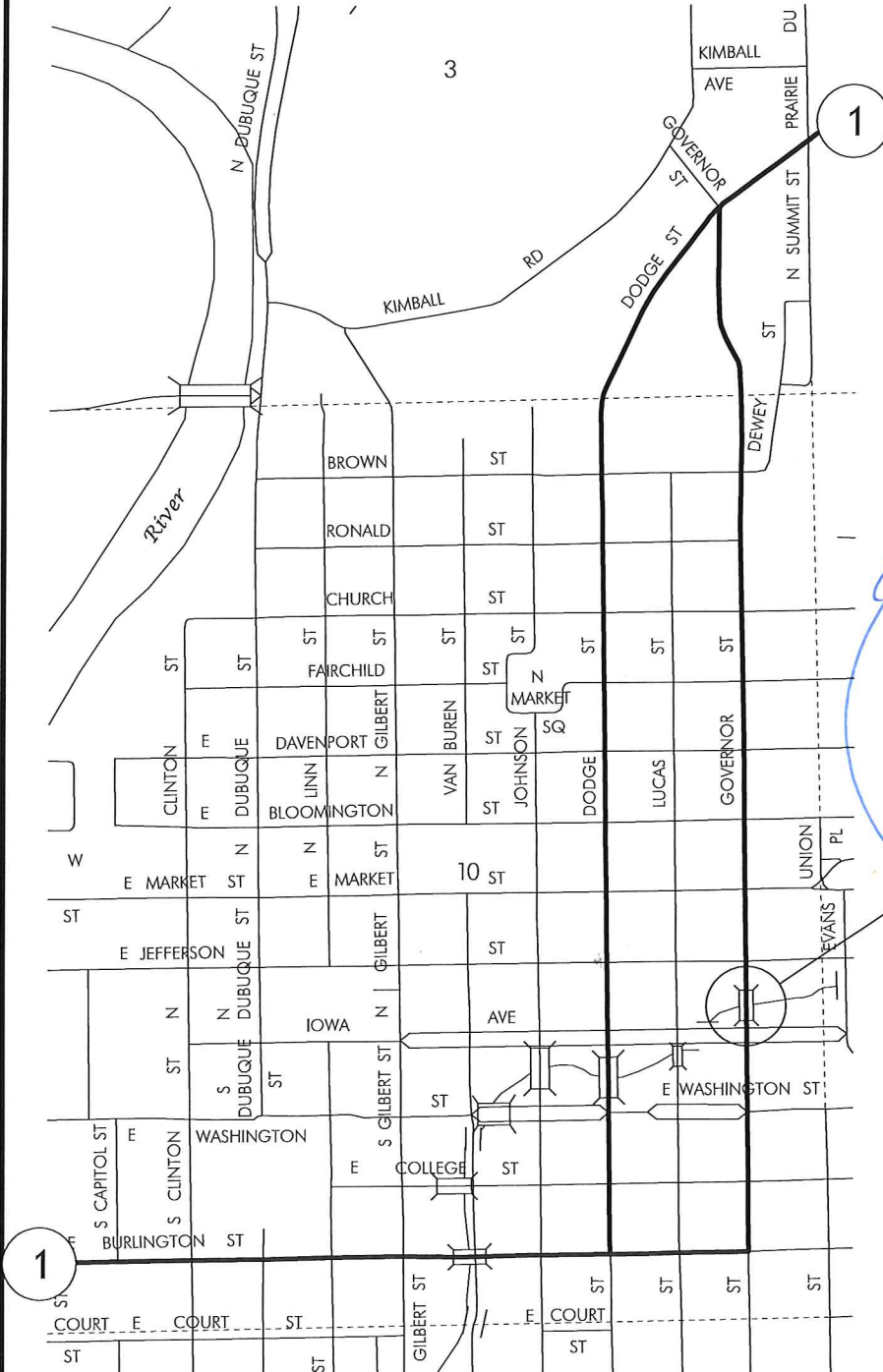
**EARTHWORK:**  
XXX  
XXX

**D3 PLAN - Date: 8-19-2016**  
**D5 PLAN - Date: 12-16-2016**  
**D4 PLAN - Date: 6-19-2018**  
**B3 PLAN - Date: 8-7-2018**

**PRELIMINARY PLANS**

Subject to change by final design.

**D2 PLAN - Date: 8-16-2016**



REVISIONS		TOTAL
PROJECT IDENTIFICATION NUMBER		14-52-001-010
PROJECT NUMBER		BRF-001-5(106)--38-52
R.O.W. PROJECT NUMBER		NHSN-001-5(107)--2R-52

INDEX OF SHEETS	
No.	DESCRIPTION
<b>A Sheets</b>	<b>Title Sheets</b>
A.1	Title Sheet
* A.2 - 10	Concept
A.11	Field Exam Questions
<b>B Sheets</b>	<b>Typical Cross Sections and Details</b>
B.1	Typical Cross Sections and Details
<b>D Sheets</b>	<b>Mainline Plan and Profile Sheets</b>
* D.1	Plan & Profile Legend & Symbol Information Sheet
* D.2	IA 1 Plan & Profile
* D.3	IA 1 Plan View (10 Scale)
<b>G Sheets</b>	<b>Survey Sheets</b>
G.1	Reference Ties and Bench Marks
<b>J Sheets</b>	<b>Traffic Control and Staging Sheets</b>
J.1	Traffic Control Plan
<b>V Sheets</b>	<b>Bridge and Culvert Situation Plans</b>
V.1	Bridge and Culvert Situation Plan
	* Color Plan Sheets

DESIGN DATA URBAN			
2019 AADT	7200	V.P.D.	
2039 AADT	9100	V.P.D.	
2039 DHV	940	V.P.H.	
TRUCKS	4	%	
Total Design ESALs	--		

INDEX OF SEALS		
SHEET NO.	NAME	TYPE
A.1	X	Primary Signature Block
X	X	X

**IOWA DEPARTMENT OF TRANSPORTATION**

**TO OFFICE:** District 6  
**ATTENTION:** Jim Schnoebelen  
**FROM:** Kevin K. Patel  
**OFFICE:** Design  
**SUBJECT:** Project Concept Statement; (Final Approval, D0)

**DATE:** June 26, 2015  
**PROJECT:** Johnson County  
 BRF-001-5(106)--38-52  
 PIN: 14-52-001-010

**FINAL PROJECT CONCEPT STATEMENT**

NB Bridge over Ralston Creek, 2.3 miles south of I-80 in Iowa City

Johnson County  
 BRF-001-5(106)--38-52  
 PIN: 14-52-001-010  
 Maint. No.5287.2R001  
 FHWA No. 31761

Highway Division  
 Office of Design

Kevin K. Patel, P.E.  
 515-239-1540

June 26, 2015

This project involves the replacement of the IA 1 northbound bridge (Maint. No 5287.2R001) over Ralston Creek, 2.3 miles south of I-80 in Iowa City.

A concept review was held on February 12, 2015. Those present included Ken Yanna, Doug McDonald, Steve Flockhart, Roger Walton, and Newman Abuissa from the District 6 Office; Dave Mulholland from the Office of Bridges and Structures and Kevin Patel, Amy Schleier, and Jason Choate from the Office of Design. Also, Jim Protaskey and Jason Havel attended from the city of Iowa City.

The one alternative considered was replacing the existing bridge with a 42 ft x 30 ft continuous slab bridge at an estimated cost of \$618,700.

Additional right of way/right of entry will not be required. Traffic will be maintained by an off-site detour.

The Draft Project Concept Statement was sent out for review and comment with concerns to be resolved by Thursday, June 18, 2015. Comments received during the review period have been considered and resolved.

This project is recommended for construction in FY 2019. The Office of Design will coordinate plan preparation with assistance from the Office of Bridges and Structures.

KKP: jmc

J. F. Adam  
 K. D. Nicholson  
 M. D. Masteller  
 N. M. Miller  
 G. A. Novey  
 A. Abu-Hawash  
 M. A. Swenson  
 R. A. Younie  
 D. R. Tebben  
 A. Poole  
 M. E. Khoda  
 J.W. Laaser-Webb  
 E. C. Wright  
 C. L. Cutler  
 A. F. Gourley  
 R. R. Walton  
 M. J. Donovan  
 M. E. Ross

J. R. Selmer  
 D. L. Maifield  
 B. R. Smith  
 C. C. Poole  
 D. R. Claman  
 B. C. Worrel  
 S. P. Anderson  
 B. D. Hofer  
 D. L. Newell  
 S. J. Gent  
 W.A. Sorenson  
 K. A. Yanna  
 D. L. Rick  
 N. M. Abuissa  
 S. W. Flockhart  
 V. A. Brewer

M. J. Kennerly  
 R. L. Stanley  
 A. A. Welch  
 N. L. McDonald  
 P. Lu  
 J. S. McClain  
 M. J. Sankey  
 Z. T. Bitting  
 J. N. Garton  
 B. E. Azeltine  
 T. D. Crouch  
 D. E. Sprengeler  
 D. McDonald  
 J. J. Tjaden  
 T. M. Storey  
 M. Sloppy  
 FHWA

**I. STUDY AREA**

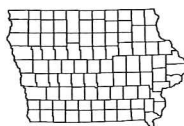
**A. Project Description**

This project involves the replacement of the northbound IA 1 bridge (Maint. No 5287.2R001) over Ralston Creek, 2.3 miles south of I-80 in Iowa City. The existing structure is a 37 ft. x 30 ft. I beam bridge.

The proposed replacement structure is a continuous concrete slab (CCS) bridge 42 feet in length and 30 feet in width. The new bridge will accommodate 5 ft. wide sidewalks on each side of the bridge.

**B. Need for Project**

The existing structure is a 37 ft. x 30 ft. steel beam bridge which was constructed in 1979. The bridge is classified as structurally deficient due to the poor condition of superstructure. Hundred percent section losses are found at several of the beams. Repairs to the bridge would not be cost effective; therefore it is recommended the bridge be replaced.





Looking South



Looking West

C. Present Facility

The existing structure is a 37' x 30' I beam bridge constructed in 1979.

IA 1 in the project area is 31' wide back to back curbed PCC pavement constructed in 1926.

D. Traffic Estimates

The 2019 construction year and 2039 design year average daily traffic estimates are 7200 ADT with 2% trucks and 9100 ADT with 4% trucks, respectively.

E. Sufficiency Ratings

IA 1 is classified as a commercial and industrial route and is a maintenance service level "B" road. The federal bridge sufficiency rating is 69.

F. Access Control

Access rights will not be acquired for this project.

G. Crash History

During the five-year study period from January 1, 2009 through December 31, 2014, there were 3 crashes including, 0 fatal crashes, 0 personal injury crashes, and 3 personal property crashes.

II. PROJECT CONCEPT

A. Bridge Replacement using an off-site detour

The existing 37'x 30' I beam bridge will be replaced with a 42'x 30' continuous concrete slab (CCS) bridge with 5' sidewalks on both sides of the bridge. The existing horizontal and vertical alignment will be used as constructed. The limits of construction will not extend beyond the new bridge approach section, which will consist of a 31 ft. wide back to back curbed roadway.

The existing storm sewer intakes in three quadrants will be removed and replaced. An additional intake will be installed adjacent to the bridge on the southwest quadrant. The existing 12" storm sewer line under IA 1 on the north side of the bridge should be removed, thus requiring new a storm sewer outlet for the intake in the northwest quadrant. This outlet should be relocated directly into the channel. The existing outlets for the storm sewer system extend through the bridge abutments. These outlets should also be relocated to allow the storm sewer to drain directly into Ralston Creek.

A 7' long bridge end section will be used on all four corners of the bridge in lieu of the standard 16' long tapered end section in order to minimize impacts to the existing entrances. However, the end sections and the new intakes proposed still appear to impact the existing entrances, especially those on the east side of the roadway. Therefore it may be necessary to shift the entrances away from the bridge.

New driveways are proposed on all 4 quadrants of the bridge. Therefore, parking for the adjacent houses and apartment buildings will be disrupted during construction and may require property owners to park on the side streets.

New 5' wide sidewalks will be constructed on all 4 corners of the bridge. Sections of existing sidewalk on the east side of the roadway will be removed and relocated. All sidewalks on the west side of the bridge except on the structure is city cost responsibility.

It appears that the existing luminaires will be impacted by construction and therefore will need to be removed and replaced. There is also a utility access on the north side of the bridge that may have to be adjusted.

There are existing overhead utility lines that will need to be relocated prior to construction work taking place.

Drilled shafts may be required for the abutment foundations due to the close proximity of the houses and apartment buildings. Vibration monitoring may also be required.

A barrier rail, requested by Iowa City, has been proposed for this bridge (see page 7

for details).

The existing bricks lining the channel bottom will be removed.

Apply erosion control and urban seeding and fertilizing to all disturbed areas.

It appears that no right of way will be required for this project.

Traffic will be maintained by an off-site detour.

<b>Bridge Items</b>	<u>Estimated Costs</u>
New Bridge	\$ 169,200
Outer Bridge railing	16,200
Separation Railing	11,700
Bridge Removal	14,600
Revetment	12,000
Mobilization - 10%	22,400
M & C - 15%	<u>36,900</u>
<b>Bridge Costs</b>	<b>\$ 283,000</b>
<b>Roadway Items</b>	
Bridge Approaches	\$83,400
Removal of Pavement	3,000
Revetment	7,900
Storm sewer	3,900
Driveway (Including removal)	6,100
Sidewalk (Including removal)	3,000
Manhole adjustment	900
Concrete removal	1,000
Vibration Monitoring	40,000
Detour Pavement Markings (Including removal)	2,300
Detour Signing	15,000
Detour Temporary Traffic Signal	15,000
Intakes (Including Removal and apron)	14,900
Erosion Control	5,000
Right of Way	5,000
Wetland Mitigation	50,000
Traffic Control - 5%	9,000
Mobilization - 5%	9,000
M & C - 30%	<u>61,300</u>
<b>Roadway costs</b>	<b>\$ 335,700</b>
<b>Project Total</b>	<b>\$618,700</b>

**B. Detour Analysis**

Northbound IA 1 (Governor Street) will be closed and offsite detour will be utilized. It is anticipated the detour will be in place for approximately 60 days. The northbound traffic would be routed onto Gilbert Street. The detour would begin at the intersection of Gilbert Street and E. Burlington Street, then proceed north on Gilbert Street to Jefferson Street, then east on Jefferson Street to the intersection with Governor Street. There is no out of distance associated with this detour route. Jefferson Street is currently a one way roadway for eastbound traffic only. The conversion of Jefferson Street to a two way roadway will require the signalized intersections at Gilbert Street, Dodge Street, and, Governor Street to each to receive an additional signal head to accommodate westbound traffic. The cost for the 3 temporary signal heads is anticipated to be \$15,000. The existing pavement markings and as well as the additional and conflicting signing will also be required to accommodate two way traffic. The signs and pavement markings on Jefferson Street will be returned to their preexisting condition after the completion of the project.

**C. Recommendations**

It is recommended that the present structure be replaced, as described in Alternative No. 1.

**D. Construction Sequence**

It is anticipated that all work on this project will be awarded to one prime contractor. The Office of Bridges and Structures will coordinate the plan preparation with assistance from the Office of Design.

**E. ADA Accommodations**

There are sidewalks adjacent to IA 1; therefore, ADA accommodations are planned in conjunction with this project.

**F. Special Considerations**

The drainage area at this site is 7.3 square miles. Since this is an incorporated area with a drainage area greater than 2 square miles a DNR permit is required.

There is a noise ordinance from 10 p.m. to 7 a.m.

This project should be constructed during the summer semester.

The ABC Rating Score of 6 is less than the first stage filter threshold of 50.

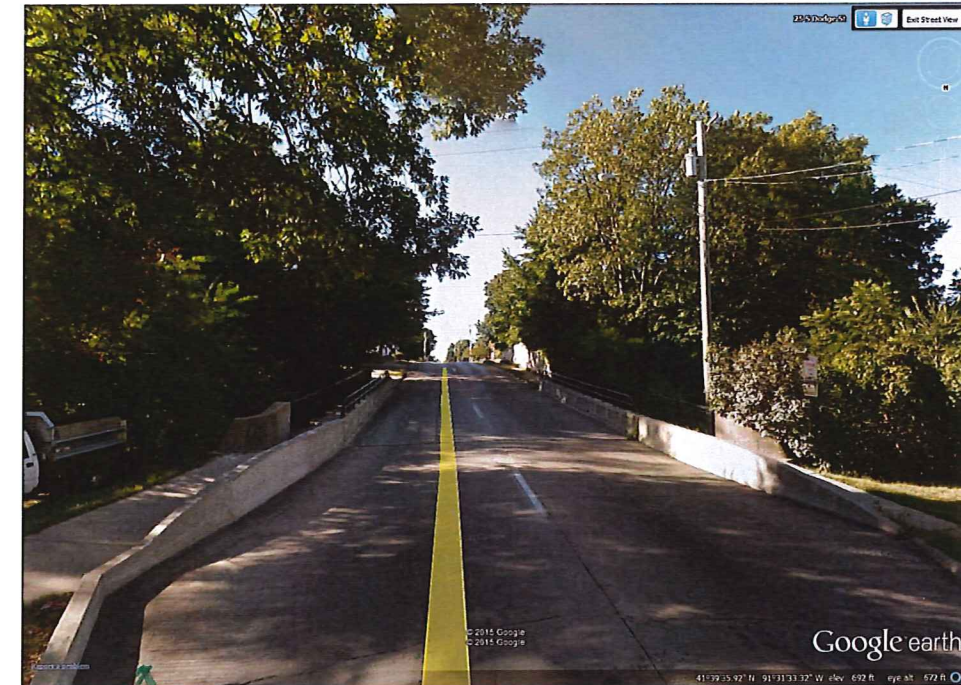
There is a stream gauge sensor attached to the bridge. Prior to construction, the University of Iowa should be contacted so the sensor can be removed. The sensor will then be replaced once the bridge has been completed.

The Office of Location and Environment has reviewed this project and based on preliminary desktop observations, has determined that a Section 404 Permit will be required. It is expected that the work will be covered by Nationwide Permit 14.

F. Program Status

Site data has been developed by the Office of Design. This project is listed in the 2016-2020 Iowa Transportation Improvement Program, with \$800,000 for replacement in FY 2019. Costs for this project may be eligible for bridge replacement funds. A schedule of events will be developed following approval of the Project Concept.

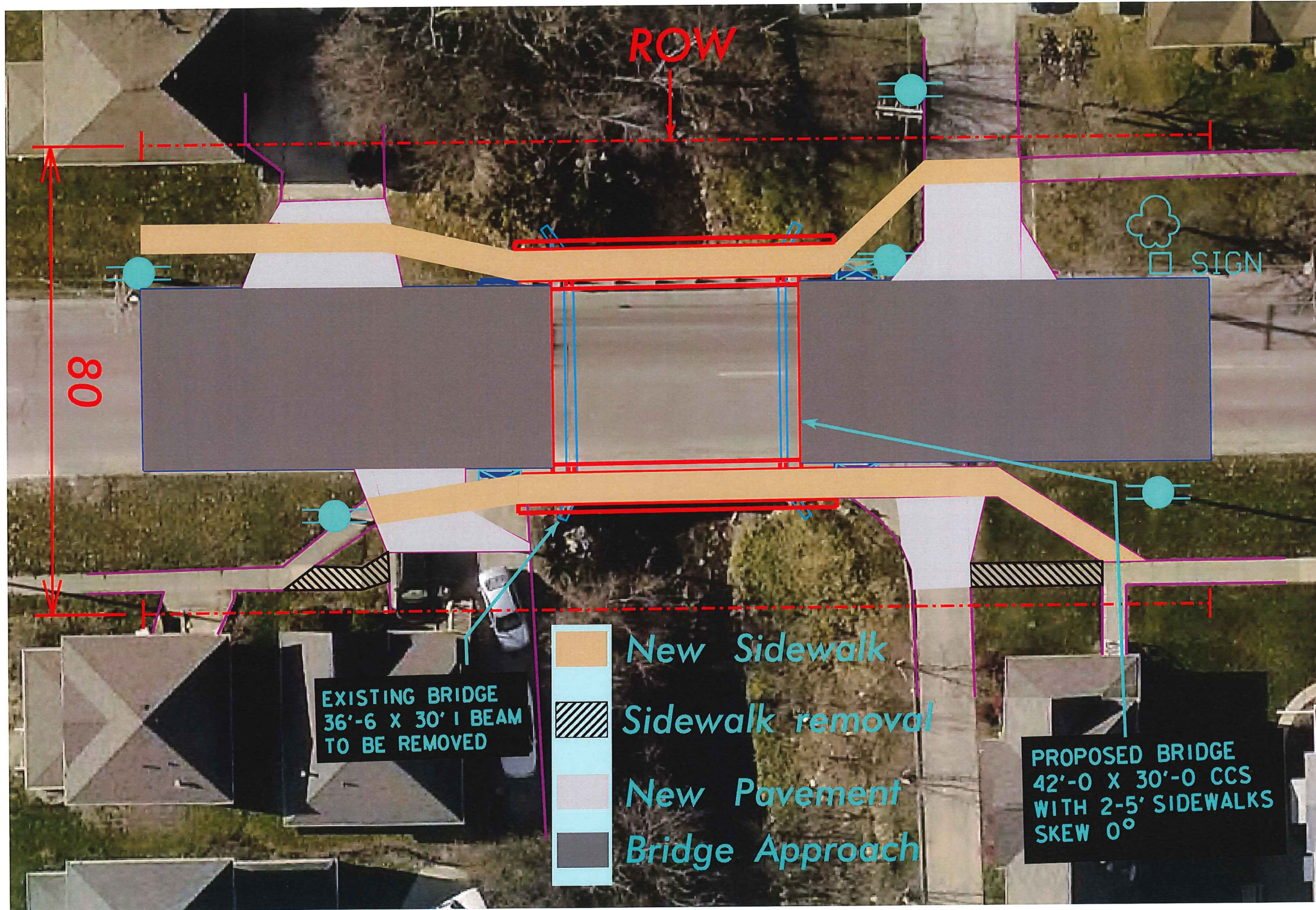
KKP: jmc



Barrier Rail Example

*Use Burlington Street rail*





ROW

80

SIGN

EXISTING BRIDGE  
36'-6 X 30' 1 BEAM  
TO BE REMOVED

PROPOSED BRIDGE  
42'-0 X 30'-0 CCS  
WITH 2-5' SIDEWALKS  
SKEW 0°

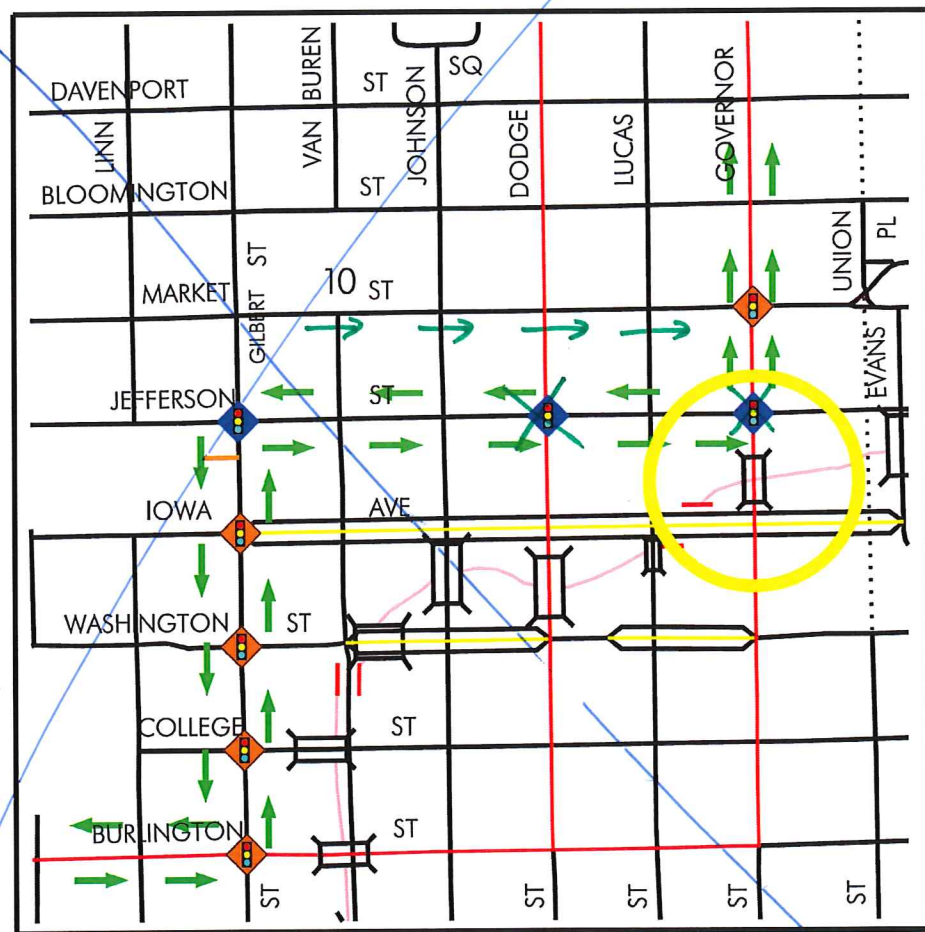
- New Sidewalk
- Sidewalk removal
- New Pavement
- Bridge Approach

← ← ← Existing traffic

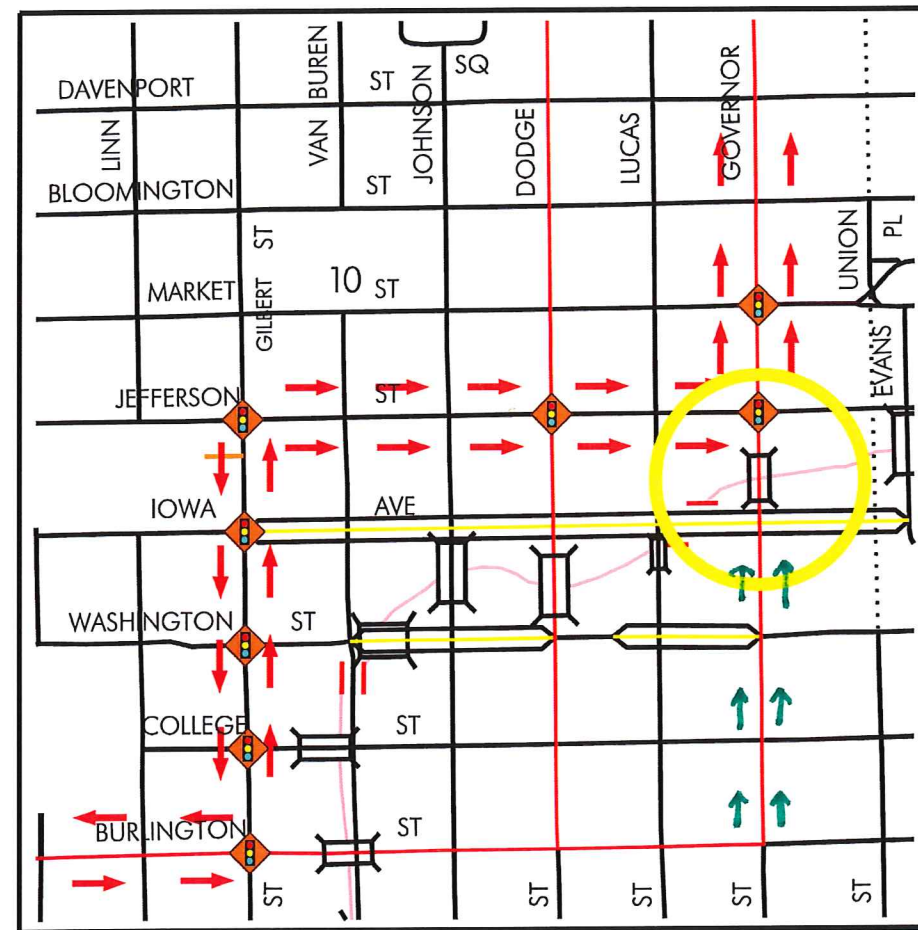
← ← ← Detour

Existing Signals

Existing signalized intersection requiring modification



Proposed Traffic flow



Existing Traffic Flow

<b>Roadway</b>			
<b>PIN Number</b>	14-52-001-010	<b>Submittal Date</b>	
<b>Project Number</b>	BRF-001-5(106)--38-52	<b>Approval Date</b>	
<b>District</b>	District 6	<b>Assistant District Engineer</b>	Ken Yanna
<b>County</b>	Johnson (52)	or	
<b>Route</b>	001	<b>Office Director</b>	
<b>Location</b>	Ralston Creek 2.3 mi S of I-80 (NB)		
<b>Work Type</b>	Bridge-Unspecified		
<b>Segment Manager</b>	Jason Holst		
<b>Designer</b>	Michael Bennett		
Design Manual Section <a href="#">1C-1</a> last update: 05-06-14	<b>Urban Two-Lane Roadways (Urban Arterials)</b>		
<b>Design Element</b>	<b>Preferred</b>	<b>Acceptable Criteria</b>	<b>Project Values</b>
Design speed (mph)	The anticipated posted speed limit	30	30
Maximum superelevation rate (Refer to Section <a href="#">2A-2</a> )	4%	6%	N/A
Design lane width (ft)	12	11	12
Full depth paved width (ft)	Design lane width + curb and gutter unit or 14 feet for roadways with shoulders	Match design lane width	31
Right turn lane (ft)	12	10	N/A
Left turn lane (ft)	With raised or painted median	12 ft + median	10 ft + median
	With depressed median	12	10
Two-way left turn lane	14	11	N/A
Parking lane width (ft)	10	7	2.5
Pavement cross-slope (on tangent sections)	Through lanes	2%	1.5% minimum, 2% maximum
	Auxiliary and turn lanes	3%	3% maximum
	Crown break at centerline	4%	4% maximum
Shoulder cross-slope (on tangent sections)	Shoulders	4%	Shoulder cross-slope cannot be less than the adjacent lane, 6% max for paved or granular shoulders, 8% max for earth shoulders
	Curb and gutter units	Match pavement cross-slope	6% maximum
	Parking lanes	1% greater than pavement cross-slope	6% maximum
Curb type (See Section <a href="#">3C-2</a> )	Design speed ≤ 45 mph	6-inch standard	any shape
Foreslope (For fill areas greater than 40 ft, contact the Soils Design Section for assistance)	Adjacent to shoulder	10:1 for 4' then 6:1	3:1
	Beyond standard ditch depth and design clear zone	3.5:1	3:1
	Curbed roadways	2%	not steeper than 3:1
Backslope (For cut areas greater than 25 feet, contact the Soils Design Section for assistance with backslope benches.)		3:1	2.5:1
Traverse Slopes	w/ drainage structures	8:1	6:1
	w/o drainage structures	10:1	6:1
Ditches (See Section <a href="#">3G-1</a> )	Outside ditch (depth x width) (ft)	5 x 10	--
Bridge width—new	Bridge length ≤ 200 ft	design lane widths + effective shoulder widths or curb-to-curb width	design lane widths + effective shoulder widths or curb-to-curb width
	Bridge length > 200 ft	design lane widths + effective shoulder widths or curb-to-curb width	Curb-to-curb width or design lane widths + 4 ft offset each side for roadways with shoulders
Bridge width—existing		design lane widths + no less than 2 ft left and right	design lane widths + 2 ft left and right
Vertical clearance (ft) (above lanes, shoulders and 25 feet left and right of the center of railroad tracks)	Over primary	16.5	16
	Over non-primary	16.5 at interchange locations, 15 at all other locations	14
	Over railroad	23.3	23.3
	Sign trusses and pedestrian bridges	17.5	17
Structural Capacity	Contact Office of Bridges and Structures		Contact Office of Bridges and Structures
Level of Service	C	D	B

Urban Two-Lane Roadways (Urban Arterials)

Roadway Design Speed (mph) =													
Design Manual Section <a href="#">1C-1</a> last update: 05-06-14			Design Criteria for Low Speed Roadways										
Design Element	Preferred Criteria					Acceptable Criteria					Project Values		
	Design Speed, mph					Design Speed, mph							
	25	30	35	40	45	25	30	35	40	45			
Stopping sight distance (ft) (Refer to Section <a href="#">6D-1</a> )			155	200	250	305	360	155	200	250	305	360	200
Minimum horizontal curve radius (ft) and superelevation rate (Refer to Sections <a href="#">2A-2</a> and <a href="#">2A-3</a> )	Method 2 superelevation and side friction distribution	e = 4% max	See Table 10 in Section <a href="#">2A-3</a>					-					N/A
	Method 5 superelevation and side friction distribution	e <sub>max</sub> = 6%	144	231	340	485	643	144	231	340	485	643	N/A
		e <sub>max</sub> = 8%	--	--	-	-	-	134	214	314	444	587	N/A
Minimum vertical curve length (ft) (Refer to Section <a href="#">2B-1</a> )			75	90	105	120	135	75	90	105	120	135	100
Minimum rate of vertical curvature (K) (Refer to Section <a href="#">2B-1</a> )	crest vertical curves		12	19	29	44	61	12	19	29	44	61	N/A
	sag vertical curves	roadways without fixed-source lighting	26	37	49	64	79	26	37	49	64	79	N/A
		roadways with fixed-source lighting	26	37	49	64	79	14	20	27	35	44	34
Minimum gradient (%)	(Refer to Section <a href="#">2B-1</a> )		0.5					0.3% with a curb, 0.0% without a curb					0.46
Maximum gradient (%)	(Refer to Section <a href="#">2B-1</a> )		5					-	9	8	8	7	2.5
	Rural roadways							-	-	-	6	6	N/A
Clear zone			See "Preferred Clear Zone" table in Section <a href="#">8A-2</a>					See "Acceptable Clear Zone" table in Section <a href="#">8A-2</a>					14



FIELD EXAM QUESTIONS:

Clearing and grubbing? UNIT / AREA

\* Note any special features not shown on plans. Existing storm sewer that runs from Jefferson St.

Do any of the utilities need to be relocated (power/telephone poles)? Permanently or temporarily? Yes. Coordinate with 3 R project

Are there any endangered species in the area? ?

Are there any wetland impacts or any other environmental issues? ?

Are there existing drainage problems? Review

UAC existing sanitary sewer access? Is abandoned sanitary sewer in area? - Yes, if profile grade matches  
No?

Extend southwest sidewalk to connect to existing sidewalk? Yes - requested by the City

Sidewalk/entrances on east side: place sidewalk adjacent to back of curb?

Has existing pavement been overlaid? Yes, HMA in poor condition

Height of existing curb? Varies

Existing EF joint location? 20'

Does proposed bridge approach need a modified design? Review

Should vibration monitoring be included? Yes

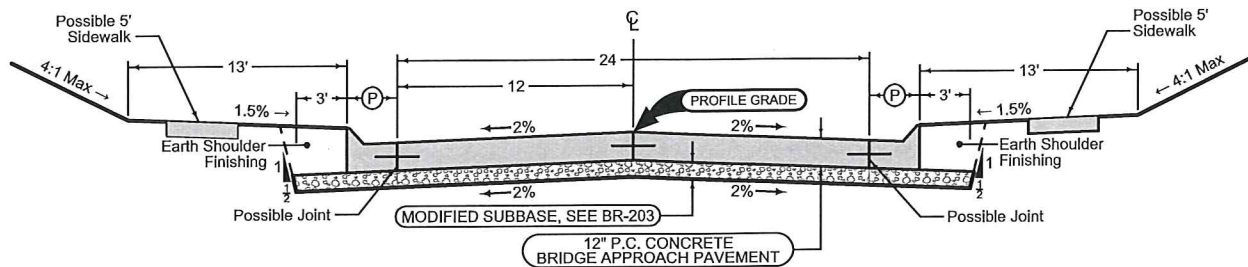
Coordination of stream gauge removal and replacement? Coordinate with University of Iowa

**Curbed Shoulder**

Shoulder Jointing:  
 Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2  
 Staged : KT-2  
 Transverse:C at 20' spacing

STATION TO STATION		(P) Feet	Curb Type See PV-102
2+09.00	2+79.00	<del>2+79.00</del>	3.5
3+21.00	3+91.00	<del>3+91.00</del>	3.5



Mainline Jointing:  
 Transverse joints: CD at 20' spacing  
 Longitudinal joint: L-2

STATION TO STATION	
2+09.00	2+79.00
3+21.00	3+91.00

**Curbed Shoulder**

Shoulder Jointing:  
 Longitudinal joint not required when distance from back of curb to nearest joint is less than 15':

Single pour: L-2  
 Staged : KT-2  
 Transverse:C at 20' spacing

STATION TO STATION		(P) Feet	Curb Type See PV-102
2+09.00	2+79.00	<del>2+79.00</del>	3.5
3+21.00	3+91.00	<del>3+91.00</del>	3.5

*20' HMA transition panel to tie into  
 new HMA*

See Tab 100-24 or 100-25 for pavement quantities.  
 See Tab 112-9 for shoulder quantities.

IA 1

**SURVEY SYMBOLS**

*Need survey symbols into*

**UTILITY LEGEND**

CenturyLink  
Local Fiber Optic  
Steven Parker  
2103 E. University Ave. 1st Floor  
Des Moines, IA 50317  
515-265-0698

City of Iowa City  
Sanitary Sewer; Water  
410 E. Washington Street  
Iowa City, IA 52240  
319-356-5438

Mediacom  
Cable TV  
Kevin Fountain  
546 Southgate Avenue  
Iowa City, IA 52240  
319-351-0408

MidAmerican Energy Company  
Electric Distribution  
Adam Streeter  
260 Fairview Avenue  
Waterloo, IA 50703  
319-291-4742

MidAmerican Energy Company  
Gas Distribution  
Jennifer Kinney  
602 D Avenue NW  
Cedar Rapids, IA 52405-3822  
319-298-5156

**PLAN VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS**

LINEWORK	Design Color No.	
Green	(2)	Existing Topographic Features and Labels
Blue	(1)	Proposed Alignment, Stationing, T1c Marks, and Alignment Annotation
Magenta	(5)	Existing Utilities
SHADING		
	Design Color No.	
Yellow	(4)	Highlight for Critical Notes or Features
Red	(3)	Delineates Restricted Areas
Lavender	(9)	Temporary Pavement Shading
Gray, Light	(48)	Proposed Pavement Shading
Gray, Med	(80)	Proposed Granular Shading
Gray, Dark	(112)	Proposed Grade and Pave Shading "In conjunction with a paving project"
Brown, Light	(236)	Grading Shading
Tan	(8)	Proposed Sidewalk Shading
Blue, Light	(230)	Proposed Sidewalk Landing Shading
Pink	(11)	Proposed Sidewalk Ramp Shading

**PROFILE VIEW COLOR LEGEND OF PLAN AND PROFILE SHEETS**

LINEWORK	Design Color No.	
Green	(2)	Existing Ground Line Profile
Blue	(1)	Proposed Profile and Annotation
Magenta	(5)	Existing Utilities
Blue, Light	(230)	Proposed Ditch Grades, Left
Black	(0)	Proposed Ditch Grades, Median
Rust	(14)	Proposed Ditch Grades, Right

	Reference Point
	Station
	Section Corner
	Ground Line Intercept
	Saw Cut
	Guardrail
	Trench Drain
	HighTension Cable Guardrail
	Sheet Pile
	Pavement Removal
	Clearing & Grubbing Area

**RIGHT-OF-WAY LEGEND**

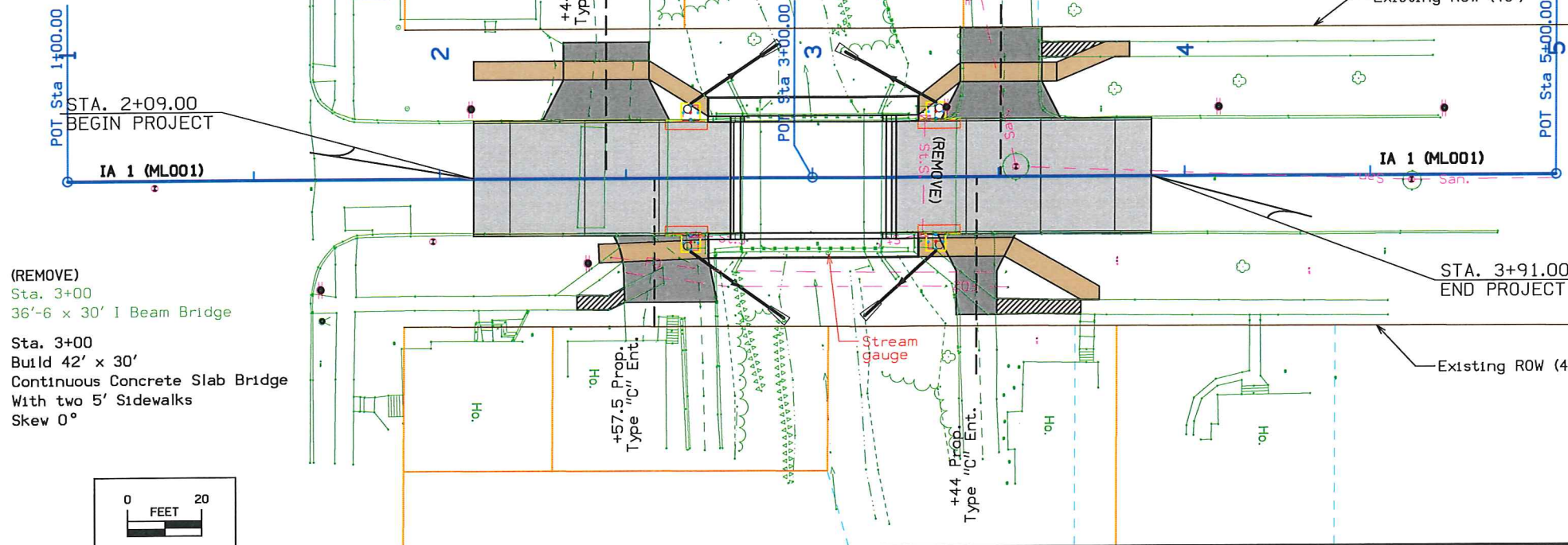
	Proposed Right-of-Way
	Existing Right of Way
	Existing and Proposed Right-of-Way
	Easement and Existing Right-of-Way
	Easement (Temporary)
	Easement
	C/A Access Control
	Property Line

**PLAN AND PROFILE  
LEGEND AND SYMBOL  
INFORMATION SHEET**

(COVERS SHEET SERIES D, E, F, & K)

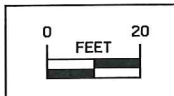


East Lucas TWP.  
T-79N R-6W  
SEC. 12

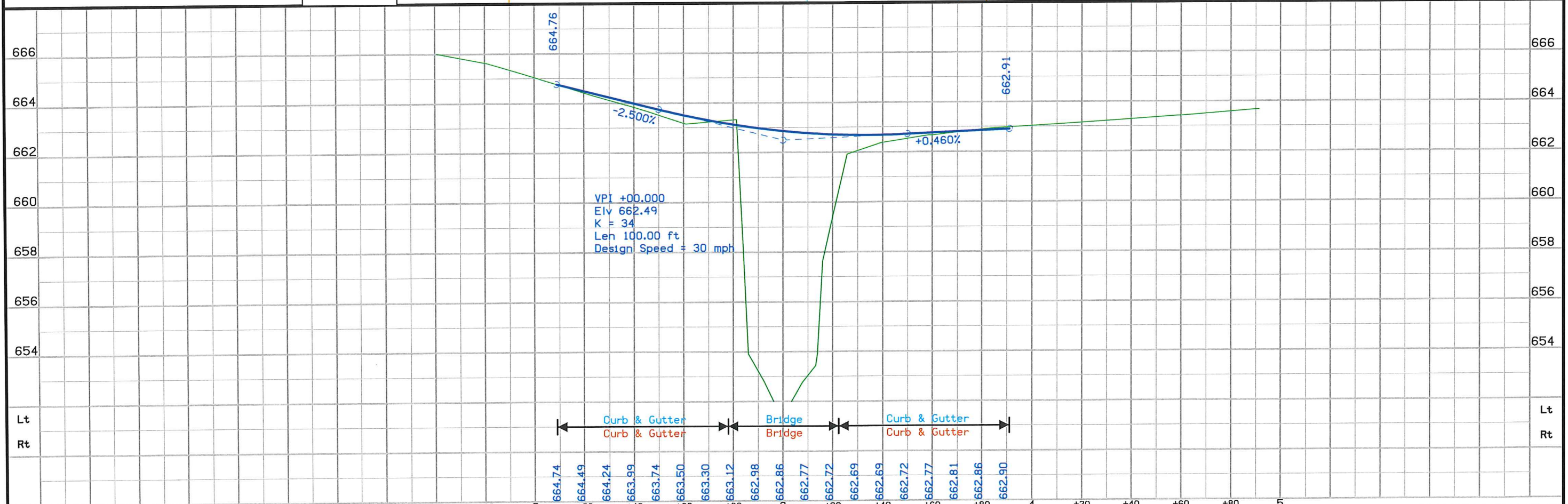


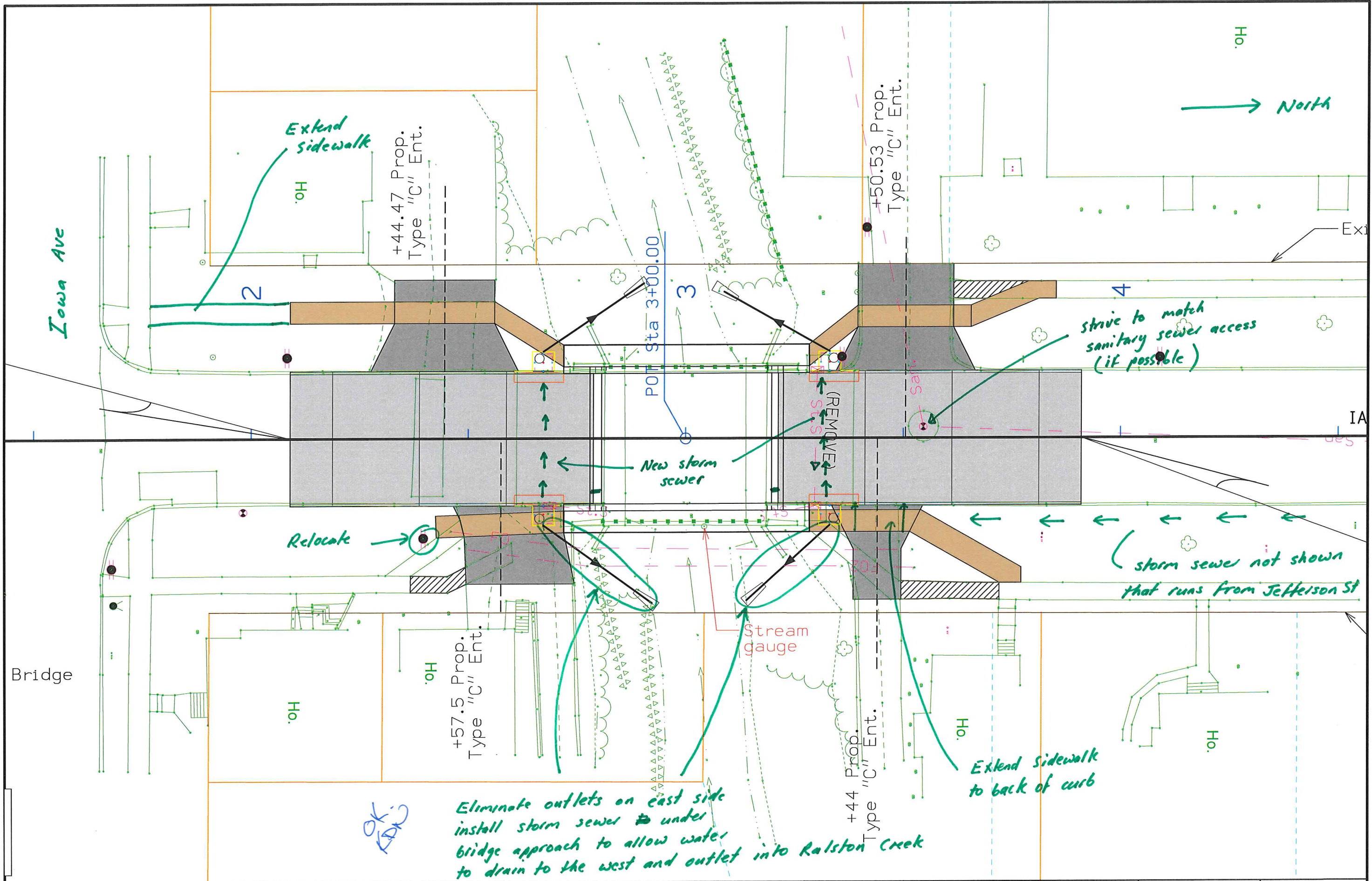
(REMOVE)  
Sta. 3+00  
36'-6" x 30' I Beam Bridge

Sta. 3+00  
Build 42' x 30'  
Continuous Concrete Slab Bridge  
With two 5' Sidewalks  
Skew 0°



*(See next page  
for F.E. Comments)*





## Survey Information

### General Information

Measurement units for this survey are US survey feet. This survey is for the replacement of the Iowa Highway 1 northbound bridge (Maintenance No. 5287.2R001) over Ralston Creek, 2.3 miles south of I-80 in Iowa City.

### Vertical Control

Vertical datum for this survey is NAVD88 (Computed using Geoid 12a). The Ellipsoidal Height was computed at on one benchmark by averaging multiple observations with appropriate time span between from nearby Iowa RTN reference Stations. Addition benchmark and elevations on control points were then established using differential leveling.

### Horizontal Control

The project coordinate system for this survey is the Iowa Regional Coordinate System (IaRCS) Zone 10 (U.S. Survey Feet). The survey control is relative to IaRTN reference stations.

### Alignment Information

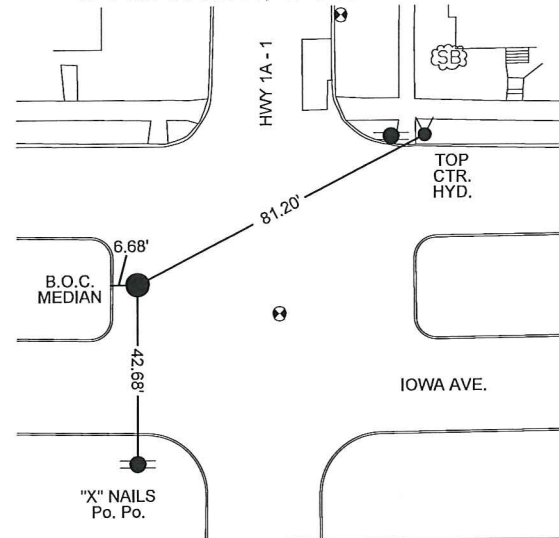
The horizontal alignment for this survey is a retrace of As-built plans City of Iowa city Proposed Improvement on Governor Street 36'-6" x 30'-0" Steel Beam Bridge (Shiver-Hattery and Associates) June 1978.



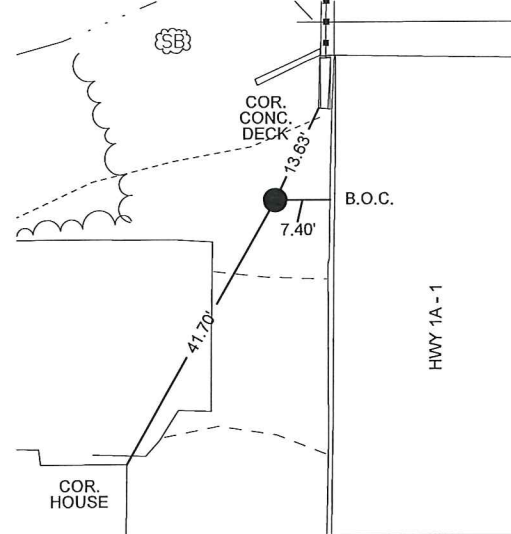
## VERTICAL CONTROL

Point	North	East	Elevation	Station	Offset	Feature	Description
BM1	7937343.480	20539343.303	669.730	1+68.21	38.064	BM	TOP CENTER BOLT OF HYD AT NE COR OF HWY 1 AND IOWA AVE
BM2	7937767.000	20539348.000	667.990	Off Chain	Off Chain	BM	TOP CENTER BOLT OF HYD AT NE COR OF HWY 1 AND JEFFERSON ST

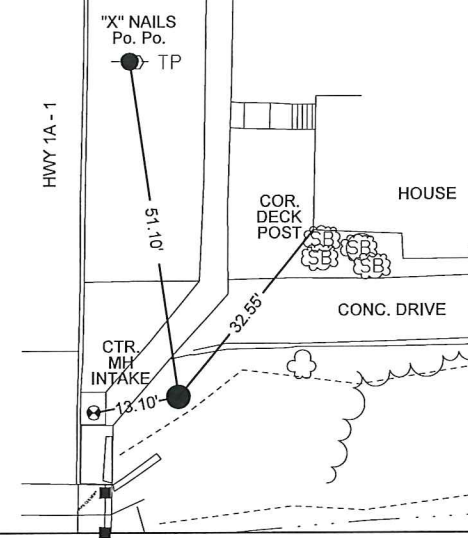
C.P. STA. 1+30.53, Lt. 33.78  
 C.P. G1, SET 1/2 IN X24 IN REBAR  
 N=7937306.299, E=20539271.200



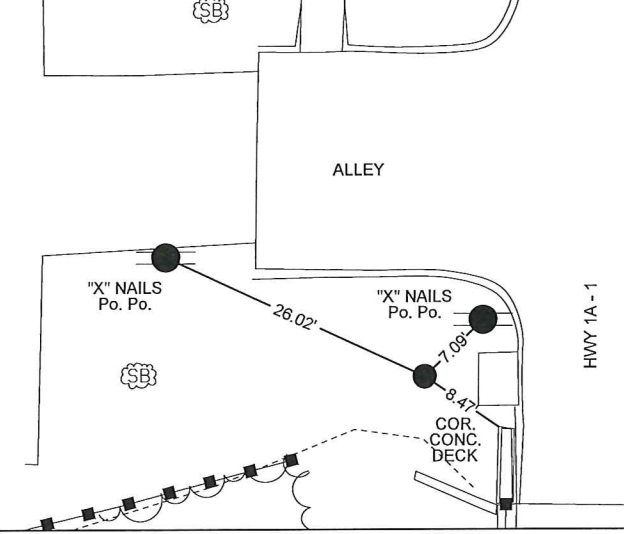
C.P. STA. 2+61.67, Lt. 23.13  
 C.P. G2, SET 1/2 IN X24 IN REBAR  
 N=7937437.368, E=20539282.770



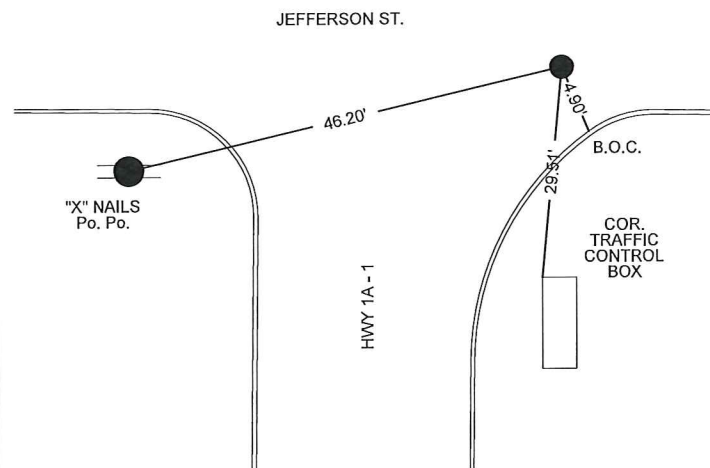
C.P. STA. 3+31.70, Rt. 29.93  
 C.P. G3, SET 1/2 IN X24 IN REBAR  
 N=7937507.021, E=20539336.320



C.P. STA. 3+30.54, Lt. 24.12  
 C.P. G4, SET 1/2 IN X24 IN REBAR  
 N=7937506.246, E=20539282.260



C.P. STA. OffChain, Rt.  
 C.P. G5, SET 1/2 IN X24 IN REBAR  
 N=7937710.974, E=20539335.770



108-23A  
08-01-08

**TRAFFIC CONTROL PLAN**

Access to all properties shall be maintained at all times.

*No! Vehicular access to properties will not be maintained. Pedestrian access will however be maintained at all times*

Traffic on IA 1 shall be maintained via off-site detour.

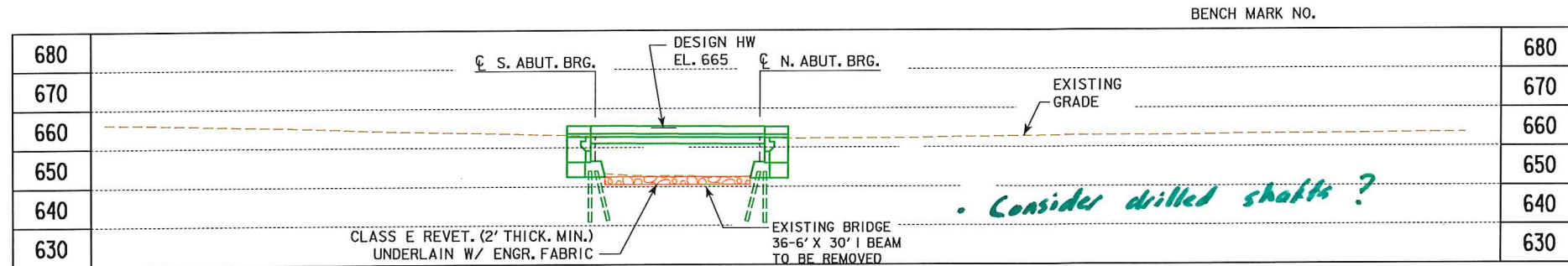
Installation, maintenance, and removal of the detour signs are the responsibility of the contractor. Refer to sheet J.x. The detour route signs will be provided by the DOT.

*2 Detour signs will be installed by the contractor.*

108-25  
10-21-14

**511 TRAVEL RESTRICTIONS**

Route	Direction	County	Location Description	Feature Crossed	Object Type	Maint. Bridge No., Structure ID, or FHWA No.	Type of Restriction	Existing Measurement	Construction Measurement	Construction Measurement as Signed	Projected As Built Measurement	Remarks
IA 1	NB	Johnson	M.P. 87.20	Road Closure								



LONGITUDINAL SECTION ALONG  $\phi$  APPROACH ROADWAY

**HYDRAULIC DATA**

DRAINAGE AREA = 7.3 SQ. MI.  
 STREAM SLOPE = 19.9 FT./MI.  
 AVG. LOW WATER STAGE = ????.?

Q<sub>50</sub> = 4,000 CFS  
 STAGE =  
 BACKWATER = FT.  
 AVG. BRIDGE VELOCITY = FPS

Q<sub>100</sub> = 5,000 CFS  
 STAGE =  
 BACKWATER = FT.  
 AVG. BRIDGE VELOCITY = FPS

Q<sub>200</sub> = CFS  
 STAGE =  
 CALCULATED DESIGN SCOUR = ????.?

Q<sub>500</sub> = 8,000 CFS  
 STAGE =  
 CALCULATED CHECK SCOUR = ????.?

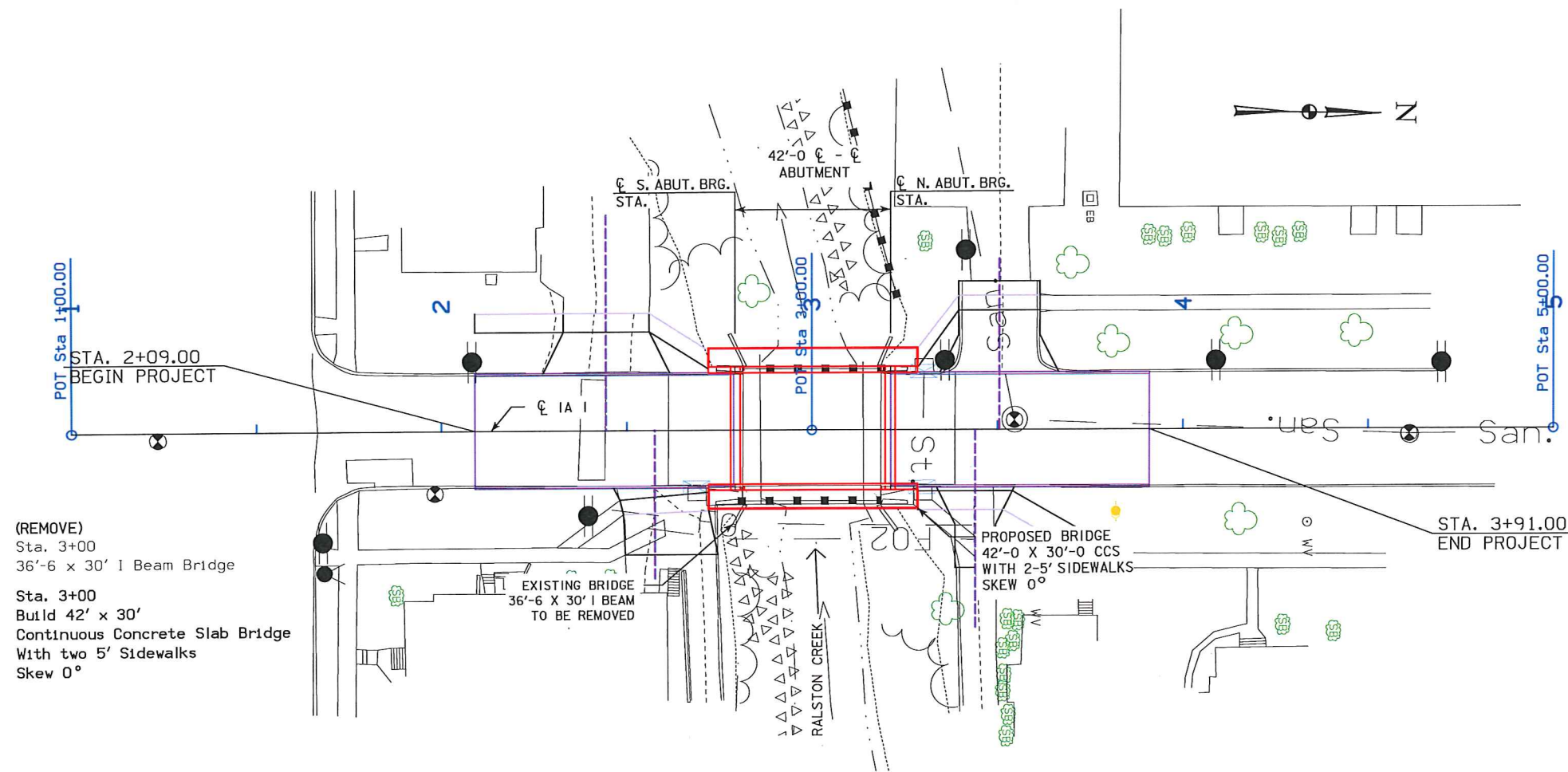
ROADWAY OVERTOP 662.4  
 STA. ???+??

**LOCATION**

IA 1 OVER RALSTON CREEK  
 T-79N R-6W  
 SECTION 10  
 EAST LUCAS TOWNSHIP  
 JOHNSON COUNTY  
 BRIDGE MAINT. NO. 5287.2R001  
 LATITUDE °  
 LONGITUDE °

**TRAFFIC ESTIMATE**

2019 AADT	7,170	V.P.D.
2039 AADT	9,100	V.P.D.
2039 DHV	940	V.P.H.
TRUCKS	4	%
TOTAL DESIGN ESALs		



SITUATION PLAN

(REMOVE)  
 Sta. 3+00  
 36'-6" x 30' I Beam Bridge

Sta. 3+00  
 Build 42' x 30'  
 Continuous Concrete Slab Bridge  
 With two 5' Sidewalks  
 Skew 0°

PROPOSED BRIDGE  
 42'-0" X 30'-0" CCS  
 WITH 2-5' SIDEWALKS  
 SKEW 0°

EXISTING BRIDGE  
 36'-6" X 30' I BEAM  
 TO BE REMOVED

D2

DESIGN FOR 0° SKEW  
**42'-0" X 30'-0"**  
**CONTINUOUS CONCRETE SLAB BRIDGE**  
**WITH 2-5' SIDEWALKS**  
**SITUATION PLAN**

STATION \_\_\_\_\_ AUGUST 2016  
**JOHNSON COUNTY**  
 IOWA DEPARTMENT OF TRANSPORTATION - HIGHWAY DIVISION  
 DESIGN SHEET NO. \_\_\_\_\_ OF \_\_\_\_\_ FILE NO. \_\_\_\_\_ DESIGN NO. \_\_\_\_\_