

***FOX ISLAND FLOOD CONTROL
PUBLIC INFORMATIONAL MEETING
PROJECT UPDATE
JANUARY 8, 2018***



Fox Island

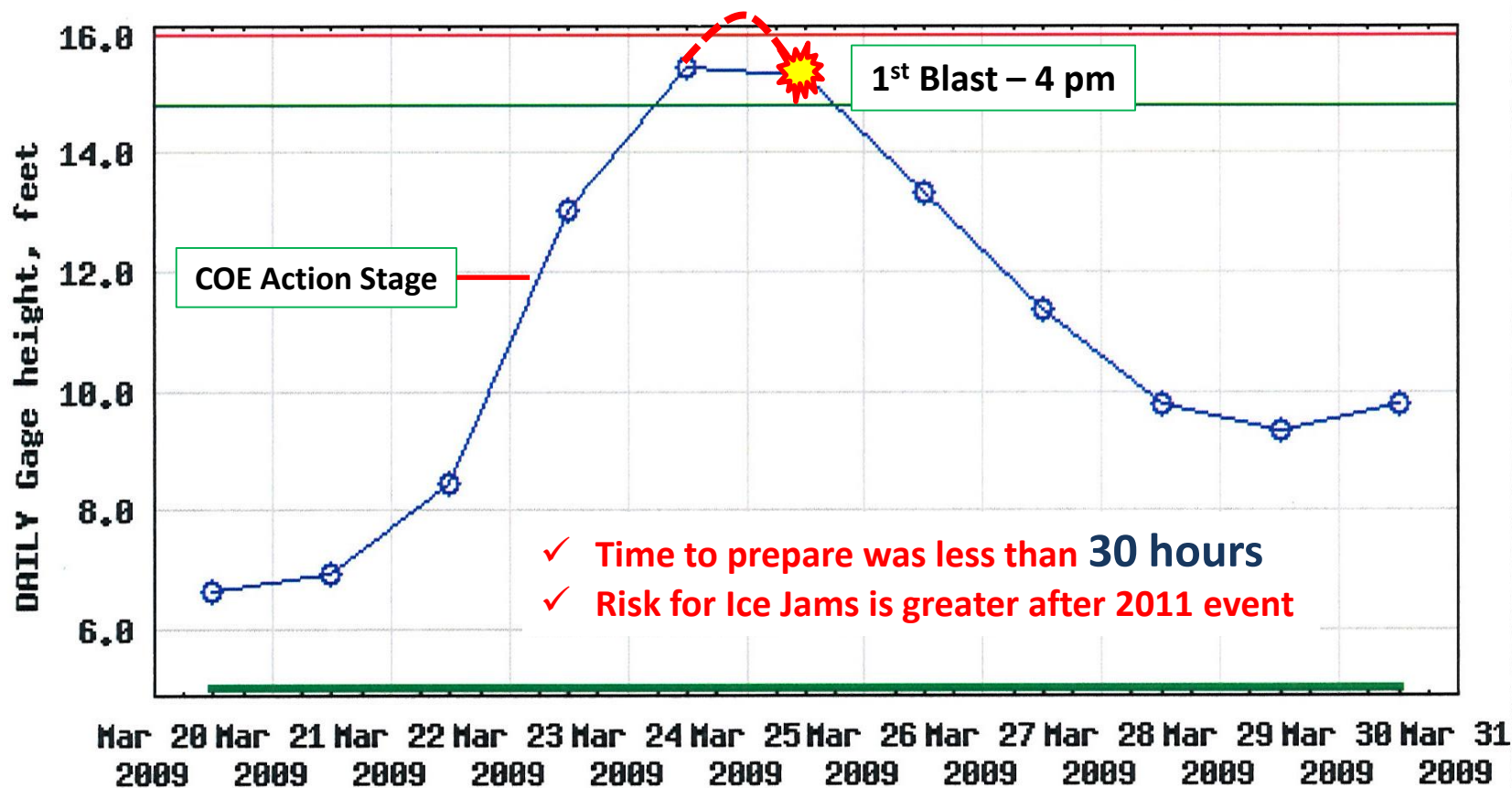
2009 Ice Jam Flood Event

Largest on record since Garrison Dam was closed



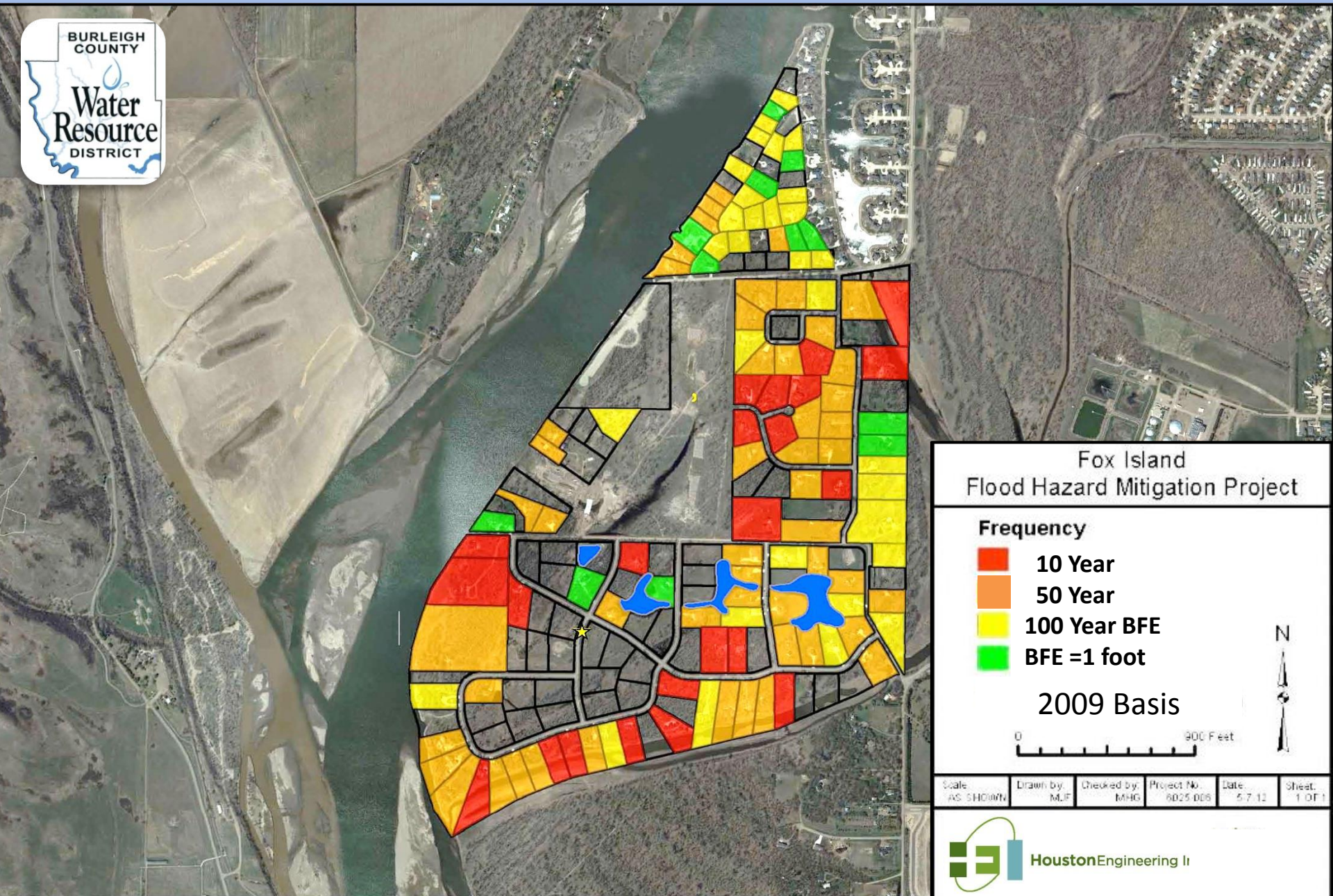
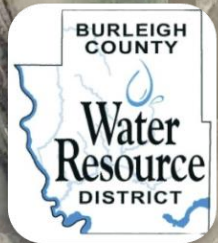
Date: 25MAR09
TOT: 1341Z
Location: South of Bismarck, ND
Latitude: N 46° 45.82' / Longitude: W 100° 50.91'
Object: Missouri River

USGS 06342500 MISSOURI RIVER AT BISMARCK, ND



- Daily mean gage height
- Period of approved data
- National Weather Service Flood Stage
- Peak of record since 1953

Fox Island – Residence Flood Risk Map



Fox Island Flood Hazard Mitigation Project

Frequency

- 10 Year
- 50 Year
- 100 Year BFE
- BFE = 1 foot

2009 Basis

0 900 Feet



Scale: AS SHOWN	Drawn by: MLF	Checked by: MHG	Project No. 6025-005	Date: 5-7-12	Sheet: 1 OF 1
--------------------	------------------	--------------------	-------------------------	-----------------	------------------



HoustonEngineering II



2011 Flood Impacts 19.3 foot stage

**FIGURE 5
UNPROTECTED FLOOD LIMITS
EXISTING CONDITIONS**

19.5 ft stage at the USGS Bismarck Gage

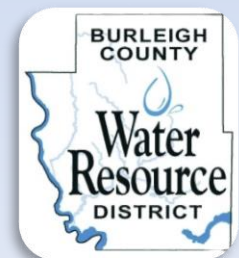
Scale: AS SHOWN	Drawn By: MJF	Checked By: MHG	Project No: 6025-006	Date: 4/3/2012
--------------------	------------------	--------------------	-------------------------	-------------------

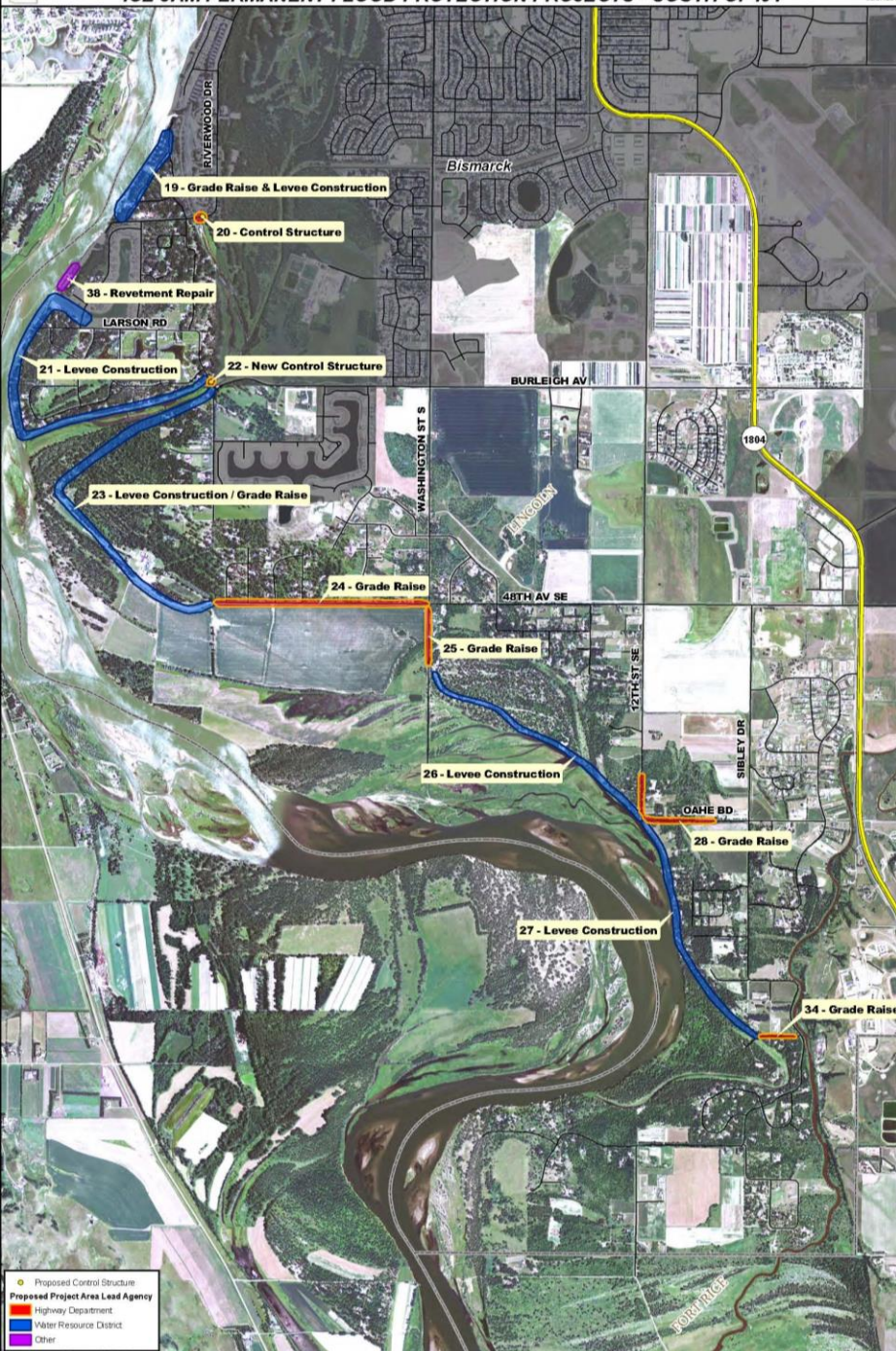


**Houston
Engineering Inc.**

Bismarck

P: 701.323.0200
F: 701.323.0300









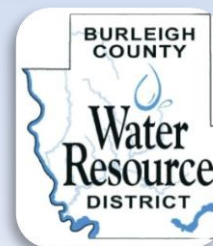
Burleigh County

20 Foot Protection Plan

South Side Measures

*0.7 freeboard based on
2011 flood elevations - **Objective**
To protect all properties practical!*

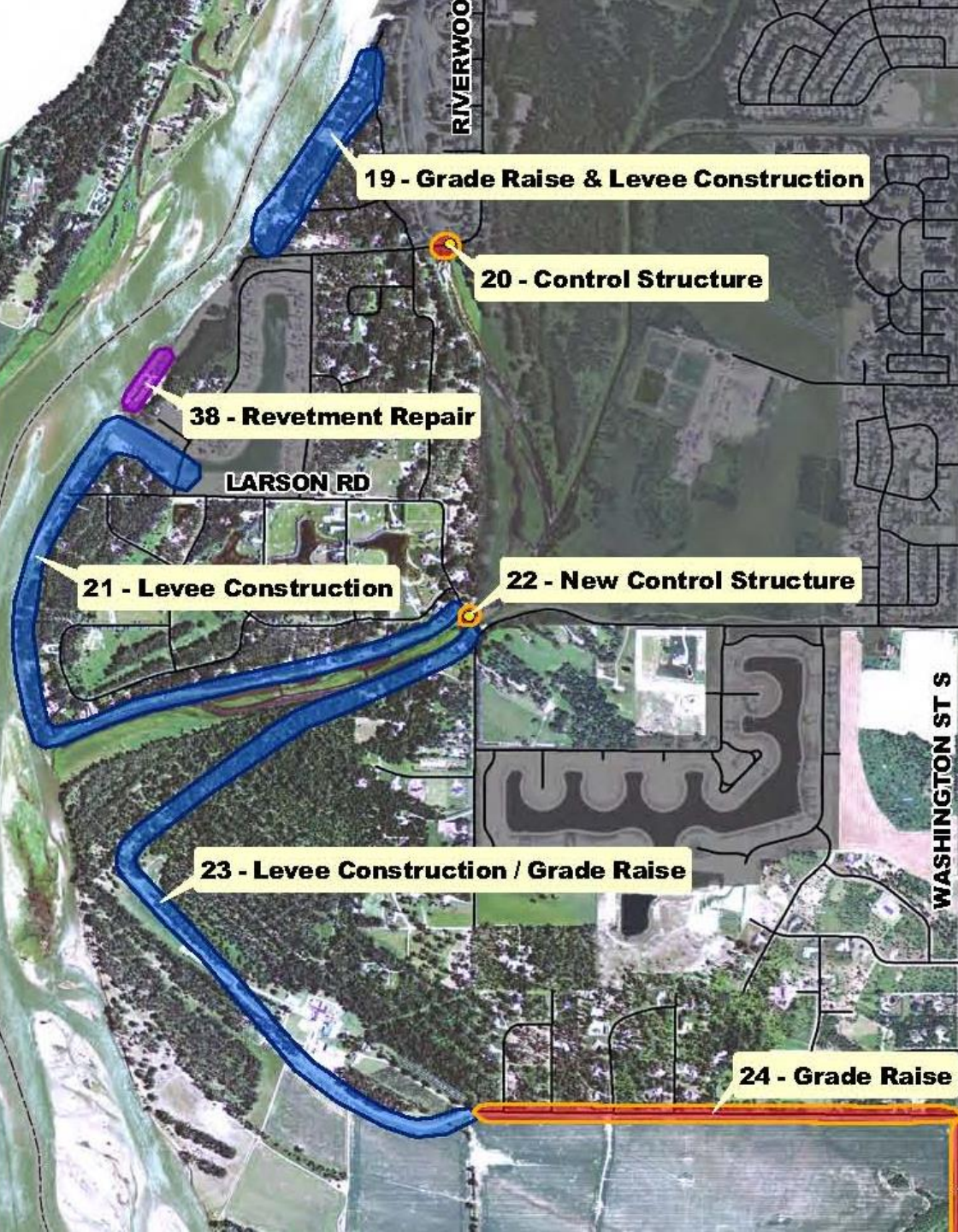
 Proposed Control Structure
Proposed Project Area Lead Agency
 Highway Department
 Water Resource District
 Other



Burleigh County **20 Foot Protection Plan**

(21) Fox Island

(23) MRCC – Completed 2017



● Proposed Control Structure

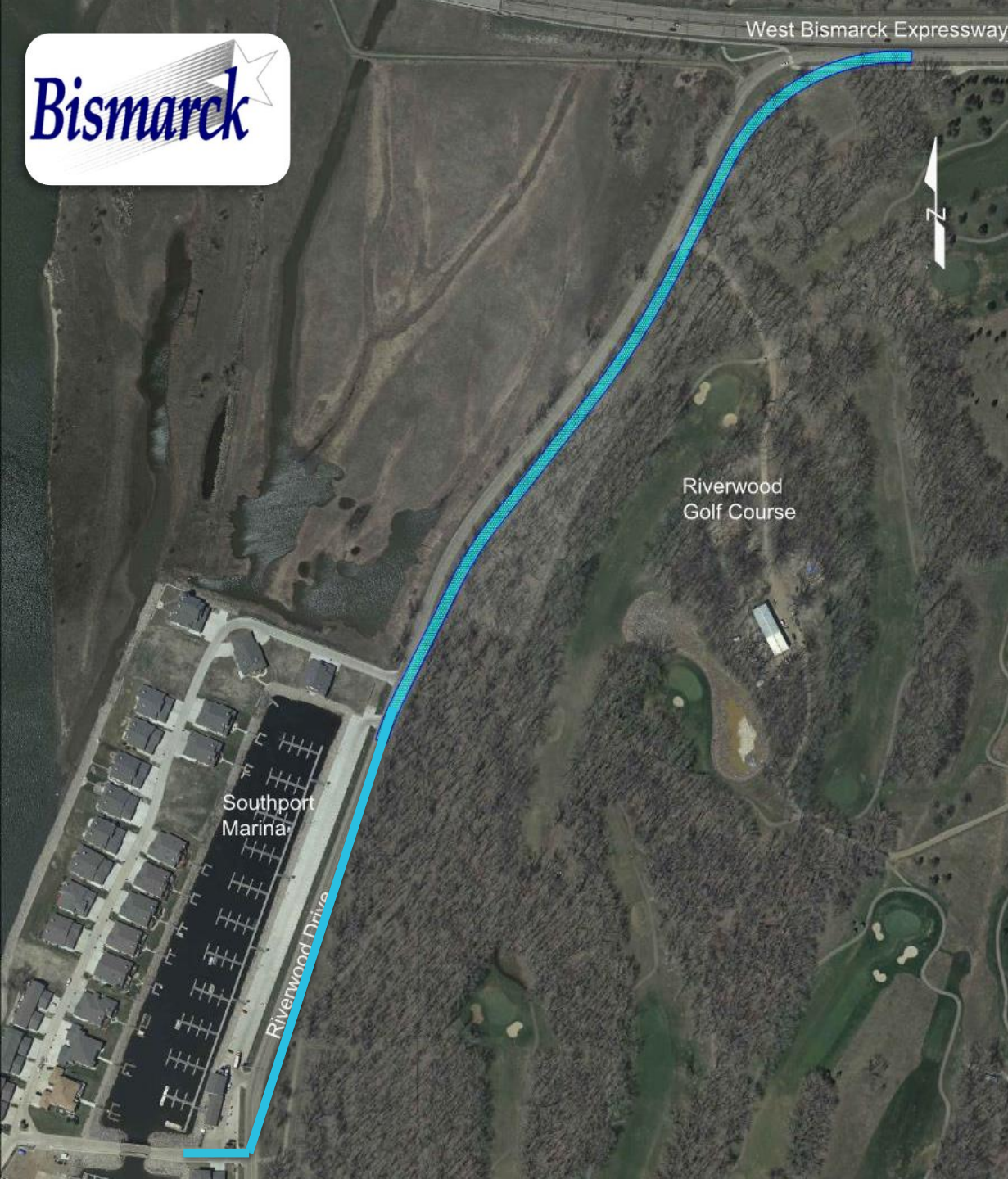
Proposed Project Area Lead Agency

Highway Department

Water Resource District

Other





***Riverwood Drive
Grade Raise
Bismarck Expressway
to Southport Loop***

Project Completed

Mills Avenue Grade Raise *Project Completed*

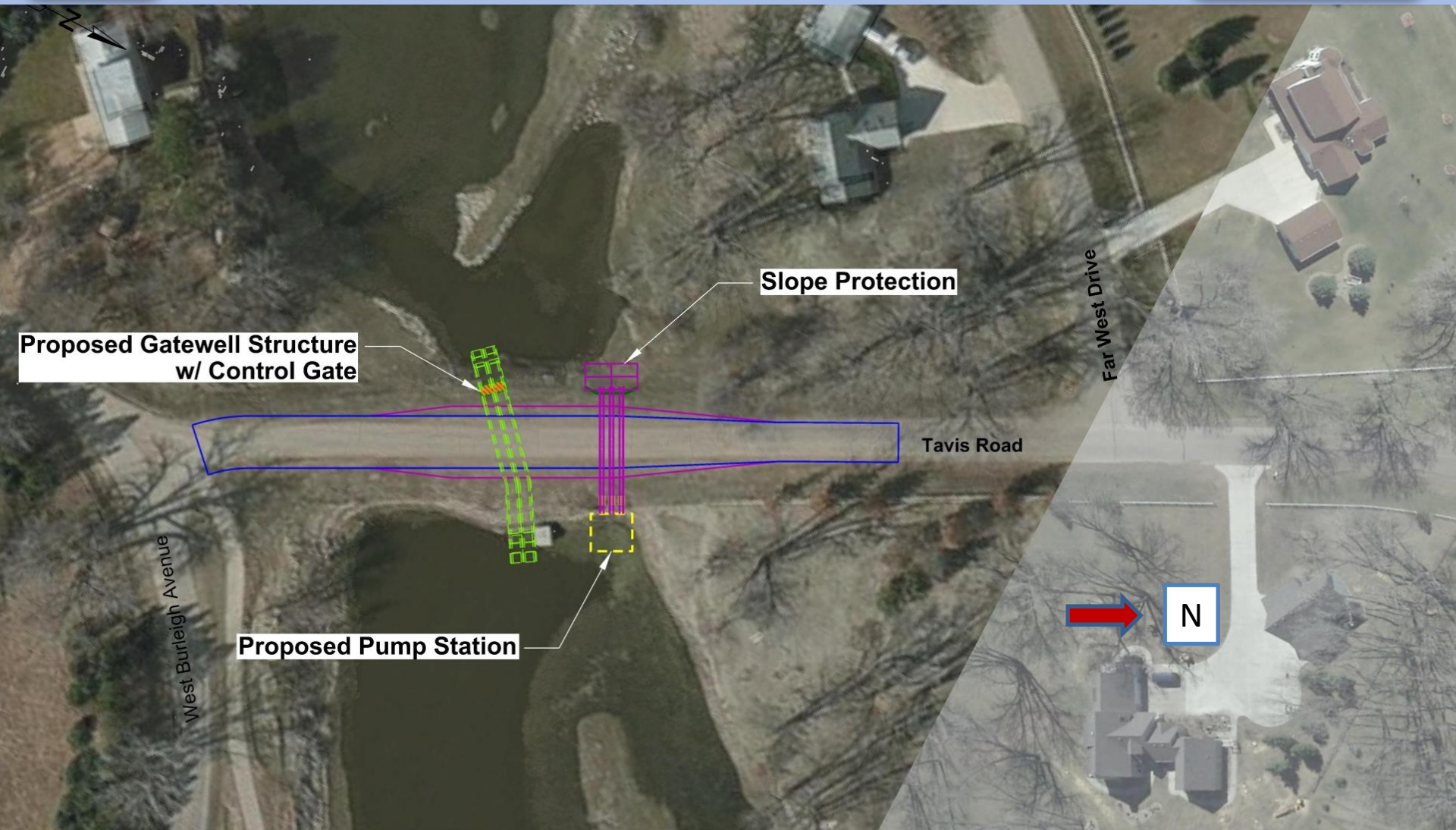




Tavis Road

Project Completed

Grade Raise and Control / Pump Structure



Petition Language to the BCWRD

Actually a response to the Burleigh County 20-foot Protection Plan

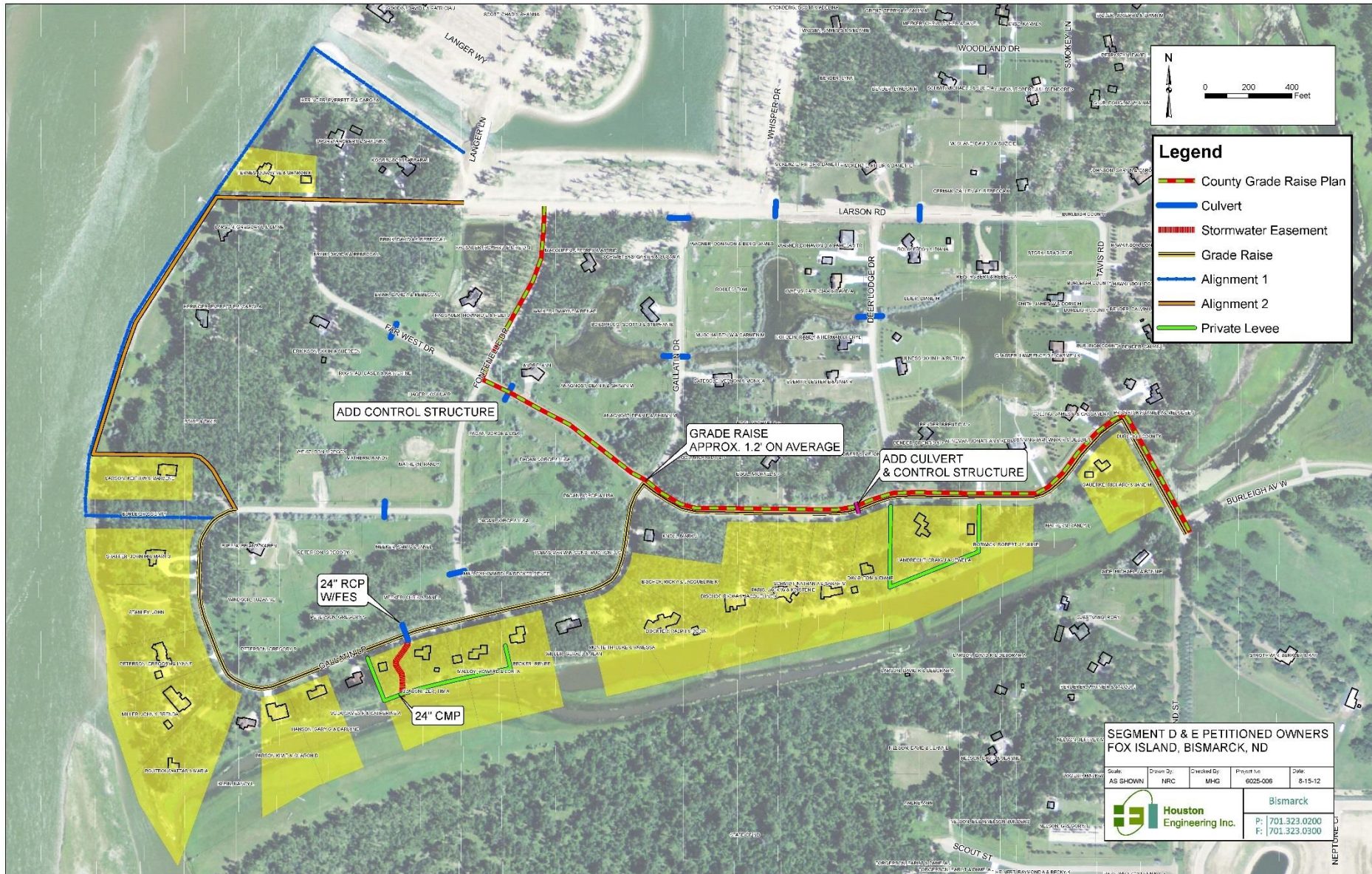
July 31, 2012

Notice to Burleigh Water Resource Board and Houston Engineering:

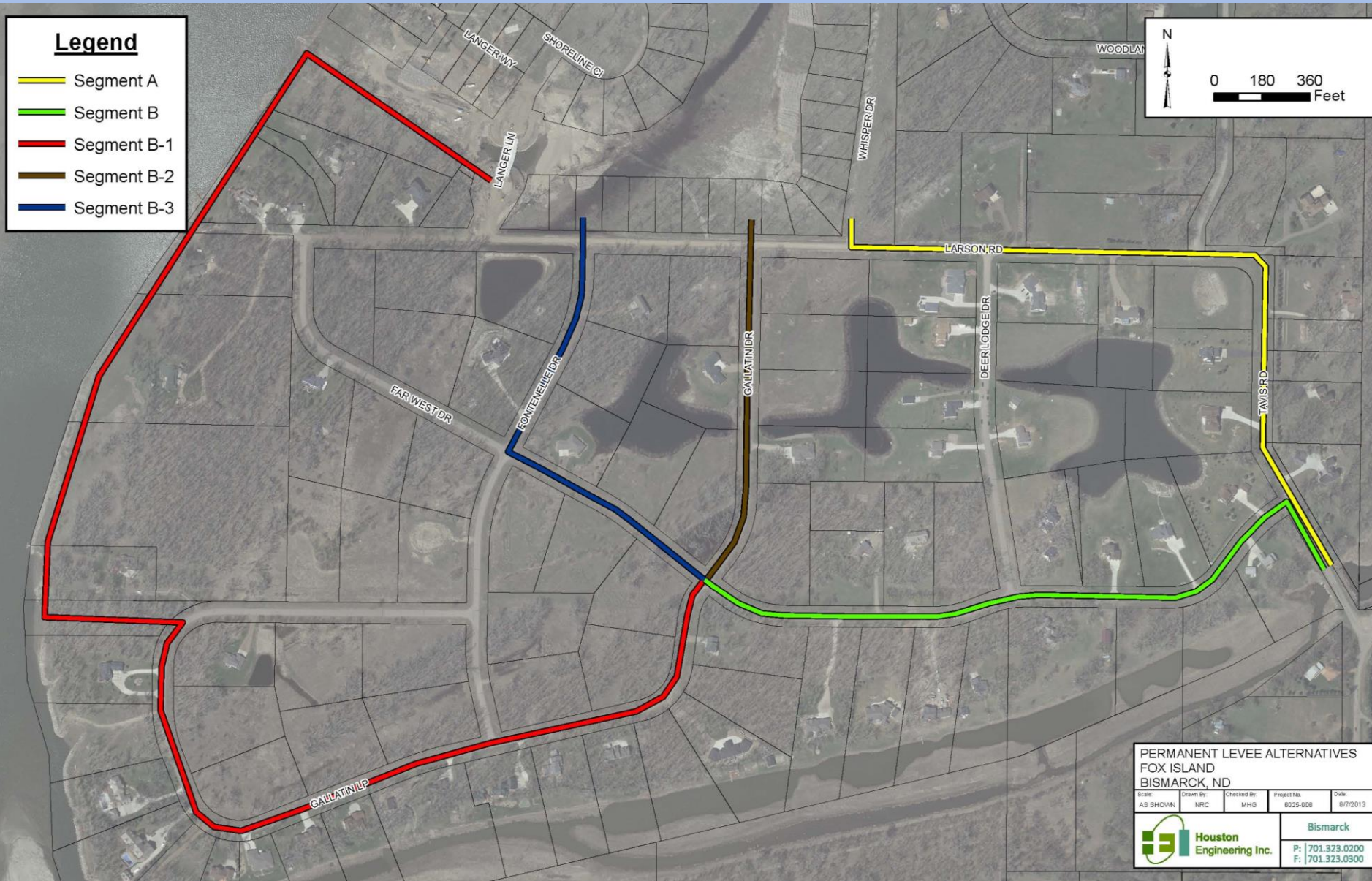
WE, the undersigned residents of Fox Island who have lots in segment E and segment D where the proposed levee is to be built, wish to notify the Burleigh Water Resource Board and Houston Engineering, that as land owners along the Missouri River and the Fox Island Oxbow, we are against the proposed permanent dike project for flood protection on our lots. We do not feel that all the alternatives were adequately studied and we believe we were not given adequate representation on the Fox Island Flood Mitigation Steering Committee. We do believe that flood protection for Fox Island is important but since the process that you have undertaken and the decisions you have made were without our input, WE WILL NOT BE GRANTING EASEMENTS FOR THIS PROJECT. If efforts toward a permanent dike project continues and some members of Fox Island feel the dike proposal needs to proceed, and the vote results would end in favor of the permanent dike, it will require legal intervention to gain access to our property.

Steering Committee became the Fox Island Homeowners Association

Landowner Petition / Opt-Out Map



Alternative Routes considered by the Fox Island Homeowners Association



FOX ISLAND HOME OWNERS ASSOCIATION

Fox Island Flood Control Project

11-19-13 Information Meeting

Fox Island Home Owners Association
Flood Protection Project Survey

Alternative Vote
By the Fox Island
Homeowners Association

Fox Island Home Owners Association Member _____ TALLY SHEET _____
(Please Print)

Complete one survey per lot. Select one option from the listed Flood Control Construction Projects .

Flood Control Project	Check Selection
SEGMENT A	3
SEGMENT B + B-2	1
SEGMENT B + B-3	3
SEGMENT B + B-1	16

County Commitment to the City
of Bismarck (minimum)

70%

The survey will be tallied by the Fox Island Home Owners Association Board. The tally results will be provided to the Fox Island Home Owners Association membership, Burleigh County Water Resource District and Houston Engineering.

WRITE IN:

1. Funding for this current year has been removed for the Fox Island project. Funding can be reinstated in three years. Wait 3 years for funding. YES ___20___ NO ___3___
2. Remove 48 voters North of Larson from voting. They will be protected without the Fox Island flood control measures and may not be likely to support paying for any Fox Island improvements. YES ___14___ NO ___8___

63%



Houston Engineering, Inc.



FOX ISLAND FLOOD CONTROL PRELIMINARY ENGINEERING REPORT

BURLEIGH COUNTY WATER RESOURCE DISTRICT

August 2016



Report Completed (April 2016)

- ✓ ***Project Costs Updated***
- ✓ ***Resolution Approved***
- ✓ ***Assessment District Certified***
- ✓ ***Notices Mailed***
- ✓ ***Public Hearing***
- ✓ ***Vote (Pending)***

***Current Cost update
not available at this time***

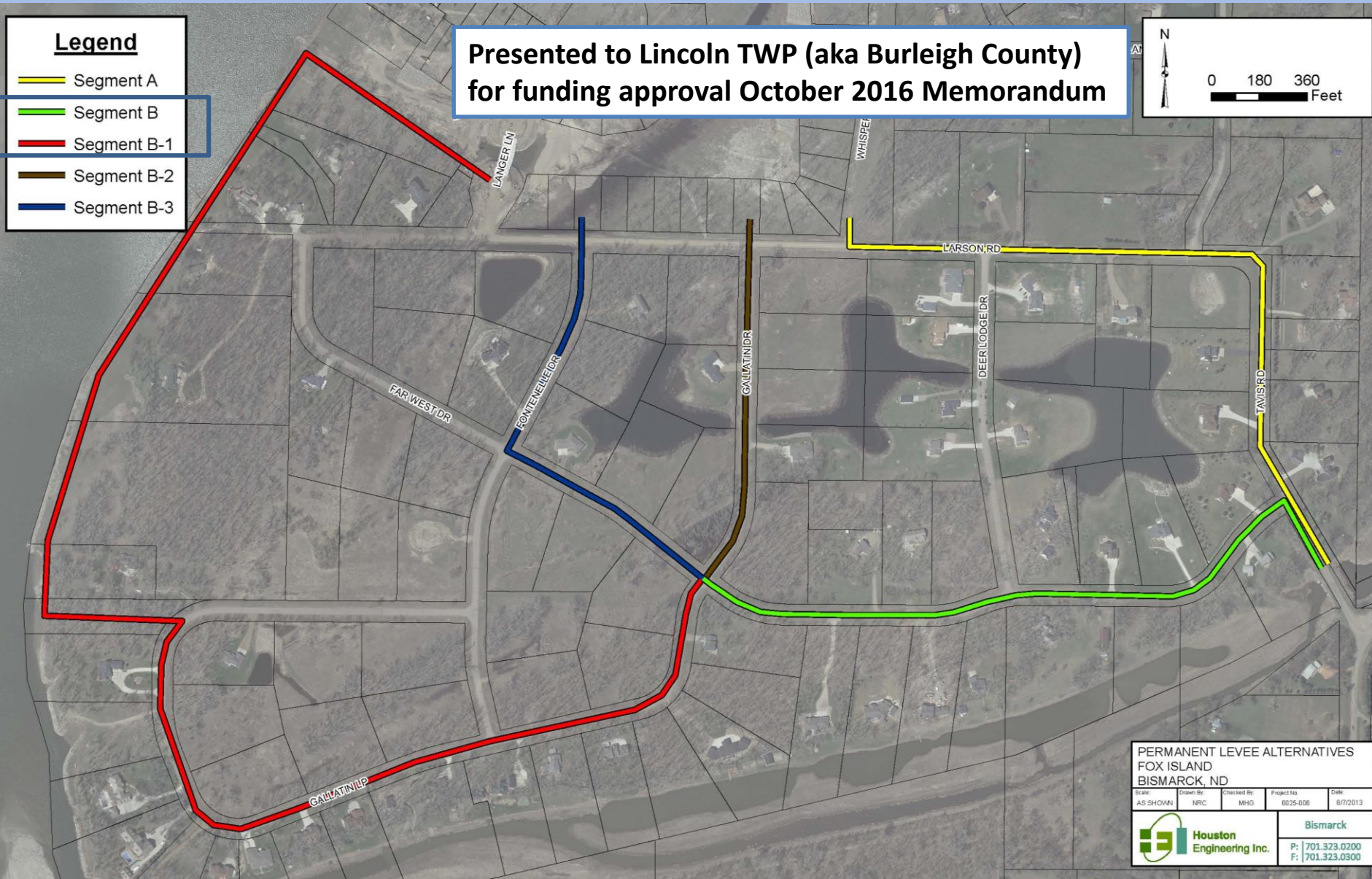
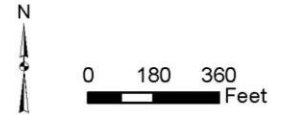
***Any additional costs will be
Assessed as cost funding is fixed.***

Alternative Routes considered by the Fox Island Homeowners Association

Legend

- Segment A
- Segment B
- Segment B-1
- Segment B-2
- Segment B-3

Presented to Lincoln TWP (aka Burleigh County)
for funding approval October 2016 Memorandum






Assessment District – Project Creation

- ✓ Process Defined in ND Century Code - Chapter 61-16.1
- ✓ Preliminary Engineering Report & Assessment List
- ✓ Funding Appropriations – State of ND, Burleigh County (Lincoln TWP)
- ✓ Assessment List filed with Burleigh County Auditor
- ✓ Notice of Hearing Publicly Advertised
- ✓ Notice Provided to Each Voting Landowner by Mail
- ✓ One Vote for Each Dollar of Assessment
- ✓ Ballots Provided
- ✓ Project was approved with more than 50% of the Votes Cast
- ✓ Project Proceeded to Final Design 2016-2017
- ✓ *Public Hearing on Assessment (protest) Alternative Consideration*
- ✓ *Construction (2017) – Delayed (ROW issues, Easements, etc.)*

Flood Control Project Protection Area

2011 Event (stage 19.3 feet) – 20 Foot Protection Plan

Legend

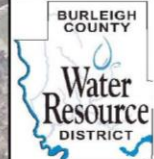

-  Assessment District
-  Full Assessment
-  O& M Assessment Only



***106 Total Lots
In the District***

45 O&M Only

61 Assessed for Construction

	ASSESSMENT DISTRICT FOX ISLAND FLOOD CONTROL PROJECT BURLEIGH COUNTY WATER RESOURCE DISTRICT BISMARCK, ND			
	Drawn By AS SHOWN	Checked By NRC	Project No. 8025-006	Date 8/15/2016
	 Houston Engineering Inc.		Bismarck P: 701.323.0200 F: 701.323.0300	



2016 - Project Funding

- *Legislative Appropriation (SB2020)* \$ 2,800,000
- *Burleigh County Allocation* \$ 920,456
- *Previous SWC Cost Share (Study)* \$ 23,900
- *Special Assessments* \$ 173,663

Total \$ 3,918,019

Assessed Per Lot \$ 2,846.93

- *Operation and Maintenance* \$ 100,000

Assessed per Protected Lot \$ 943.40

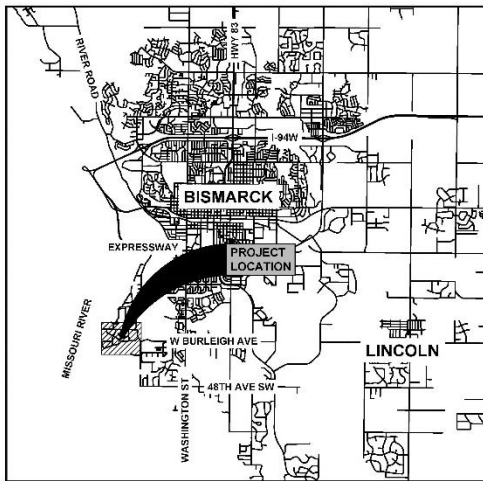
Combined Assessment \$ 3,790.33

Cost Share Equivalent ~ 73% (state) 97% (state/local)

This is changing based on final costs

Selected Alternative – Design Completed

CONSTRUCTION PLANS FOR THE FOX ISLAND FLOOD CONTROL PROJECT BURLEIGH COUNTY, NORTH DAKOTA DECEMBER 2017



VICINITY MAP

UTILITY NOTE:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM G.D. SURVEY INFORMATION, AS-BUILT MAPS AS PROVIDED BY MUNICIPALITIES OR UTILITY COMPANIES, AND/OR EXISTING DRAWINGS. THERE IS NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN INDICATE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. NOR IS THERE A GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES. THE CONTRACTOR AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY RESULT FROM THEIR FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UTILITIES.



ENGINEER'S CERTIFICATE

I, TRAVIS G. JOHNSON, A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF NORTH DAKOTA, HEREBY CERTIFY THAT THE CONSTRUCTION PLANS FOR THE FOX ISLAND FLOOD CONTROL PROJECT, BURLEIGH COUNTY, NORTH DAKOTA WERE PREPARED UNDER MY SUPERVISION AND ARE COMPLETE AND CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.

DATE:

TRAVIS G. JOHNSON, PE
REGISTERED PROFESSIONAL ENGINEER
NORTH DAKOTA REGISTRATION NO. PE-5746

This document
is preliminary
and not for
construction or
implementation
purposes.

SHEET INDEX

GENERAL SHEETS		APPROACH PLAN & PROFILES	
G-1	COVER SHEET	AP-1	OVERVIEW
G-2	CONSTRUCTION NOTES & LEGENDS	AP-2 - AP-17	PLAN & PROFILE APPROACHES
G-3	CONSTRUCTION PHASING	TRAFFIC CONTROL	
GD-1	STORM DETAILS	TC-1 - TC-5	TRAFFIC CONTROL PHASES
GD-2	EROSION CONTROL DETAILS	TC-6	TRAFFIC CONTROL ON TAVIS RD
TYPICAL SECTIONS		STORM	
TS-1	EXISTING TYPICAL SECTIONS	ST-1	DRAINAGE RECONSTRUCT
TS-2 - TS-4	PROPOSED TYPICAL SECTIONS	LANDSCAPING	
TS-5	FLOOD WALL TYPICAL SECTIONS	LA-1	OVERVIEW
REMOVALS SHEETS		LA-2	LARSON RESIDENCE
R-1	REMOVALS OVERVIEW	LA-3 - LA-7	BROWN RESIDENCE
R-2 - R-12	REMOVALS	LA-8	NESS RESIDENCE
LEVEE PLAN & PROFILES		LA-9	HERINGER RESIDENCE
PP-1	OVERVIEW	LA-10 - LA-13	LANDSCAPING DETAILS
PP-2-13	PLAN & PROFILE ROADWAY	IRRIGATION	
PP-14 - PP-17	PLAN & PROFILE ROADWAY TIES	IR-1	BROWN RESIDENCE
PP-18 - PP-24	PLAN & PROFILE EARTHEN LEVEE	IR-2	NESS RESIDENCE

GOVERNING STANDARDS:

MANUAL FOR UNIFORM TRAFFIC CONTROL DEVICES (MUTCD), 2009 EDITION. THIS SPECIFICATION INCLUDES THE SHAPES, COLORS, AND FONTS USED IN ROAD MARKINGS AND SIGNS. ALL TRAFFIC CONTROL DEVICES MUST CONFORM TO THESE STANDARDS.

PREPARED BY:



BISMARCK, NORTH DAKOTA

Roadway and Levee Segments



This document is preliminary and not for construction or implementation purposes.

No.	Revision	Date	By



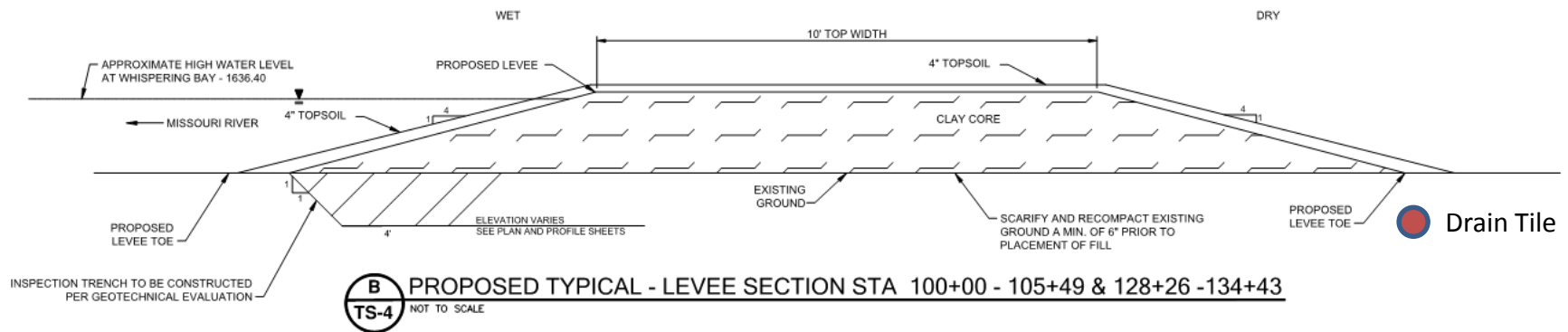
Bismarck	Drawn by NRC/MIF	Date 1-7-13
P: 701.323.0200 F: 701.323.0300	Checked by MHG	Scale AS SHOWN

FOX ISLAND SEGMENT D / ROAD RAISE BISMARCK, ND
--

LEVEE OVERVIEW PROJECT NO. 6025-006

FIGURE 3

Typical Levee Section

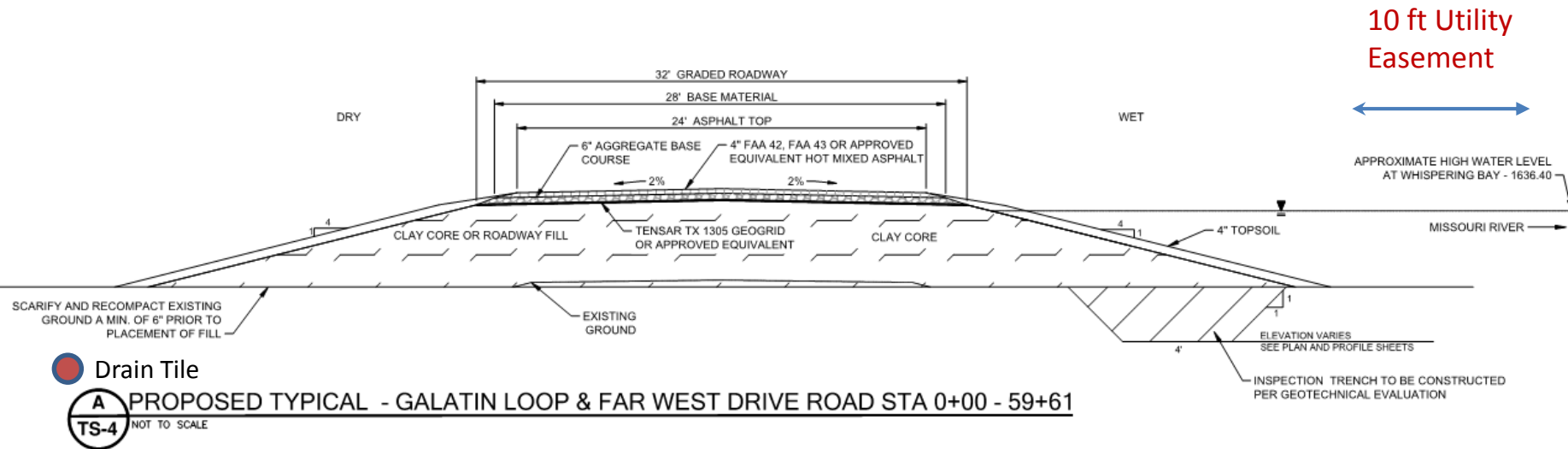


Side Slopes - 4:1 Riverward and 4:1 Landward

ROW - Varies based on height above existing ground

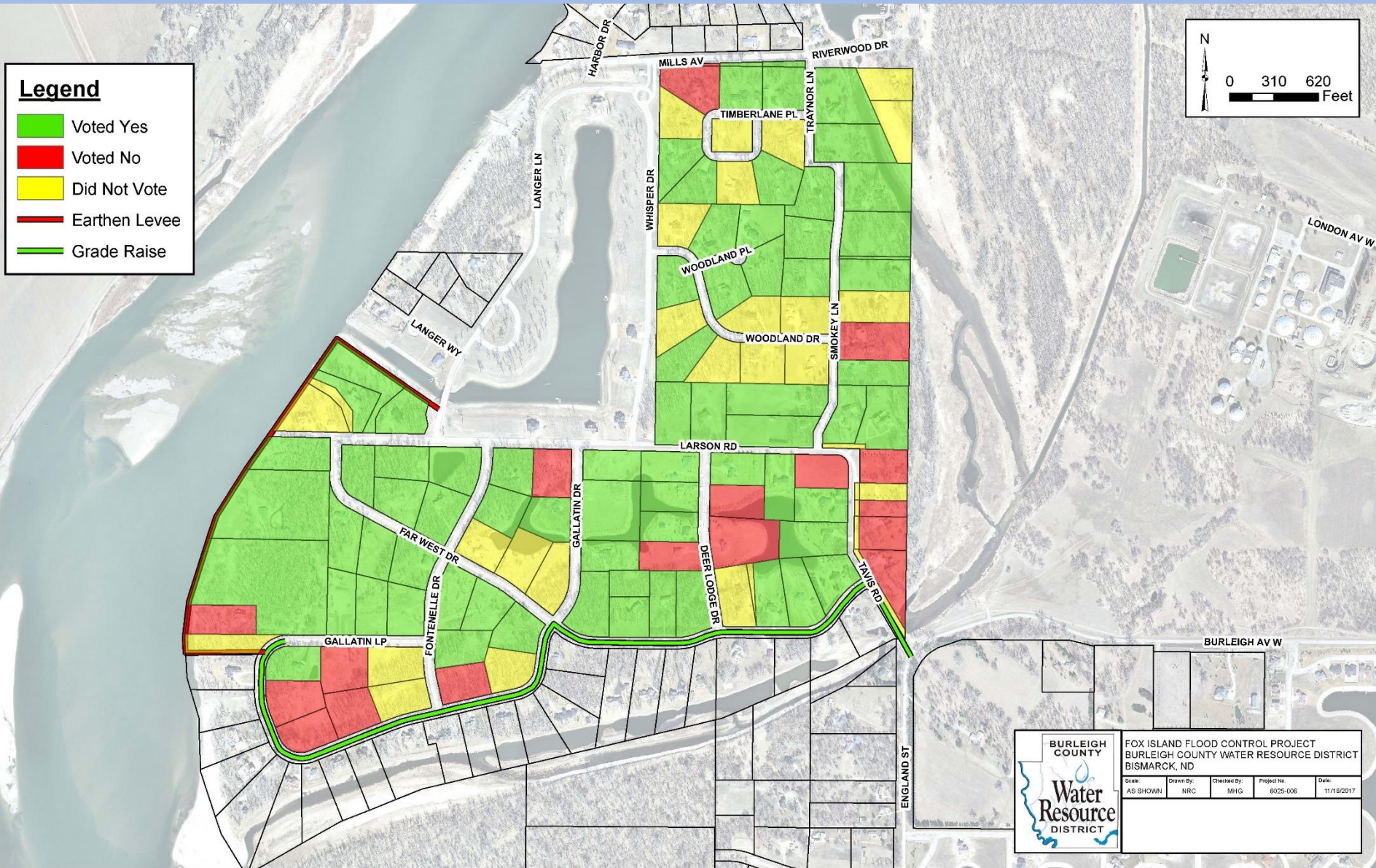
Tree removal to limits specified by geotechnical evaluation

Typical Roadway Section



- Township Roadway Standards – Safety and Signage
 - **Construction within existing 80 ft ROW**
 - Exceptions undetermined (**Each driveways have been evaluated**)
 - New paving and improved access
 - **Removal of ROW encroachments**
- Noted in 9-7-2016**

Votes by Lot – 80% Approved 20% Declined



Petition Language to the BCWRD

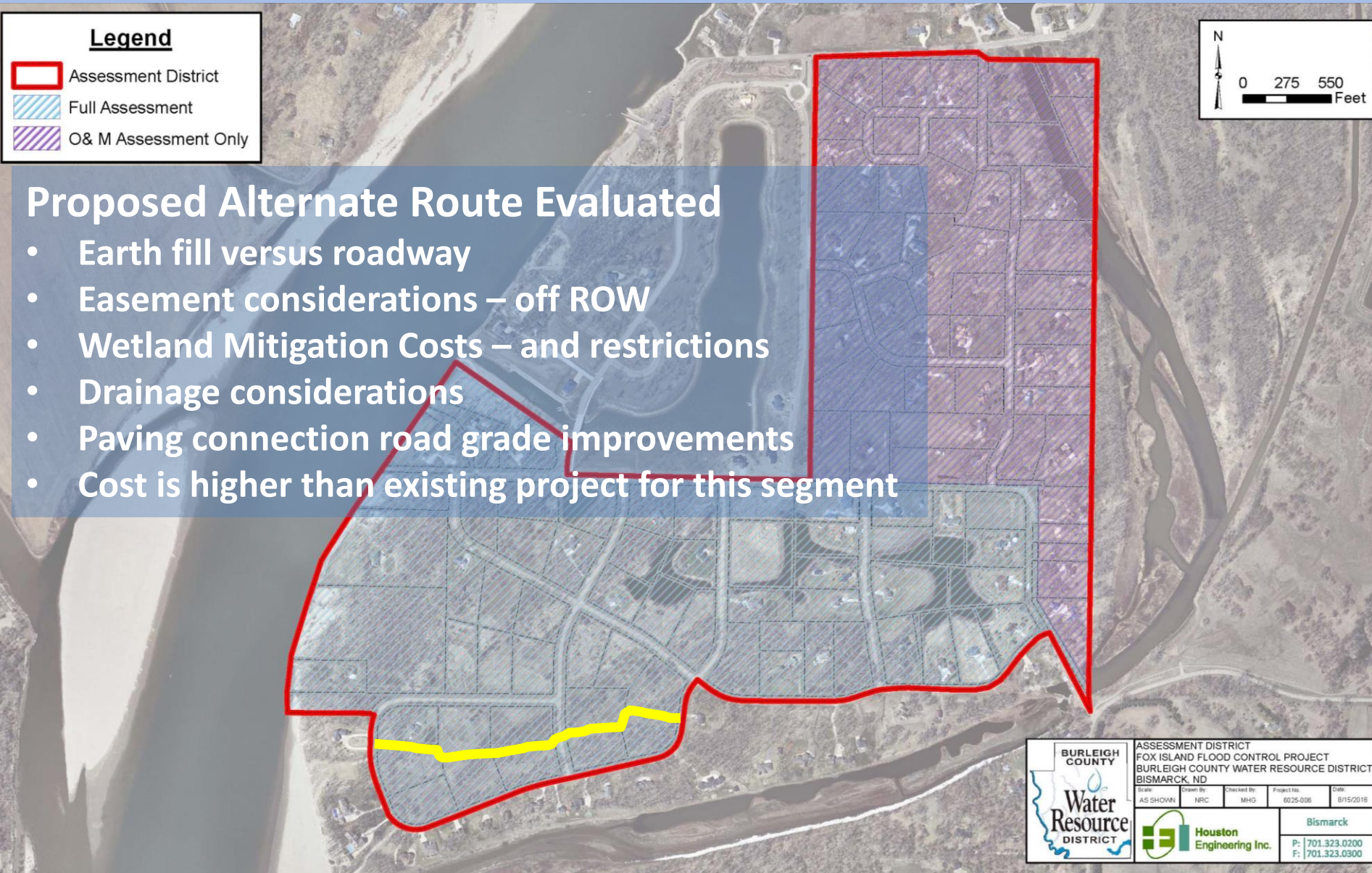
September 5, 2016

I (we) do hereby petition the Burleigh County Water Resource Board to reconsider the location of the proposed levee; that it not be placed on the top of Gallatin Loop, but instead, be built with an East – West direction, placed on the back yard property lines of specific lots located within Gallatin Loop west of Fontenelle Dr. and on the back yard property lines of specific lots located within Gallatin Loop, Far West Dr. east of Fontenelle Dr.

Note: Some petitioners lived south of Gallatin Drive and others owned lots to the North of the roadway.

Flood Control Project Protection Area

November 2016 - Protest Period



Alternative submitted by petition during the protest hearing period.

***Evaluated and rejected by the BCWRD.
November 2016***

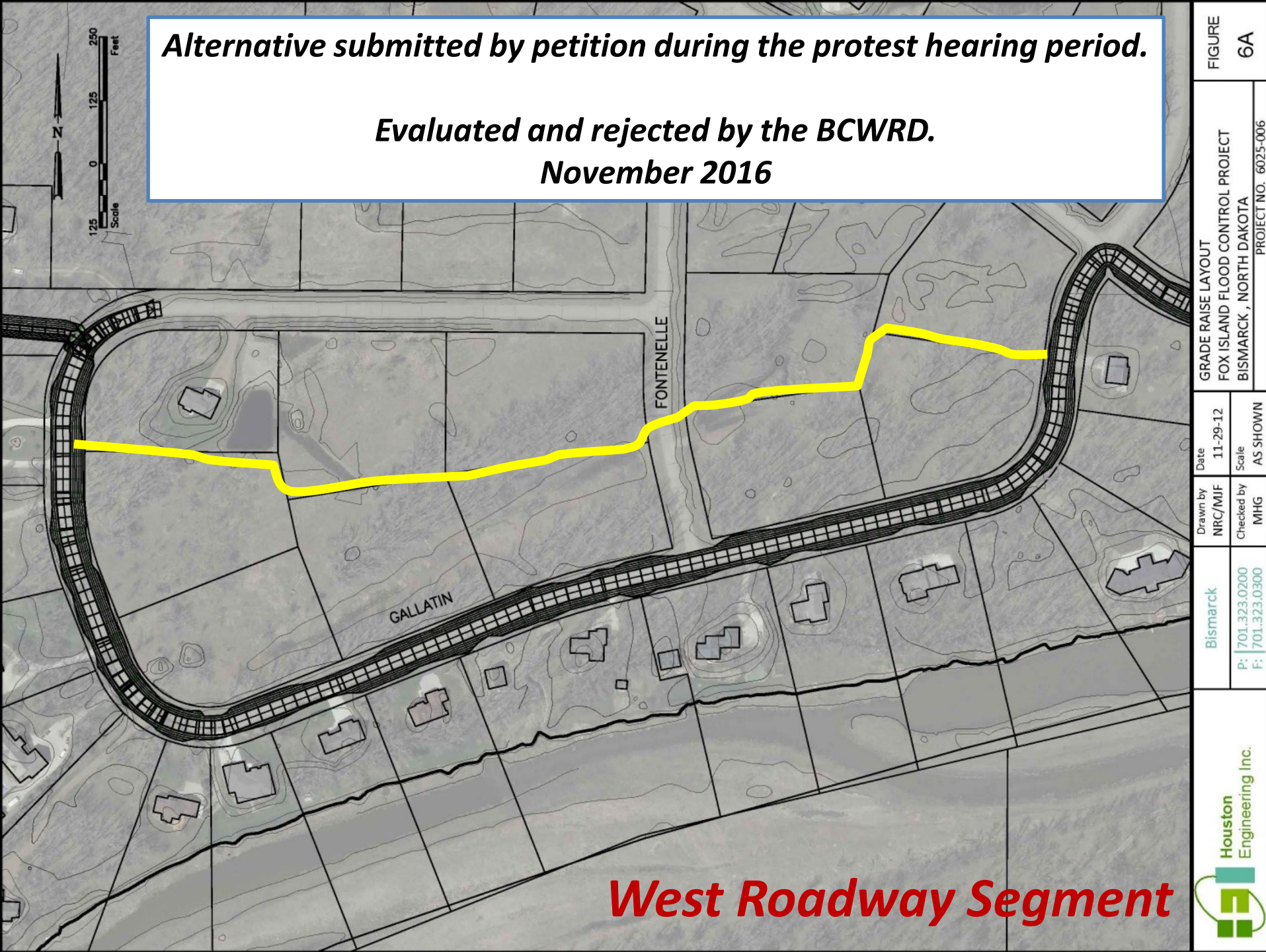


FIGURE
6A

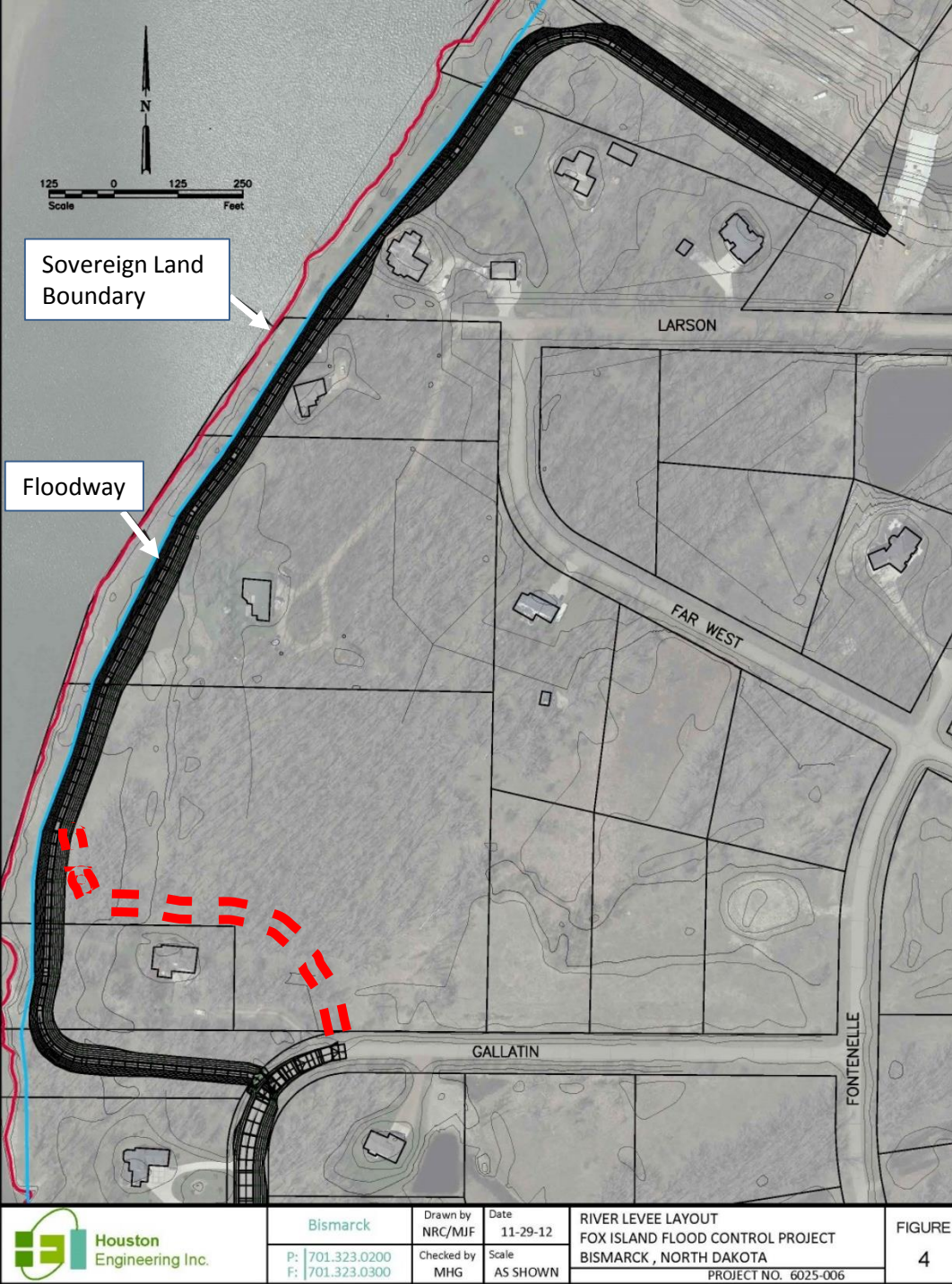
GRADE RAISE LAYOUT
FOX ISLAND FLOOD CONTROL PROJECT
BISMARCK, NORTH DAKOTA
PROJECT NO. 6025-006

Drawn by	Date
NRC/MJF	11-29-12
Checked by	Scale
MHG	AS SHOWN

Bismarck
P: 701.323.0200
F: 701.323.0300

Houston
Engineering Inc.

West Roadway Segment



Missouri River Levee Segment Realignment

***November 2016
Protest Period***

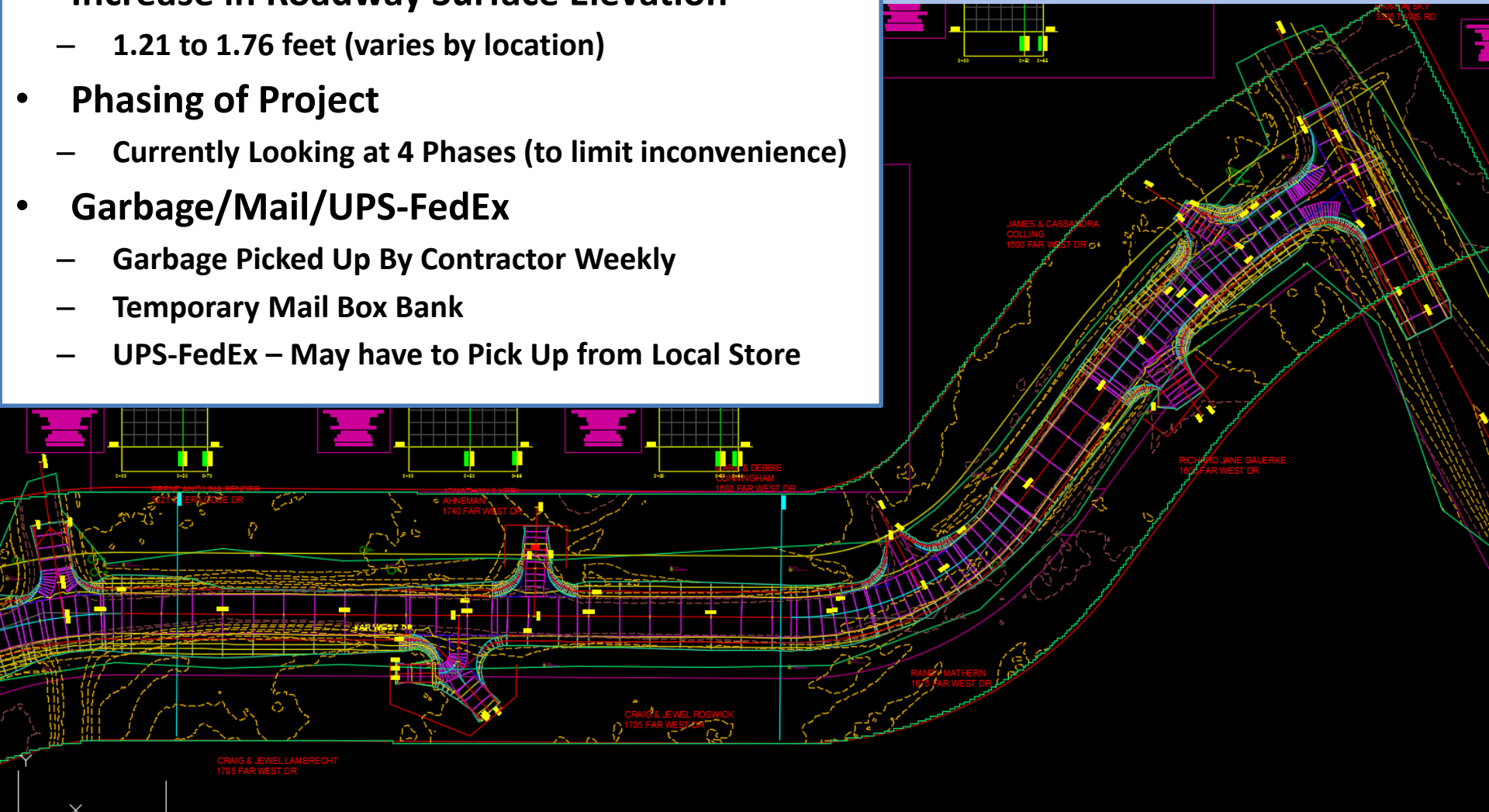
***Request submitted during
Protest Hearing period
Evaluated and accepted by
the BCWRD, limited impacts.***

Project Issues Remaining with Final Design

- ✓ ***State Engineer Permit - Impact Evaluation (<0.1 ft)***
Submittal Pending (~0.04 ft)
- ✓ ***COE (Section 408 Review) (Submittal Pending)***
- ✓ ***Wetland Mitigation (None Required)***
- ✓ ***ROW Limitations (Temporary Construction Easements)***
Site specific impacts determined – Contacts, now easements mailed
- ✓ ***Geotechnical Unknowns (Evaluated and Resolved)***
- ✓ ***Landowner Easements (Earthen Levee – In process)***
- ✓ ***Lincoln Township Easement***
(Pending final plan review, funding is approved)
- ✓ ***Storm Water Easements (no action at this stage)***

Construction Related Issues

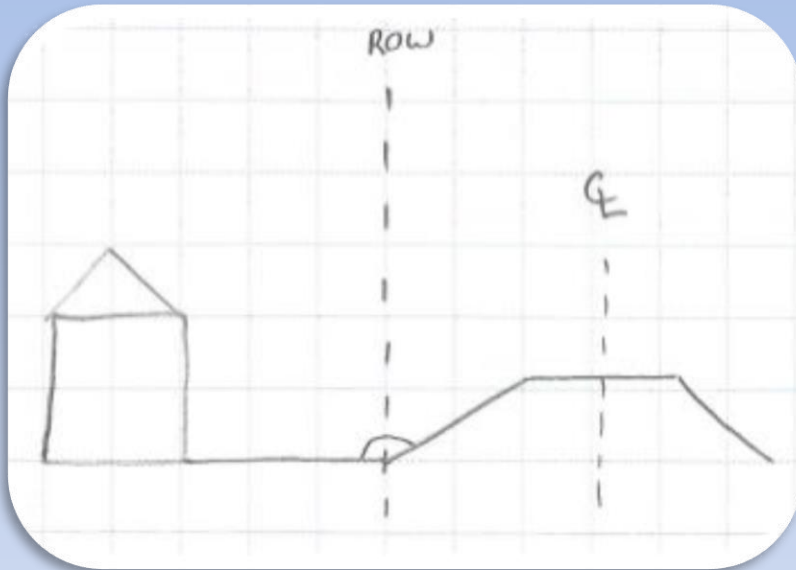
- **Increase in Roadway Surface Elevation**
 - 1.21 to 1.76 feet (varies by location)
- **Phasing of Project**
 - Currently Looking at 4 Phases (to limit inconvenience)
- **Garbage/Mail/UPS-FedEx**
 - Garbage Picked Up By Contractor Weekly
 - Temporary Mail Box Bank
 - UPS-FedEx – May have to Pick Up from Local Store



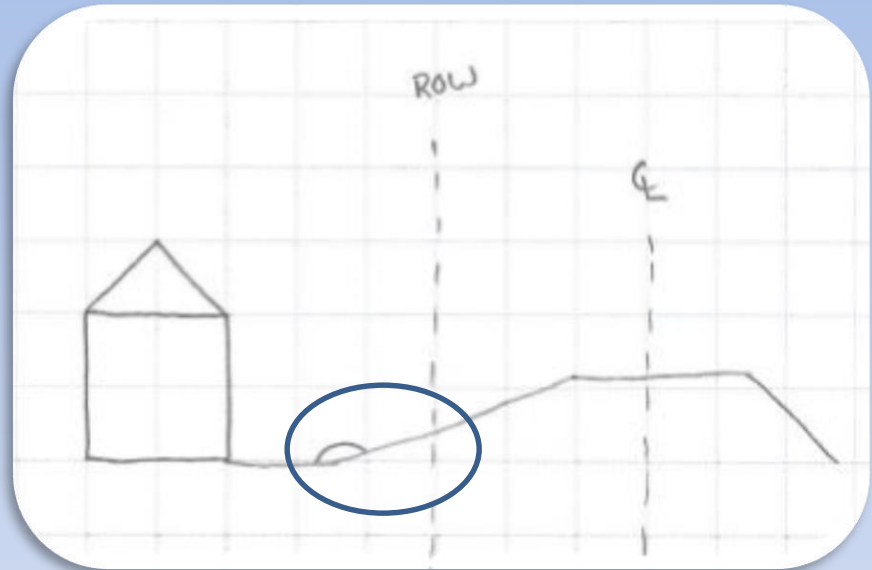
Temporary Construction Easements

Recently Mailed to Residents

WITHOUT PERMISSION



WITH PERMISSION



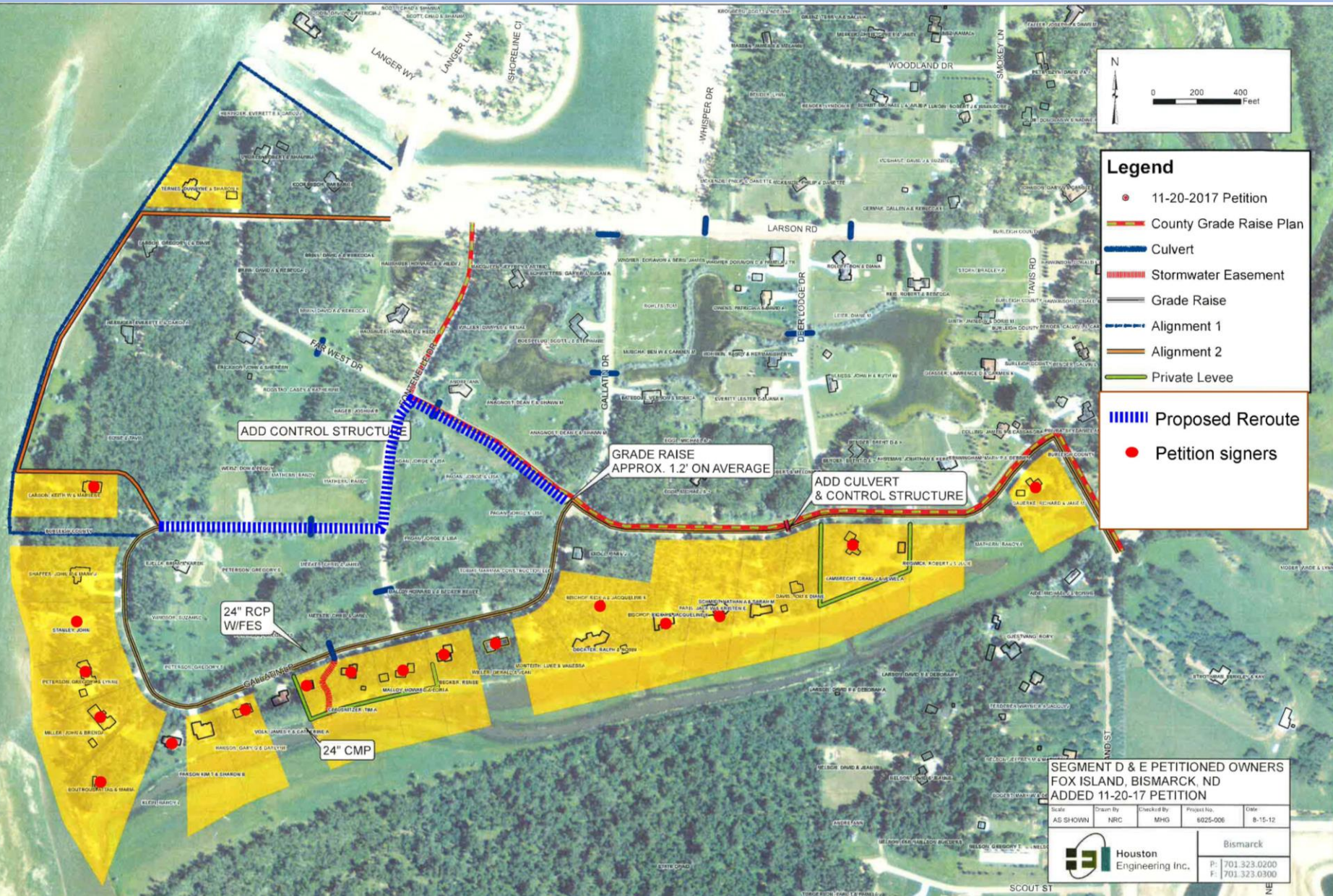
- If a temporary construction easement is granted by the lot owner, all driveways will meet existing or better slopes – paid for by the project.***
- All driveways will allow for a vehicle access without bottoming out per the NCHRP Report 659: Guide for the Geometric Design of Driveways.***
- Landowners have a choice to participate or not. We have attempted to contact everyone, but can't make you sign the easement.***

PETITION

November 20, 2017

The undersigned Lot Owner(s) of properties along Gallatin Drive and Gallatin Loop within Fox Island Subdivision hereby state that I/we are opposed to the flood mitigation plan of the Burleigh Water Resource District known as the Segment D levee Fox Island and request that the Burleigh County Commission, and its Board of Commissioners, consider an alternative plan, known as the Fox Island Proposed Alternate Route and we further hereby sign this petition in opposition of the Segment D levee Fox Island and in support of the Fox Island Proposed Alternate Route.

Alternative Reroute Petition Alignment





Questions?

Fox Island Flood Control Project

Assessed Residents

Non-assessed Property Owners

General Public

Information Sources

Burleigh County Water Resource District

Website: www.bcwrd.org

Power Point to be Posted – January 12, 2018

Fox Island Project Postings on BCWRD Web Site

[Fox Island Homeowners Association Meeting](#) (Notice Nov 12, 2013)

[Fox Island Feasibility Report](#) (Feb 19, 2014)

[Fox Island Stakeholders Informational Meeting \(1-10-2016\)](#)

[Fox Island Preliminary Engineering Report \(8-8-16\) Part 1, Part 2, Part 3](#)

[Letter to Landowners](#) – (Aug 17, 2016)

[Public Hearing: September 7th, 2016](#) (Notice)

[Fox Island Powerpoint Presentation 9-7-16](#) (Public Hearing)

[Fox Island Public Hearing - Questions and Answers from Public Hearing](#)

[Lincoln Township Cost Participation Memo Amended](#) (Oct 26, 2016)

State Levee Permit Criteria

SWC Policy - Easements Required:

If water surface increase is >0.1 feet (>1.2 inches)

Soon to be modified to > 0.5 feet (modeling criteria)

Fox Island & MRCC Combined Impacts at Fox Island

Base Flood Event (i.e., 100-yr) = 0.04 feet \sim 0.48 inches

Flood Storage Reduction – Static Volume Assessment

Preliminary Engineering Report

No River Flows – “not a real event” 0.24 feet – 2.87”

Removed Storage $\sim 4,400$ ac-ft (City/County Projects)

Total Storage $\sim 122,000$ ac-ft (limited by LiDAR extents)

City of Bismarck Storage – Golf Course