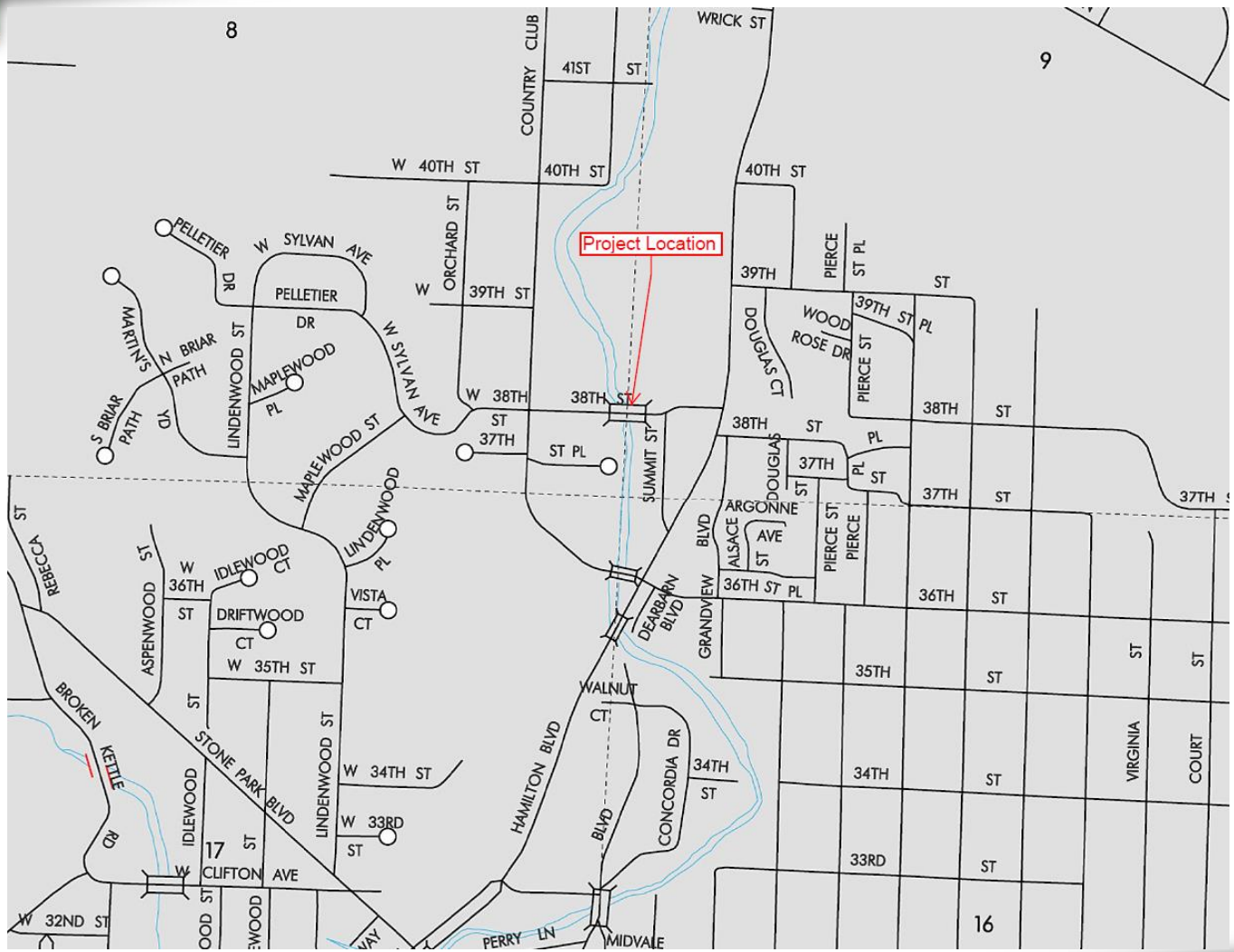
City of Sioux City

38th Street Bridge Replacement


Project Location
8
9
17
16
WRICK ST
COUNTRY CLUB
41ST ST
W 40TH ST
40TH ST
ORCHARD ST
W 39TH ST
39TH ST
PIERCE ST PL
PELLETIER DR
W SYLVAN AVE
PELLETIER DR
SAINT MARTINS N BRIAR PATH
S BRIAR PATH
LINDENWOOD ST
MAPLEWOOD PL
W SYLVAN AVE
MAPLEWOOD ST
W 38TH ST
38TH ST
37TH ST PL
SUMMIT ST
DOUGLAS CT
WOOD ROSE DR
PIERCE ST
38TH ST
37TH ST
ARGONNE BLVD
ALSACE AVE
PIERCE ST
PIERCE
36TH ST PL
36TH ST
REBECCA ST
ASPENWOOD ST
W 36TH ST
IDLEWOOD CT
DRIFTWOOD CT
VISTA CT
LINDENWOOD PL
W 35TH ST
GRANDVIEW
DEARBORN BLVD
35TH ST
BROKEN KETTLE RD
STONE PARK BLVD
LINDENWOOD ST
IDLEWOOD ST
W 34TH ST
W 33RD ST
W CLIFTON AVE
WALNUT CT
HAMILTON BLVD
CONCORDIA DR
34TH ST
33RD ST
VIRGINIA
COURT
W 32ND ST
PERRY LN
MIDVALE

Existing Bridge

Existing Bridge

Existing Bridge

Design Parameters

- Hydraulic Requirements
  - Less than 1.5 feet of backwater for Q_{100} Event
  - Less than 9 inches of backwater for lesser flood Events
  - No rise in backwater from existing conditions
- Existing Site Conditions (Reduce Impacts to Neighboring Property Owners)
- Proposed Future Improvements (Improved Channel Efficiency)

Replacement Options

- Continuous Concrete Slab Bridge
- Pretensioned Prestressed Concrete Beam Bridge
- Earth Filled Arch Bridge
- Open Spandrel Arch Bridge
- Reinforced Concrete Box Culvert

Continuous Concrete Slab Bridge

- Least amount of structural depth and most efficient.
- Requires no grade raise and results in shorter bridge and project length.

Pretensioned Prestressed Concrete Beam Bridge

- Deeper superstructure than concrete slab.
- Requires grade raise and increased project length.

Earth Filled Arch Bridge

- Substructure of arch restricts stream and will increase backwater.
- Substantial increase in bridge length required to overcome restriction to stream.

Open Spandrel Arch Bridge

- Similar to earth filled arch.
- Substantial increase to bridge length required.

Reinforced Concrete Box Culvert

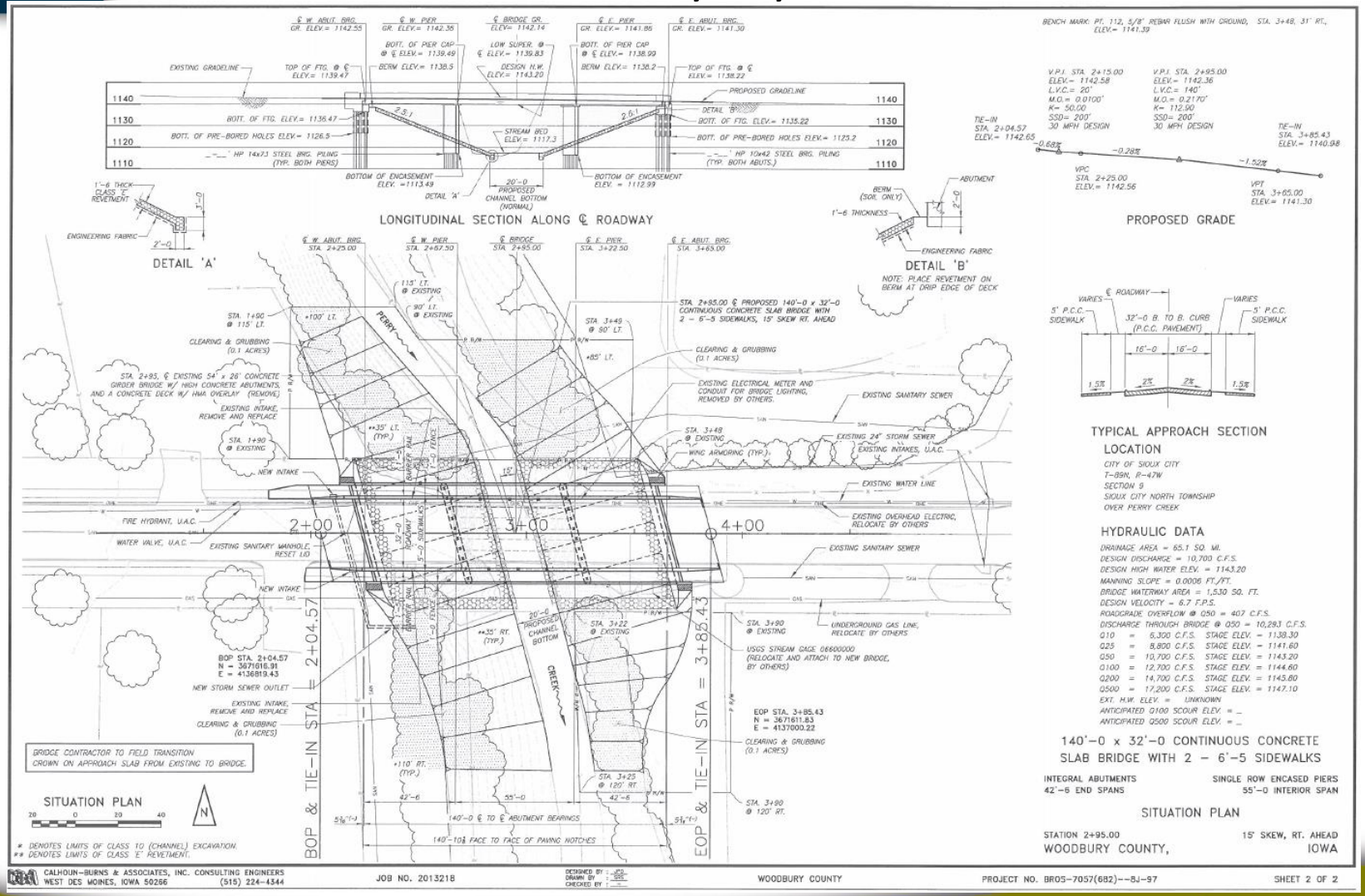
- Not feasible.
- Hydraulic capacity is insufficient.

Option Selected

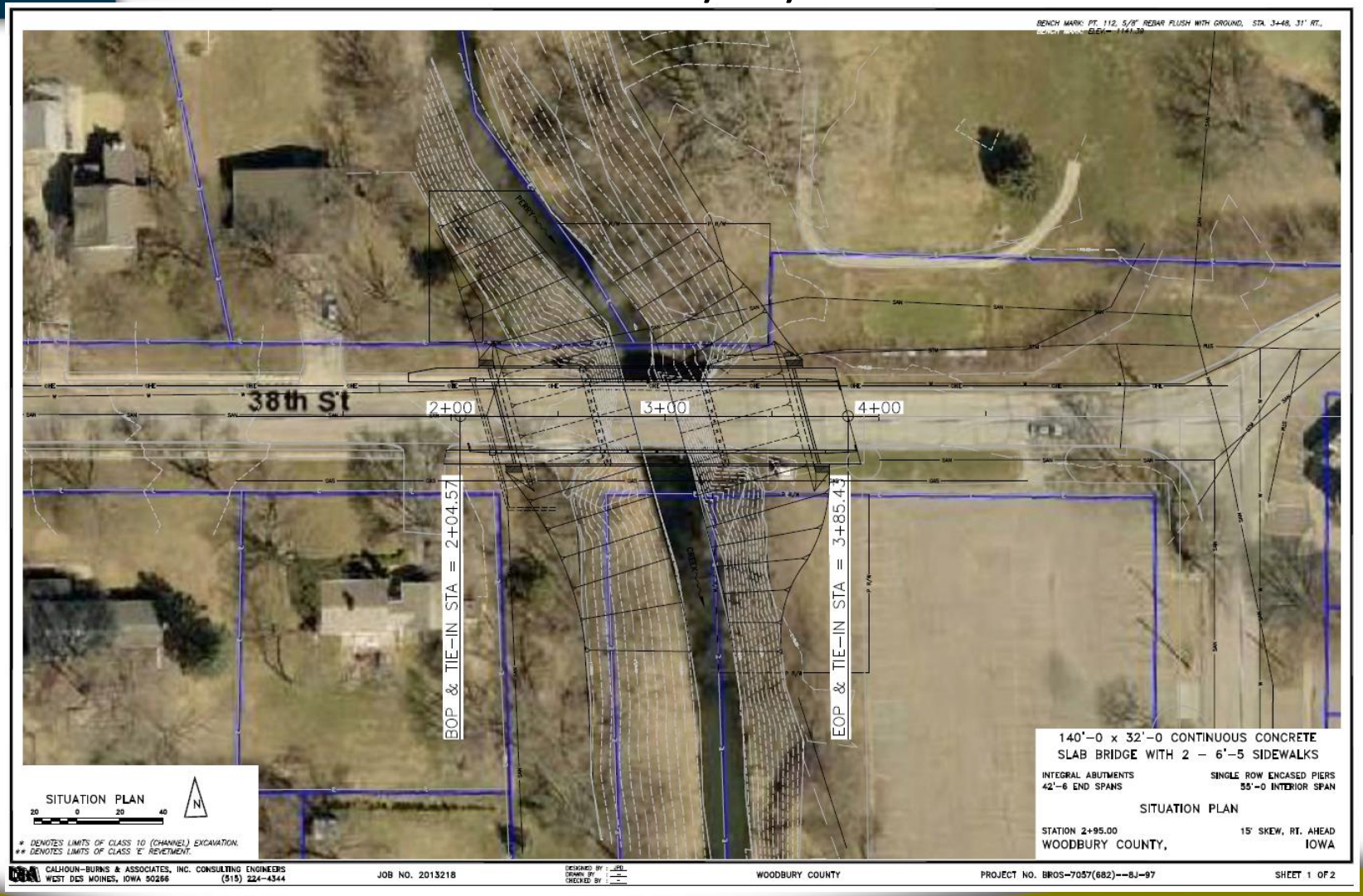
Continuous Concrete Slab Bridge

- Meets Hydraulic Requirements
- Shortest Required Bridge Length
- No Grade Raise Required
- Least Amount of Impact to Neighboring Property Owners
- Lowest Cost

Preliminary Layout



Preliminary Layout



Project Schedule

- Engineering Design: Spring – Summer 2015
- Iowa DOT Letting: October – November 2015
- Construction: Spring – Summer 2016

Stage Construction

- Bridge will be closed during construction.
- Marked detour will direct traffic to Country Club Boulevard.

Property Impacts

- ROW needed from Country Club at NE for stream bank shaping.
- ROW needed from 1 38th St. at NW for stream bank shaping
- ROW needed from 3717 Summit St. for stream bank shaping

Aesthetic Options

- Traffic Rail
- Handrail
- Sidewalk Rail
- Lights

Traffic Rail Options

All options must be Approved Crash Tested Rails

- Standard Barrier Rail (Jersey Rail)
- Open Rail
- Texas Rail

Notes: 1) All rails may be colored if desired.
2) Stone or brick patterns may be stamped in concrete.

Handrail Options

- Steel Pipe – Round Tube
  - galvanized/uncoated or painted/coated
  - top mount or side mount
- Single Rail – Square Tube
- Double Rail with Balusters
- Arcing Rail with Balusters

Notes: 1) Note: Height must meet FHWA Standards
2) Painted/coated rails can be any color.

Sidewalk Rail Options

- Chain Link Fence
  - galvanized/uncoated or vinyl coated
- Standard Rail with Balusters
- Double Rail with Balusters
- Arcing Rail with Balusters

Notes: 1) Note: Height must meet FHWA Standards
2) Painted/coated rails can be any color.

Light Options

- Standard Single on Pilaster
- Double or Triple on Pilaster
- Large Stone Faced Pilaster
- Reuse Existing Lights on New Pilasters

Notes:
1) Poles can be a variety of styles and colors.
2) There are a variety of luminaire styles.
3) Poles may be mounted to the inner or outer rails.

Adair

Traffic Rail: Standard Barrier Rail (Jersey Rail)
Handrail: Steel Pipe (galvanized/uncoated)
Sidewalk Rail: Chain Link Fence (galvanized/uncoated)
Lights: NA – Not mounted on bridge

Corning

Traffic Rail: Open Rail

Handrail: Steel Pipe (painted/coated)

Sidewalk Rail: Chain Link Fence (vinyl coated)

Lights: NA – Not mounted on bridge

Conrad

Traffic Rail: Texas Rail

Handrail: Single Rail (painted/coated)

Sidewalk Rail: Standard Rail with Balusters (painted/coated)

Lights: Standard Single on Pilaster (mounted on exterior rail)

Coon Rapids

Traffic Rail: Texas Rail

Handrail: Double Rail with Balusters (painted/coated)

Sidewalk Rail: Standard Rail with Balusters (painted/coated)

Lights: Standard Single on Pilaster (mounted on interior rail)

Rockford

Traffic Rail: Texas Rail (colored concrete sealer)

Handrail: Single Rail (painted/coated)

Sidewalk Rail: Standard Rail with Balusters (painted/coated)

Lights: Abutments – Standard Single on Pilaster (mounted on exterior rail)

Pier – Triple on Pilaster (mounted on exterior rail)

Centerville

Traffic Rail: Texas Rail (colored concrete sealer)

Handrail: Single Rail (painted/coated)

Sidewalk Rail: Standard Rail with Balusters (painted/coated)

Lights: Standard Single on Pilaster (mounted on exterior rail)

Carlisle

Traffic Rail: Texas Rail (colored concrete sealer)
Handrail: Double Rail with Balusters (painted/coated)
Sidewalk Rail: Standard Rail with Balusters (painted/coated)
Lights: Standard Single on Pilaster (mounted on interior rail)

Sioux City – King's Highway

Traffic Rail: Stone Stamped Barrier

Handrail: Single Rail (painted/color, side mounted)

Sidewalk Rail: Double Rail with Balusters (painted/coated)

Lights: NA – Not mounted on bridge

Sioux City – Hamilton Boulevard

Traffic Rail: Stone Stamped Barrier

Handrail: Single Rail (painted/color, side mounted)

Sidewalk Rail: Double Rail with Balusters (painted/coated)

Lights: NA – Not mounted on bridge

Arnolds Park

Traffic Rail: Texas Rail (colored concrete sealer)

Handrail: Arcing Rail with Balusters (painted/coated)

Sidewalk Rail: Arcing Rail with Balusters (painted/coated)

Lights: Double on Large Stone Faced Pilaster (mounted at corners)

Next Steps

- Additional Meeting to Discuss Aesthetic Features
- Final Selection of Aesthetic Features
- Complete Design