



**US Army Corps
of Engineers®**

Levee Inspection Report

Name of System: Highland

Name of Segment: Highland

NLD System ID: 2605000005

NLD Segment ID: 2604000007

Segment Type: USACE Constructed, Public sponsor O&M

Levee Sponsor (Name and Organization): Little Calumet River Basin Development Commission

Inspection Report Prepared by: Yuki Galisanao

Date(s) of Inspection: 06/22/2021 - 06/22/2021

Other Segments Within This System

Segment Name	NLD Segment ID#	Segment Type	Segment Inspection Rating

Contents of Inspection Report:

☒ Levee Inspection Summary

Inspection Checklist

- ☒ General Items
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- ☒ Interior Drainage System
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- ☐ FDR System Channels

☒ Public Sponsor Pre-Inspection Form

☒ National Flood Insurance Program (NFIP) - 44 CFR 65.10
Provision Evaluation

☒ General Instructions

☒ Maps

Type of Inspection: ☒ Routine Inspection ☐ Periodic Inspection ☐ Special Inspection

Purpose of Special Inspection: _____

Ratings:

Segment Rating: ☐ Acceptable ☒ Minimally Acceptable ☐ Unacceptable ☐ No Verdict

System Rating: ☐ Acceptable ☒ Minimally Acceptable ☐ Unacceptable ☐ No Verdict

LSPM Signature: _____

LSO Signature: _____

William A. Rochford
John A. Groboski

Date Approved: 17 Sep 2021

Date Approved: 20 SEP 2021

Levee Inspection Team Members (Levee Sponsor, USACE, and Others)

Name	Organization	Discipline	Phone Number
Yuki Galisanao	USACE - Chicago District	Lead, Geotech	
Artem Vyshnyakov	USACE - Chicago District	Civil	
Taylor Koedel	USACE - Chicago District	Geology	
Chris Schaal	USACE - Chicago District	Structural	
Jonathan Lombardi	USACE - Chicago District	Mechanical	
Armoni Towner	USACE - Chicago District	Mechanical	
Alan Janski	USACE - Chicago District	Electrical	
Paul Belate	USACE - Chicago District	Civil	
Dan Repay	LCRBDC	Sponsor	
Mike Pipta	Town of Highland	Community	
Bob Ruzycki	Town of Highland	Community	
Adam Massey	Town of Highland	Community	

Segment Rating Rationale:

[Describe the basis of the Segment rating considering (1) the general condition of the segment, (2) the rationale for Item ratings, categorized by Feature that contributed to the Segment rating, and (3) the number or severity of notable observations/deficiencies. The summary may also include information related to the condition of the levee, not otherwise captured in the Levee Inspection Checklist, if applicable.]

Minor issues with trees and tall vegetation, sod cover, debris, slope stability, bank erosion, rutting, animal burrows, condition of pipes, seepage, closures, spalling and cracking, possible movement of the wall, deteriorating sealant, vegetation and silt at the outlets, fencing, concrete surfaces, pipes, debris in sluice gates and flap gates, missing safety labels, minor structural issues at the pump stations, leaky pump, inoperable fan, MCC connection, and flap gate obstruction.

System Rating Rationale:

[Synthesize information from the Segment rating rationales for each Segment within the System. For single-segment systems, see segment rating rationale above.]

Same as segment rating.

General Items for All Flood Damage Reduction Segments / Systems: Highland
For use during all inspections of all Flood Damage Reduction Segments / Systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
1. Operations and Maintenance Manuals	A	A	Levee Owner's Manual, O&M Manuals, and/or manufacturer's operating instructions are present.	Justification: O&M Manuals are located at the Public Works facility.
		M	Sponsor manuals are lost or missing or out of date; however, sponsor will obtain manuals prior to next scheduled inspection.	
		U	Sponsor has not obtained lost or missing manuals identified during previous inspection.	
2. Emergency Supplies and Equipment (A or M only)	A	A	The sponsor maintains a stockpile of sandbags, shovels, and other flood fight supplies which will adequately supply all needs for the initial days of a flood fight. Sponsor determines required quantity of supplies after consulting with inspector.	2021-0035 : Sandbag storage (A) Justification: Highland has a ready inventory of flood fighting supplies and equipment at the Public Works Facility on 8001 Kennedy Ave. This includes a stockpile of sand, plastic, shovels, concrete blocks, approximately 30 pallets of filled sandbags, and 15k empty sandbags. A sandbag machine is located at the downtown storage facility on 2615 Condit St. There are about 90 pallets of sandbags at their storage facility on 2612 Garfield Ave.
		M	The sponsor does not maintain an adequate supply of flood fighting materials as part of their preparedness activities.	
3. Flood Preparedness and Training (A or M only)	A	A	Sponsor has a written system-specific flood response plan and a solid understanding of how to operate, maintain, and staff the FDR system during a flood. Sponsor maintains a list of emergency contact information for appropriate personnel and other emergency response agencies.	Justification: System specific flood response plan is in place. Flood Response staff attend monthly meetings to review levee concerns. Actively monitors for events and were prepared to mobilize for the April 2017 rain forecast. Evacuation locations include Lincoln Center (2450 Lincoln St), Main gym, and high school. Highland uses the RAVE emergency notification system to send messages to residents via phone, email, and web. A road closure exercise at Kennedy Ave was performed in Oct 2016. A tabletop exercise was held in Jan 2019. Updated Flood Handbooks were provided in 2019. Flood fighting was performed in May 2019.
		M	The sponsor maintains a good working knowledge of flood response activities, but documentation of system-specific emergency procedures and emergency contact personnel is insufficient or out of date.	

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Levee Embankments: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
1. Unwanted Vegetation Growth	M	A	The levee has little or no unwanted vegetation (trees, bush, or undesirable weeds), except for vegetation that is properly contained and/or situated on overbuilt sections, such that the mandatory 3-foot root-free zone is preserved around the levee profile. The levee has been recently mowed. The vegetation-free zone extends 15 feet from both the landside and riverside toes of the levee to the centerline of the tree. If the levee access easement doesn't extend to the described limits, then the vegetation-free zone must be maintained to the easement limits. Reference EM 1110-2-301 or Corps policy for regional vegetation variance.	2021-0034 : Small trees and bushes on landside along fence. Cut. (M) 2021-0037 : Tree line around bend of levee on riverside within 15 ft. Cut. (M) 2021-0040 : Trim tree line back in this area. (M) 2021-0043 : Tree on landside of fence within 15 ft of toe. Cut. (M)
		M	Minimal vegetation growth (brush, weeds, or trees 2 inches in diameter or smaller) is present within the zones described above. This vegetation must be removed but does not currently threaten the operation or integrity of the levee.	2021-0046 : Tree on landside of fence within 15 ft of toe. Cut. (M) 2021-0049 : Trim back tree line. (M) 2021-0070 : Remove trees on landside. (M) 2021-0079 : Trees on landside toe. Cut. (M) 2021-0091 : Trees on landside toe. Cut. (M)
		U	Significant vegetation growth (brush, weeds, or any trees greater than 2 inches in diameter) is present within the zones described above and must be removed to reestablish or ascertain levee integrity.	2021-0142 : Small trees and tall veg on riverside toe. Cut. (M) 2021-0154 : Small trees on riverside toe. Cut. (M) 2021-0163 : Large shrub on riverside toe. (M) 2021-0166 : Small trees on riverside toe. Cut. (M) 2021-0196 : Small trees and tall veg on riverside toe. Cut. (M) 2021-0208 : Clear back trees to 15 ft. (M)
2. Sod Cover	M	A	There is good coverage of sod over the levee.	2021-0082 : Poor sod on crest. Reseed. (M)
		M	Approximately 25% of the sod cover is missing or damaged over a significant portion or over significant portions of the levee embankment. This may be the result of over-grazing or feeding on the levee, unauthorized vehicular traffic, chemical or insect problems, or burning during inappropriate seasons.	2021-0146 : Poor sod cover. Reseed. (M)
		U	Over 50% of the sod cover is missing or damaged over a significant portion or portions of the levee embankment.	
		N/A	Surface protection is provided by other means.	
3. Encroachments	M	A	No trash, debris, unauthorized farming activity, structures, excavations, or other obstructions present within the easement area. Encroachments have been previously reviewed by the Corps, and it was determined that they do not diminish proper functioning of the levee.	2021-0097 : Logs on riverside slope. Remove. (M) 2021-0137 : Large rocks on crown. Remove. (M) 2021-0152 : Logs close to riverside toe. Remove. (M)
		M	Trash, debris, unauthorized farming activity, structures, excavations, or other obstructions present, or inappropriate activities noted that should be corrected but will not inhibit operations and maintenance or emergency operations. Encroachments have not been reviewed by the Corps.	2021-0157 : Logs on riverside toe in riprap. Remove. (M) 2021-0160 : Logs on riverside toe. Remove. (M) 2021-0217 : Remove log on riverside toe. (M)
		U	Unauthorized encroachments or inappropriate activities noted are likely to inhibit operations and maintenance, emergency operations, or negatively impact the integrity of the levee.	2021-0253 : Remove logs and debris on riverside slope. (M)

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Controlled Unclassified Information (CUI): This document contains levee information that shall not be released in an uncontrolled manner

**Flood Damage Reduction Segments / Systems
Inspection Report
Highland**

**Levee Embankments
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Levee Embankments: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
4. Closure Structures	A	A	Closure structure in good repair. Placing equipment, stoplogs, and other materials are readily available at all times. Components are clearly marked and installation instructions/ procedures readily available. Trial erections have been accomplished in accordance with the O&M Manual.	Justification: No issues noted.
		U	Any of the following issues is cause for this rating: Closure structure in poor condition. Parts missing or corroded. Placing equipment may not be available within the anticipated warning time. The storage vaults cannot be opened during the time of inspection. Components of closure are not clearly marked and installation instructions/ procedures are not readily available. Trial erections have not been accomplished in accordance with the O&M Manual.	
		N/A	There are no closure structures along this component of the FDR segment / system.	
5. Slope Stability	A	A	No slides, sloughs, tension cracking, slope depressions, or bulges are present.	Justification: No issues noted.
		M	Minor slope stability problems that do not pose an immediate threat to the levee embankment.	
		U	Major slope stability problems (ex. deep seated sliding) identified that must be repaired to reestablish the integrity of the levee embankment.	
6. Erosion/ Bank Caving	M	A	No erosion or bank caving is observed on the landward or riverward sides of the levee that might endanger its stability.	2021-0061 : Erosion on riverside toe that is starting to eat into the toe. Add riprap to restore the bank. (M) 2021-0064 : Erosion cutting into corner and into slope. Add riprap to restore bank. (M) 2021-0199 : Erosion around HI-9 headwall on both sides. Add riprap or fill. (M) 2021-0232 : Erosion along riverside toe. Add fill to restore slope. (M)
		M	There are areas where minor erosion is occurring or has occurred on or near the levee embankment, but levee integrity is not threatened.	
		U	Erosion or caving is occurring or has occurred that threatens the stability and integrity of the levee. The erosion or caving has progressed into the levee section or into the extended footprint of the levee foundation and has compromised the levee foundation stability.	
7. Settlement	A	A	No observed depressions in crown. Records exist and indicate no unexplained historical changes.	2021-0214 : Possible low spot. Location where two contracts tie in. Monitor. (A)
		M	Minor irregularities that do not threaten integrity of levee. Records are incomplete or inclusive.	
		U	Obvious variations in elevation over significant reaches. No records exist or records indicate that design elevation is compromised.	
8. Depressions/ Rutting	M	A	There are scattered, shallow ruts, pot holes, or other depressions on the levee that are unrelated to levee settlement. The levee crown, embankments, and access road crowns are well established and drain properly without any ponded water.	2021-0031 : Floodwall does not tie in to height of road from 408 permit modification, 3 inches higher. Monitor. (A) 2021-0085 : Depression on riverside toe and slope. Fill. (M) 2021-0088 : Low area east of Indianapolis Blvd. Monitor. (A) 2021-0100 : Depression on riverside slope. Fill to grade. (M) 2021-0125 : Rutting on crown by HI-11. Fill. (M) 2021-0128 : Rutting on crown closer to landside slope. Fill. (M) 2021-0149 : Rutting riverside slope. Fill to grade. (M) 2021-0158 : Depression on landside. Fill. (M) 2021-0161 : Large depression on riverside toe. Fill. (M) 2021-0164 : Rutting riverside toe. Fill to grade. (M) 2021-0167 : Large ruts on riverside slope causing uneven slope. Restore slope. (M) 2021-0170 : Riverside slope rutting. Fill to grade. (M) 2021-0202 : Depression on riverside slope. Fill. (M) 2021-0259 : Rutting on riverside toe. Fill to grade. (M) 2021-0262 : Rutting on riverside toe. Fill to grade. (M)
		M	There are some infrequent minor depressions less than 6 inches deep in the levee crown, embankment, or access roads that will pond water.	
		U	There are depressions greater than 6 inches deep that will pond water.	

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Inspection Report
Highland**

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Levee Embankments: Highland

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Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
9. Cracking	A	A	Minor longitudinal, transverse, or desiccation cracks with no vertical movement along the crack. No cracks extend continuously through the levee crest.	2021-0058 : Pavement cracking. Monitor. (A) 2021-0139 : Cracking pavement, typical. Monitor. (A) 2021-0173 : Desiccation crack on riverside slope. Monitor. (A) 2021-0211 : Long longitudinal cracking on crown. Monitor. (A)
		M	Longitudinal and/or transverse cracks up to 6 inches in depth with no vertical movement along the crack. No cracks extend continuously through the levee crest. Longitudinal cracks are no longer than the height of the levee.	
		U	Cracks exceed 6 inches in depth. Longitudinal cracks are longer than the height of the levee and/or exhibit vertical movement along the crack. Transverse cracks extend through the entire levee width.	
10. Animal Control	M	A	Continuous animal burrow control program in place that includes the elimination of active burrowing and the filling in of existing burrows.	2021-0176 : Animal burrows on riverside slope, around 10 in deep. Fill holes. (M) 2021-0223 : Turtle egg holes on riverside slope, 7 inches deep. Fill holes. (M) 2021-0226 : Turtle egg holes on riverside slope, 8 inches deep. Fill holes. (M) 2021-0229 : 6 inches deep on riverside slope, turtle hole. Fill hole. (M) 2021-0235 : Turtle egg hole on riverside toe and slope. Fill hole. (M) 2021-0238 : Multiple animal burrows on riverside toe and slope, 1.5 ft deep. Fill holes. (M) 2021-0241 : Multiple turtle egg holes on riverside toe and slope, 8 inch deep. Fill holes. (M) 2021-0244 : 2 turtle egg holes on riverside slope. Fill holes. (M) 2021-0247 : Burrow cluster on riverside toe and slope. Fill holes. (M) 2021-0256 : Turtle egg hole on riverside slope. (M)
		M	The existing animal burrow control program needs to be improved. Several burrows are present which may lead to seepage or slope stability problems, and they require immediate attention.	
		U	Animal burrow control program is not effective or is nonexistent. Significant maintenance is required to fill existing burrows, and the levee will not provide reliable flood protection until this maintenance is complete.	

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**Flood Damage Reduction Segments / Systems
Inspection Report
Highland**

**Levee Embankments
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Levee Embankments: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
11. Culverts/ Discharge Pipes (This item includes both concrete and corrugated metal pipes.)	M	A	There are no breaks, holes, cracks in the discharge pipes/ culverts that would result in significant water leakage. The pipe shape is still essentially circular. All joints appear to be closed and the soil tight. Corrugated metal pipes, if present, are in good condition with 100% of the original coating still in place (either asphalt or galvanizing) or have been relined with appropriate material, which is still in good condition. Condition of pipes has been verified using television camera video taping or visual inspection methods within the past five years, and the report for every pipe is available for review by the inspector.	Justification: Camera inspection performed in May and June 2016 for the following culverts: 18-inch CMP (HI-1) - Deformed pipe, hole (M) 24-inch RCP (HI-2) - Circumferential crack with roots (M) 48-inch RCP (HI-3) 24-inch RCP (HI-4) - Circumferential cracks (M) 36-inch RCP (HI-5) 48-inch RCP (HI-6) 60-inch RCP (HI-7A) - Offset joint (M) 96-inch RCP (HI-7B) 36-inch RCP (HI-9) 36-inch RCP (HI-10A) 36-inch RCP (HI-10B) 36-inch RCP (HI-10C) 36-inch RCP (HI-10D) 48-inch RCP (HI-11) Address deficiencies. Refer to the camera inspection report for more details. Next inspection should be performed in 2021.
		M	There are a small number of corrosion pinholes or cracks that could leak water and need to be repaired, but the entire length of pipe is still structurally sound and is not in danger of collapsing. Pipe shape may be ovalized in some locations but does not appear to be approaching a curvature reversal. A limited number of joints may have opened and soil loss may be beginning. Any open joints should be repaired prior to the next inspection. Corrugated metal pipes, if present, may be showing corrosion and pinholes but there are no areas with total section loss. Condition of pipes has been verified using television camera video taping or visual inspection methods within the past five years, and the report for every pipe is available for review by the inspector.	
		U	Culvert has deterioration and/or has significant leakage; it is in danger of collapsing or as already begun to collapse. Corrugated metal pipes have suffered 100% section loss in the invert. HOWEVER: Even if pipes appear to be in good condition, as judged by an external visual inspection, an Unacceptable Rating will be assigned if the condition of pipes has not been verified using television camera video taping or visual inspection methods within the past five years, and reports for all pipes are not available for review by the inspector.	
		N/A	There are no discharge pipes/ culverts.	
12. Riprap Revetments & Bank Protection	A	A	No riprap displacement or stone degradation that could pose an immediate threat to the integrity of channel bank. Riprap intact with no woody vegetation present.	Justification: No issues noted.
		M	Minor riprap displacement or stone degradation that could pose an immediate threat to the integrity of the channel bank. Unwanted vegetation must be cleared or sprayed with an appropriate herbicide.	
		U	Significant riprap displacement, exposure of bedding, or stone degradation observed. Scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Rock protection is hidden by dense brush, trees, or grasses.	
		N/A	There is no riprap protecting this feature of the segment / system, or riprap is discussed in another section.	
13. Revetments other than Riprap	NA	A	Existing revetment protection is properly maintained, undamaged, and clearly visible.	
		M	Minor revetment displacement or deterioration that does not pose an immediate threat to the integrity of the levee. Unwanted vegetation must be cleared or sprayed with an appropriate herbicide.	
		U	Significant revetment displacement, deterioration, or exposure of bedding observed. Scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Revetment protection is hidden by dense brush and trees.	
		N/A	There are no such revetments protecting this feature of the segment / system.	

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**Flood Damage Reduction Segments / Systems
Inspection Report
Highland**

**Levee Embankments
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Levee Embankments: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
14. Underseepage Relief Wells/ Toe Drainage Systems	NA	A	Toe drainage systems and pressure relief wells necessary for maintaining FDR segment / system stability during high water functioned properly during the last flood event and no sediment is observed in horizontal system (if applicable). Nothing is observed which would indicate that the drainage systems won't function properly during the next flood, and maintenance records indicate regular cleaning. Wells have been pumped tested within the past 5 years and documentation is provided.	
		M	Toe drainage systems or pressure relief wells are damaged and may become clogged if they are not repaired. Maintenance records are incomplete or indicate irregular cleaning and pump testing.	
		U	Toe drainage systems or pressure relief wells necessary for maintaining FDR segment / system stability during flood events have fallen into disrepair or have become clogged. No maintenance records. No documentation of the required pump testing.	
		N/A	There are no relief wells/ toe drainage systems along this component of the FDR segment / system.	
15. Seepage	M	A	No evidence or history of unrepaired seepage, saturated areas, or boils.	2021-0263 : Area of pin boils on landside toe by asphalt path. No repairs performed but monitoring. (M) Justification: Area of pin boils. No repairs performed but monitoring.
		M	Evidence or history of minor unrepaired seepage or small saturated areas at or beyond the landside toe but not on the landward slope of levee. No evidence of soil transport.	
		U	Evidence or history of active seepage, extensive saturated areas, or boils.	

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**Flood Damage Reduction Segments / Systems
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**Levee Embankments
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Floodwalls: Highland

For use during Initial and Continuing Eligibility Inspections of all floodwalls

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
1. Unwanted Vegetation Growth	M	A	A grass-only or paved zone is maintained on both sides of the floodwall, free of all trees, brush, and undesirable weeds. The vegetation-free zone extends 15 feet from both the land and riverside of the floodwall, at ground-level, to the centerline of the tree. Additionally, an 8- foot root-free zone is maintained around the entire structure, including the floodwall toe, heel, and any toe-drains. If the floodwall access easement doesn't extend to the described limits, then the vegetation-free zone must be maintained to the easement limits. Reference EM 1110- 2-301 and/or Corps policy for regional vegetation variance.	2021-0007 : Bushes on riverside. Cut. (M) 2021-0019 : Bushes on riverside. Cut. (M) 2021-0103 : Trees on landside. Cut. (M) 2021-0112 : Large bushes on landside. Cut. (M) 2021-0115 : Small trees and bushes on waterside. Cut. (M) 2021-0140 : Small tree growing at the bottom of floodwall on landside. (A) 2021-0145 : Trees on riverside. Cut. (M) 2021-0172 : Trees on riverside. Cut. (M)
		M	Minimal vegetation growth (brush, weeds, or trees 2 inches in diameter or smaller) is present within the zones described above. This vegetation must be removed but does not currently threaten the operation or integrity of the floodwall.	
		U	Significant vegetation growth (brush, weeds, or any trees greater than 2 inches in diameter) is present within the zones described above. This vegetation threatens the operation or integrity of the floodwall and must be removed.	
2. Encroachments	A	A	No trash, debris, unauthorized structures, excavations, or other obstructions present within the easement area. Encroachments have been previously reviewed by the Corps, and it was determined that they do not diminish proper functioning of the floodwall.	Justification: No issues noted.
		M	Trash, debris, unauthorized structures, excavations, or other obstructions present, or inappropriate activities noted that should be corrected but will not inhibit operations and maintenance or emergency operations. Encroachments have not been reviewed by the Corps.	
		U	Unauthorized encroachments or inappropriate activities noted are likely to inhibit operations and maintenance, emergency operations, or negatively impact the integrity of the floodwall.	
3. Closure Structures (Stop Log Closures and Gates) (A or U only)	A	A	Closure structure in good repair. Placing equipment, stoplogs, and other materials are readily available at all times. Components are clearly marked and installation instructions/ procedures readily available. Trial erections have been accomplished in accordance with the O&M Manual.	2021-0106 : Crack on concrete sill. Repair. (A) 2021-0109 : Missing rubber seal. Replace. (A) 2021-0130 : Spalling and grass on sill. Clear off concrete. (A)
		U	Any of the following issues is cause for this rating: Closure structure in poor condition. Parts missing or corroded. Placing equipment may not be available within the anticipated warning time. The storage vaults cannot be opened during the time of inspection. Components of closure are not clearly marked and installation instructions/ procedures are not readily available. Trial erections have not been accomplished in accordance with the O&M Manual.	
		N/A	There are no closure structures along this component of the FDR segment / system.	
4. Concrete Surfaces	M	A	Negligible spalling, scaling or cracking. If the concrete surface is weathered or holds moisture, it is still satisfactory but should be seal coated to prevent freeze/ thaw damage.	2021-0013 : Crack on riverside. Seal. (M) 2021-0022 : Crack on riverside. (M) 2021-0025 : Minor cracks on riverside. Monitor. (A) 2021-0118 : Crack on landside. Seal. (M) 2021-0121 : Minor cracking on top, typical. Monitor. (A) 2021-0148 : Spalling by North 5th PS outlet. Patch. (M) 2021-0175 : Crack in cap, typical. Seal. (M) 2021-0181 : Spalling on landside cap. Patch. (M) 2021-0187 : Crack on landside. Seal. (M)
		M	Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs/ sealing is necessary to prevent additional damage during periods of thawing and freezing.	
		U	Surface deterioration or deep cracks present that may result in an unreliable structure. Any surface deterioration that exposes the sheet piling or lies adjacent to monolith joints may indicate underlying reinforcement corrosion and is unacceptable.	

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**Flood Damage Reduction Segments / Systems
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Highland**

**Floodwalls
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Floodwalls: Highland

For use during Initial and Continuing Eligibility Inspections of all floodwalls

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
5. Tilting, Sliding or Settlement of Concrete Structures	M	A	There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the structure.	2021-0178 : 1.5 inch offset. Continued deterioration of sealant. Remove old sealant, seal, and monitor for continued movement. (M)
		M	There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The maximum offset, either laterally or vertically, does not exceed 2 inches unless the movement can be shown to be no longer actively occurring. The integrity of the structure is not in danger.	
		U	There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance. Any movement that has resulted in failure of the waterstop (possibly identified by daylight visible through the joint) is unacceptable. Differential movement of greater than 2 inches between any two adjacent monoliths, either laterally or vertically, is unacceptable unless it can be shown that the movement is no longer active. Also, if the floodwall is of I-wall construction, then any visible or measurable tilting of the wall toward the protected side that has created an open horizontal crack on the riverside base of a monolith is unacceptable.	
6. Foundation of Concrete Structures	M	A	No active erosion, scouring, or bank caving that might endanger the structure's stability.	2021-0127 : Low spot along wall on landside. Fill. (M)
		M	There are areas where the ground is eroding towards the base of the structure. Efforts need to be taken to slow and repair this erosion, but it is not judged to be close enough to the structure or to be progressing rapidly enough to affect structural stability before the next inspection. For the purposes of inspection, the erosion or scour is not closer to the riverside face of the wall than twice the floodwall's underground base width if the wall is of L-wall or T-wall construction; or if the wall is of sheetpile or I-wall construction, the erosion is not closer than twice the wall's visible height. Additionally, rate of erosion is such that the wall is expected to remain stable until the next inspection.	
		U	Erosion or bank caving observed that is closer to the wall than the limits described above, or is outside these limits but may lead to structural instabilities before the next inspection. Additionally, if the floodwall is of I-wall or sheetpile construction, the foundation is unacceptable if any turf, soil or pavement material got washed away from the landside of the I-wall as the result of a previous overtopping event.	
7. Monolith Joints	M	A	The joint material is in good condition. The exterior joint sealant is intact and cracking/ desiccation is minimal. Joint filler material and/or waterstop is not visible at any point.	2021-0016 : Deterioration of sealant. Remove old caulking and reseal. (M)
		M	The joint material has appreciable deterioration to the point where joint filler material and/or waterstop is visible in some locations. This needs to be repaired or replaced to prevent spalling and cracking during freeze/ thaw cycles, and to ensure water tightness of the joint.	2021-0124 : Deteriorating sealant on both sides, typical. Remove old caulking and reseal. (M) 2021-0133 : Deteriorating sealant on both sides. Remove old caulking and reseal. (M)
		U	The joint material is severely deteriorated or the concrete adjacent to the monolith joints has spalled and cracked, damaging the waterstop; in either case damage has occurred to the point where it is apparent that the joint is no longer watertight and will not provide the intended level of protection during a flood.	2021-0143 : Missing sealant on both sides of the floodwall. Check that filler is present and seal. (M) 2021-0184 : Deteriorating sealant. Remove old caulking and reseal. (M)
		N/A	There are no monolith joints in the floodwall.	2021-0193 : Sealant missing from bottom of joint. Seal. (M)

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**Flood Damage Reduction Segments / Systems
Inspection Report
Highland**

**Floodwalls
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Floodwalls: Highland

For use during Initial and Continuing Eligibility Inspections of all floodwalls

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
8. Underseepage Relief Wells/ Toe Drainage Systems	NA	A	Toe drainage systems and pressure relief wells necessary for maintaining FDR segment / system stability during high water functioned properly during the last flood event and no sediment is observed in horizontal system (if applicable). Nothing is observed which would indicate that the drainage systems won't function properly during the next flood, and maintenance records indicate regular cleaning. Wells have been pumped tested within the past 5 years and documentation is provided.	
		M	Toe drainage systems or pressure relief wells are damaged and may become clogged if they are not repaired. Maintenance records are incomplete or indicate irregular cleaning and pump testing.	
		U	Toe drainage systems or pressure relief wells necessary for maintaining FDR segment / system stability during flood events have fallen into disrepair or have become clogged. No maintenance records. No documentation of the required pump testing.	
		N/A	There are no relief wells/ toe drainage systems along this component of the FDR segment / system.	
9. Seepage	A	A	No evidence or history of unrepaired seepage, saturated areas, or boils.	Justification: No issues noted.
		M	Evidence or history of minor unrepaired seepage or small saturated areas at or beyond the landside toe but not on the landward slope of levee. No evidence of soil transport.	
		U	Evidence or history of active seepage, extensive saturated areas, or boils.	

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**Flood Damage Reduction Segments / Systems
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Interior Drainage System: Highland

For use during Initial and Continuing Eligibility Inspections of interior drainage systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
1. Vegetation and Obstructions	M	A	No obstructions, vegetation, debris, or sediment accumulation noted within interior drainage channels or blocking the culverts, inlets, or discharge areas. Concrete joints and weep holes are free of grass and weeds.	2021-0008 : HI-4: The inlet is free of debris but there is vegetation and trees growing around the concrete structure. Cut. (M)
		M	Obstructions, vegetation, debris, or sediment are minor and have not impaired channel flow capacity or blocked more than 10% of any culvert openings, but should be removed. A limited volume of grass and weeds may be present in concrete channel joints and weep holes.	2021-0010 : HI-1: Clear vegetation. (M) 2021-0017 : HI-5: Large amount vegetation/debris in the inlet. Clear. (M)
		U	Obstructions, vegetation, debris, or sediment have impaired the channel flow capacity or blocked more than 10% of a culvert opening. Sediment and debris removal required to reestablish flow capacity.	2021-0028 : HI-2: Remove tree. (M) 2021-0050 : HI-9: Tall vegetation blocking inlet. (M) 2021-0055 : Whole length of ditch filled with tall vegetation. Cut. (M) 2021-0068 : HI-1: Vegetation blocking outlet. Clear. (M) 2021-0094 : HI-6: Trees on riverside toe. Remove. (M) 2021-0104 : HI-11: Tall vegetation blocking inlet. Clear. (M) 2021-0107 : HI-11: Tall vegetation blocking outlet. Clear. (M)
2. Encroachments	A	A	No trash, debris, unauthorized structures, excavations, or other obstructions present within the easement area. Encroachments have been previously reviewed by the Corps, and it was determined that they do not diminish proper functioning of the interior drainage system.	Justification: No issues noted.
		M	Trash, debris, unauthorized structures, excavations, or other obstructions present, or inappropriate activities noted that should be corrected but will not inhibit operations and maintenance or emergency operations. Encroachments have not been reviewed by the Corps.	
		U	Unauthorized encroachments or inappropriate activities noted are likely to inhibit operations and maintenance, emergency operations, or negatively impact the integrity of this component of the interior drainage system.	
3. Ponding Areas	NA	A	No trash, debris, structures, or other obstructions present within the ponding areas. Sediment deposits do not exceed 10% of capacity.	
		M	Trash, debris, excavations, structures, or other obstructions present, or inappropriate activities that will not inhibit operations and maintenance. Sediment deposits do not exceed 30% of capacity.	
		U	Trash, debris, excavations, structures, or other obstructions, or other encroachments or activities noted that will inhibit operations, maintenance, or emergency work. Sediment deposits exceeds 30% of capacity.	
		N/A	There are no ponding areas associated with the interior drainage system.	
4. Fencing and Gates	M	A	Fencing is in good condition and provides protection against falling or unauthorized access. Gates open and close freely, locks are in place, and there is little corrosion on metal parts.	2021-0002 : HI-4: Minor vegetation growing along the fence. (A)
		M	Fencing or gates are damaged or corroded but appear to be maintainable. Locks may be missing or damaged.	2021-0047 : HI-7: The fence is intact and in good condition. There is a small amount of graffiti on the side of the concrete structure. (A)
		U	Fencing and gates are damaged or corroded to the point that replacement is required, or potentially dangerous features are not secured.	2021-0053 : HI-9: Minor vegetation near fence. (A) 2021-0071 : HI-10: Tall vegetation in fence, remove. (M)
		N/A	There are no features noted that require safety fencing.	2021-0083 : HI-10a-d: Trash needs to be remove from gate periodically. (M) 2021-0122 : HI-11: The fence has minor vegetation. (A)

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Interior Drainage System: Highland

For use during Initial and Continuing Eligibility Inspections of interior drainage systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
5. Concrete Surfaces (Such as gatewells, outfalls, intakes, or culverts)	M	A	Negligible spalling, scaling or cracking. If the concrete surface is weathered or holds moisture, it is still satisfactory but should be seal coated to prevent freeze/ thaw damage.	2021-0023 : HI-5: Minor spalling at the edges. (A) 2021-0065 : HI-9: There is a crack reforming on the outlet headwall. Seal or repair. (M)
		M	Spalling, scaling, and open cracking present, but the immediate integrity or performance of the structure is not threatened. Reinforcing steel may be exposed. Repairs/ sealing is necessary to prevent additional damage during periods of thawing and freezing.	
		U	Surface deterioration or deep cracks present that may result in an unreliable structure. Any surface deterioration that exposes the sheet piling or lies adjacent to monolith joints may indicate underlying reinforcement corrosion and is unacceptable.	
		N/A	There are no concrete items in the interior drainage system.	
6. Tilting, Sliding or Settlement of Concrete and Sheet Pile Structures (Such as gate wells, outfalls, intakes, or culverts)	A	A	There are no significant areas of tilting, sliding, or settlement that would endanger the integrity of the structure.	Justification: No issues noted.
		M	There are areas of tilting, sliding, or settlement (either active or inactive) that need to be repaired. The maximum offset, either laterally or vertically, does not exceed 2 inches unless the movement can be shown to be no longer actively occurring. The integrity of the structure is not in danger.	
		U	There are areas of tilting, sliding, or settlement (either active or inactive) that threaten the structure's integrity and performance. Any movement that has resulted in failure of the waterstop (possibly identified by daylight visible through the joint) is unacceptable. Differential movement of greater than 2 inches between any two adjacent monoliths, either laterally or vertically, is unacceptable unless it can be shown that the movement is no longer active. Also, if the floodwall is of I-wall construction, then any visible or measurable tilting of the wall toward the protected side that has created an open horizontal crack on the riverside base of a monolith is unacceptable.	
		N/A	There are no concrete items in the interior drainage system.	
7. Foundation of Concrete Structures (Such as culverts, inlet and discharge structures, or gatewells.)	A	A	No active erosion, scouring, or bank caving that might endanger the structure's stability.	Justification: No issues noted.
		M	There are areas where the ground is eroding towards the base of the structure. Efforts need to be taken to slow and repair this erosion, but it is not judged to be close enough to the structure or to be progressing rapidly enough to affect structural stability before the next inspection. The rate of erosion is such that the structure is expected to remain stable until the next inspection.	
		U	Erosion or bank caving observed that may lead to structural instabilities before the next inspection.	
		N/A	There are no concrete items in the interior drainage system.	
8. Monolith Joints	A	A	The joint material is in good condition. The exterior joint sealant is intact and cracking/ desiccation is minimal. Joint filler material and/or waterstop is not visible at any point.	Justification: No issues noted.
		M	The joint material has appreciable deterioration to the point where joint filler material and/or waterstop is visible in some locations. This needs to be repaired or replaced to prevent spalling and cracking during freeze/ thaw cycles, and to ensure water tightness of the joint.	
		U	The joint material is severely deteriorated or the concrete adjacent to the monolith joints has spalled and cracked, damaging the waterstop; in either case damage has occurred to the point where it is apparent that the joint is no longer watertight and will not provide the intended level of protection during a flood.	
		N/A	There are no monolith joints in the interior drainage system.	

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Interior Drainage System: Highland

For use during Initial and Continuing Eligibility Inspections of interior drainage systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
9. Culverts/ Discharge Pipes	M	A	There are no breaks, holes, cracks in the discharge pipes/ culverts that would result in significant water leakage. The pipe shape is still essentially circular. All joints appear to be closed and the soil tight. Corrugated metal pipes, if present, are in good condition with 100% of the original coating still in place (either asphalt or galvanizing) or have been relined with appropriate material, which is still in good condition. Condition of pipes has been verified using television camera video taping or visual inspection methods within the past five years, and the report for every pipe is available for review by the inspector.	Justification: Camera inspection performed in May and June 2016 for the following culverts: 18-inch CMP (HI-1) - Deformed pipe, hole (M) 24-inch RCP (HI-2) - Circumferential crack with roots (M) 48-inch RCP (HI-3) 24-inch RCP (HI-4) - Circumferential cracks (M) 36-inch RCP (HI-5) 48-inch RCP (HI-6) 60-inch RCP (HI-7A) - Offset joint (M) 96-inch RCP (HI-7B) 36-inch RCP (HI-9) 36-inch RCP (HI-10A) 36-inch RCP (HI-10B) 36-inch RCP (HI-10C) 36-inch RCP (HI-10D) 48-inch RCP (HI-11) Address deficiencies. Refer to the camera inspection report for more details. Next inspection should be performed in 2021.
		M	There are a small number of corrosion pinholes or cracks that could leak water and need to be repaired, but the entire length of pipe is still structurally sound and is not in danger of collapsing. Pipe shape may be ovalized in some locations but does not appear to be approaching a curvature reversal. A limited number of joints may have opened and soil loss may be beginning. Any open joints should be repaired prior to the next inspection. Corrugated metal pipes, if present, may be showing corrosion and pinholes but there are no areas with total section loss. Condition of pipes has been verified using television camera video taping or visual inspection methods within the past five years, and the report for every pipe is available for review by the inspector.	
		U	Culvert has deterioration and/or has significant leakage; it is in danger of collapsing or as already begun to collapse. Corrugated metal pipes have suffered 100% section loss in the invert. HOWEVER: Even if pipes appear to be in good condition, as judged by an external visual inspection, an Unacceptable Rating will be assigned if the condition of pipes has not been verified using television camera video taping or visual inspection methods within the past five years, and reports for all pipes are not available for review by the inspector.	
		N/A	There are no discharge pipes/ culverts.	
10. Sluice / Slide Gates	M	A	Gates open and close freely to a tight seal or minor leakage. Gate operators are in good working condition and are properly maintained. Sill is free of sediment and other obstructions. Gates and lifters have been maintained and are free of corrosion. Documentation provided during the inspection.	2021-0011 : HI-3: The sluice gate moved up and down without any resistance. Note that the crew in charge of operating these gates oiled it before starting. (A) 2021-0014 : HI-3: The sluice gate opens and closed without resistance. There was a small amount of sediment inside the gatewell. (A) 2021-0026 : HI-5: The gate is having issues when it comes to opening. It appears there was a cover over the opening but has been removed. This can lead to corrosion. Replace cover. (M) 2021-0032 : HI-5: The sluice gate couldn't be closed all the way. Viewing the picture you. An see that the top bolt doesn't match line up with the side bars. The gate also moves back and forth when being raised and lowered so the side rails are corroded or have sediment inside of it. Investigate and repair. (M) 2021-0041 : HI-7: There isn't an appropriate wet well to view the gate for an proper inspection. (A) 2021-0044 : HI-7 The sluice gate opened without any resistance. The operators oiled it that day. (A) 2021-0056 : HI-9: Sluice gate opened and closed without resistance. The team oiled the gate the same day. (A) 2021-0059 : HI-9: The sluice gate opened and closed without any resistance. (A) 2021-0077 : HI-10d: The sluice gate operated but there was some resistance on the way down. The gate also made squeaking noises. Investigate and repair. The operators oiled the gates that day. (M) 2021-0080 : HI-10d: The gate made a small noise going down
		M	Gates and/or operators have been damaged or have minor corrosion, and open and close with resistance or binding. Leakage quantity is controllable, but maintenance is required. Sill is free of sediment and other obstructions.	
		U	Gates do not open or close and/or operators do not function. Gate, stem, lifter and/or guides may be damaged or have major corrosion.	
		N/A	There are no sluice/ slide gates.	

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For use during Initial and Continuing Eligibility Inspections of interior drainage systems

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				<p>but was able to close completely. A small amount of sediment is on the bottom. Clean. (M)</p> <p>2021-0086 : HI-10c: The sluice gate opened and closed without any resistance. There is some mild cohesion outside the Matlin casting. Recommend painting. The operators oiled them the day of the inspection. (A)</p> <p>2021-0089 : HI-10c: The sluice gate opens and closes without any resistance. (A)</p> <p>2021-0092 : HI-10a: The sluice gate opened and closed with little to no resistance. There is some mild corrosion on the outside. Recommend painting. (M)</p> <p>2021-0095 : HI-10a: The sluice gate opened and closed without any resistance. There is mild corrosion on top of the gate, recommend painting. (M)</p> <p>2021-0098 : HI-10b: The sluice gate opened without any resistance. There is mild corrosion on the outside of the metallic casing, recommend painting. (M)</p> <p>2021-0101 : HI-10b: The sluice gate opened and closed without any resistance. (A)</p> <p>2021-0113 : HI-11: SG gage hard to see, replace lens. (M)</p> <p>2021-0116 : HI-11: The sluice gate was able to close completely without resistance. There is a large amount of sediment in the gate pit. The gate struggled to open but was eventually opened. Might need to reinstall side railing. (M)</p> <p>2021-0119 : HI-11: Sluice gate was oiled the same day. The outside, attic casing is starting to rust, recommend painting. (M)</p>
11. Flap Gates/ Flap Valves/ Pinch Valves	M	A	Gates/ valves open and close easily with minimal leakage, have no corrosion damage, and have been exercised and lubricated as required.	<p>2021-0005 : HI-4: The flap gate is fully closed and nothing is blocking the outlet. (A)</p> <p>2021-0020 : HI-5: Flap gate is closed completely, no obstruction blocks the outlet path. Trees around the concrete structure. (A)</p> <p>2021-0038 : HI-9: The flap gate is closed completely. There is a very small amount of debris around the exit. Mild corrosion along bottom of the flap gate. (A)</p> <p>2021-0062 : HI-9: The flap gate is completely closed. There is a small amount of debris at the outlet point. (A)</p> <p>2021-0074 : HI-10: Multiple flap gates not shut completely. Clear debris. (M)</p> <p>2021-0110 : HI-11: Flap gate not fully closed. Clear debris. (M)</p>
		M	Gates/ valves will not fully open or close because of obstructions that can be easily removed, or have minor corrosion damage that requires maintenance.	
		U	Gates/ valves are missing, have been damaged, or have deteriorated to the point that they need to be replaced.	
		N/A	There are no flap gates.	
12. Trash Racks (non-mechanical)	A	A	Trash racks are fastened in place and properly maintained.	Justification: No issues noted.
		M	Trash racks are in place but are unfastened or have bent bars that allow debris to enter into the pipe or pump station, bars are corroded to the point that up to 10% of the sectional area may be lost. Repair or replacement is required.	
		U	Trash racks are missing or damaged to the extent that they are no longer functional and must be replaced. (For example, more than 10% of the sectional area may be lost.)	
		N/A	There are no trash racks, or they are covered in the pump stations section of the report.	

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**Flood Damage Reduction Segments / Systems
Inspection Report
Highland**

**Interior Drainage System
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Interior Drainage System: Highland

For use during Initial and Continuing Eligibility Inspections of interior drainage systems

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
13. Other Metallic Items	A	A	All metal parts are protected from corrosion damage and show no rust, damage, or deterioration that would cause a safety concern.	Justification: No issues noted.
		M	Corrosion seen on metallic parts appears to be maintainable.	
		U	Metallic parts are severely corroded and require replacement to prevent failure, equipment damage, or safety issues.	
		N/A	There are no other significant metallic items.	
14. Riprap Revetments of Inlet/ Discharge Areas	A	A	No riprap displacement or stone degradation that could pose an immediate threat to the integrity of channel bank. Riprap intact with no woody vegetation present.	Justification: No issues noted.
		M	Minor riprap displacement or stone degradation that could pose an immediate threat to the integrity of the channel bank. Unwanted vegetation must be cleared or sprayed with an appropriate herbicide.	
		U	Significant riprap displacement, exposure of bedding, or stone degradation observed. Scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Rock protection is hidden by dense brush, trees, or grasses.	
		N/A	There is no riprap protecting this feature of the segment / system, or riprap is discussed in another section.	
15. Revetments other than Riprap	NA	A	No riprap displacement or stone degradation that could pose an immediate threat to the integrity of channel bank. Riprap intact with no woody vegetation present.	
		M	Minor riprap displacement or stone degradation that could pose an immediate threat to the integrity of the channel bank. Unwanted vegetation must be cleared or sprayed with an appropriate herbicide.	
		U	Significant riprap displacement, exposure of bedding, or stone degradation observed. Scour activity is undercutting banks, eroding embankments, or impairing channel flows by causing turbulence or shoaling. Rock protection is hidden by dense brush, trees, or grasses.	
		N/A	There are no such revetments protecting this feature of the segment / system.	

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**Flood Damage Reduction Segments / Systems
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Pump Stations: Highland

For use during Initial and Continuing Eligibility Inspections of pump stations

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
1. Pump Stations Operating, Maintenance, Training, & Inspection Records	A	A	Operation, maintenance and inspection records are present at the pump station and are being used and updated, and personnel have been trained in pump station operations. Names and last training date shown in the record book.	2021-0066 : PS-ND: Operations manuals on site. (A)
		M	Operation, maintenance and inspection records are present but not adequately used and updated.	
		U	No operation, maintenance and inspection records are present, or refresher training for personnel has not been conducted.	
2. Pump Station Operations and Maintenance Equipment Manuals	A	A	Operation and Maintenance Equipment Manuals and/or posted operating instructions are present and updated as required, and adequately cover all pertinent pump station features. O&M manuals include points of contact for manufacturers and suppliers of major equipment used in the facility.	2021-0024 : PS-81: Operations manuals on site. (A)
		M	Operation and Maintenance Equipment Manuals and/or posted operating instructions are present and adequately cover all pertinent pump station features. However, they are incomplete and the necessary updates have not been made.	
		U	Operation and Maintenance Equipment Manuals are not available.	
3. Safety Compliance	M	A	Safety compliance inspection reports by applicable local, state, or federal agencies available for review.	2021-0021 : PS-81: Confined space warnings needed throughout. (M) 2021-0045 : PS-N5: Arc flash labels on switchboard needed. (M) 2021-0048 : PS-N5: Confined space labels needed throughout building. (M) 2021-0051 : PS-N5: Confined space label needed. (M) 2021-0069 : PS-N5: Arc flash labels need updating. (M)
		M	No safety compliance inspection reports are available for review.	
4. Communications (A or M only)	A	A	A telephone, cellular phone, two-way radio, or similar device is available to pump station operator and maintenance personnel.	Justification: No issues noted.
		M	A telephone, cellular phone, two-way radio, or similar device is not available to pump station operator and maintenance personnel.	

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Pump Stations: Highland

For use during Initial and Continuing Eligibility Inspections of pump stations

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
5. Plant Building	M	A	The building is in good structural condition with no major foundation settlement problems. The roof is not leaking, intake & exhaust louvers are clear of debris, fans are operational, etc.	2021-0003 : PS-81: Concrete cracked and loose near handrail. Repair. (M)
		M	There are minor structural defects, minimal foundation settlement, leaks, or other conditions noted that need repair. Defects do not threaten the structural integrity or stability of the building, and will not impact pumping operations.	2021-0006 : PS-81: Surface cracking of concrete pad. Monitor and repair as needed. (M) 2021-0015 : PS-81: Concrete section of approach has been replaced early 2021. Good condition. (A)
		U	The structural integrity or stability of the building is threatened, or there is damage to the building that threatens safety of the operator or impacts pumping operations.	2021-0033 : PS-N5: Minor surface rust on SWP-5 and SWP-6. Perform regular maintenance by painting and scaling. (M) 2021-0036 : PS-N5: Minor spalling on exterior pads. Monitor and repair as necessary. (A) 2021-0039 : PS-N5: Crack along exterior wall infiltrated with moss. Remove vegetation and seal crack. (M) 2021-0042 : PS-N5: Erosion of soil near door. Replace soil to avoid undercutting of pavement. (M) 2021-0057 : PS-N5: Ceiling showing rust spalling near old skylight. Monitor and repair If additional concrete becomes loose. (M) 2021-0060 : PS-ND: Joint seal failed on south side near entrance., water stop exposed. Repair and replace along entire length. (M) 2021-0063 : PS-ND: Minor cracking along riverside headwall. Monitor for growth. (A)
6. Fencing and Gates	A	A	Fencing is in good condition and provides protection against falling or unauthorized access. Gates open and close freely, locks are in place, and there is little corrosion on metal parts.	Justification: No issues noted.
		M	Fencing or gates are damaged or corroded but appear to be maintainable. Locks may be missing or damaged.	
		U	Fencing and gates are damaged or corroded to the point that replacement is required, or potentially dangerous features are not secured.	
		N/A	There are no features noted that require safety fencing.	
7. Pumps	M	A	All pumps are properly maintained and lubricated. Systems are periodically tested and documented for review. No vibration, cavitation noises or unusual sounds are noted when the pump is operated. Bearing temperature sensor records don't indicate any problems.	2021-0012 : PS-81: Hydraulic fluid leak coming from pump DWP-2. Monitor and investigate. (M)
		M	Minor deficiencies noted that need to be closely monitored or repaired, such as the presence of slight vibrations, leakage of packing gland, bearing temperature sensors are inoperable or no record is present. However, the pumps are operational and are expected to perform through the next period of usage.	2021-0018 : PS-81: Replaced pump on water sealage unit in 2021. (A)
		U	Major deficiencies identified that may significantly reduce pumping operations. For example, bearing sensor records indicate problems, excessive vibration noted, impellers are badly corroded, or there are eroded or missing blades.	2021-0072 : PS-ND: Pumps not directly accessible for inspection. Cavitation observed on impeller vane of pump 1 and 2. Holes in both impeller. Should be addressed, local sponsor is aware. (M)

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Pump Stations: Highland

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Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
8. Motors, Engines, Fans, Gear Reducers, Back Stop Devices, etc.	M	A	All items are operational. Preventative maintenance and lubrication is being performed and the system is periodically subjected to performance testing. Instrumentation, alarms, bearing sensors and auto shutdowns are operational.	2021-0054 : PS-N5: EF-3 exhaust fan is inoperable. Local sponsor is aware of issue and planning for replacement. (M)
		M	Systems have minor deficiencies, but are operational and will function adequately through the next flood. Bearing sensors are not operational.	
		U	One or more of the primary motors or systems is not operational, or noted deficiencies have not been corrected.	
9. Sumps / Wet well	A	A	Clear of debris, sediment, or other obstructions. Procedures are in place to remove debris accumulation during operation.	Justification: No issues noted.
		M	Debris, sediment, or other obstructions may be present and must be removed, but the sump/ wet well will function as intended during the next flood. Procedures are in place to remove debris accumulation during operation.	
		U	Large debris or excessive silt present which will hinder or damage pumps during operation, or no procedures established to remove debris accumulation during operation.	
10. Mechanical Operating Trash Rakes	A	A	Drive chain, bearing, gear reducers, and other components are in good operating condition and are being properly maintained.	Justification: No issues noted.
		M	The trash rake is in need of maintenance, but is still operational.	
		U	Trash rake not operational or deficiencies will inhibit operations during the next flood event.	
		N/A	There are no mechanical trash rakes.	
11. Non-Mechanical Trash Racks	A	A	Trash racks are fastened in place and properly maintained.	Justification: No issues noted.
		M	Trash racks are in place but are unfastened or have bent bars that allow debris to enter into the pipe or pump station, bars are corroded to the point that up to 10% of the sectional area may be lost. Repair or replacement is required.	
		U	Trash racks are missing or damaged to the extent that they are no longer functional and must be replaced. (For example, more than 10% of the sectional area may be lost.)	
		N/A	There are no trash racks, or they are covered in the pump stations section of the report.	
12. Fuel System for Pump Engines	A	A	Fuel system is operational, day tank present and operational, fuel fresh and rotated regularly.	Justification: No issues noted.
		M	Fuel system is operational and of adequate capacity, but day tank is missing or fuel is not fresh and rotated regularly.	
		U	Fuel system not functional.	
		N/A	No fuel system.	

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**Flood Damage Reduction Segments / Systems
Inspection Report
Highland**

**Pump Stations
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Pump Stations: Highland

For use during Initial and Continuing Eligibility Inspections of pump stations

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
13. Power Source	A	A	The normal power source and backup generators, if installed, are operational, properly exercised and well maintained. Surge protection, grounding, lightning protection, transformers, and automatic/manual transfer of main power to backup system is working.	Justification: No issues noted.
		M	Normal power source and backup units, if applicable, are operational with minor discrepancies or maintenance, inspection and exercising record is present but not up to date. Preventative maintenance or repairs are required.	
		U	Normal power source or generators are not operational and must be repaired; or generator, if required, is not on site.	
14. Electrical Systems	M	A	Operational and maintained free of damage, corrosion, and debris. Preventative maintenance and system testing is being performed periodically.	2021-0009 : PS-81: DWP-2 MCC connection is inoperable. Pump appears to be fine, but contacts to energize it are damaged. Investigate and repair. (M) 2021-0030 : PS-81: Arc-flash warnings are needed for equipment throughout building. (M)
		M	Operational with minor discrepancies. Preventative maintenance or repairs are required, but the components are expected to function adequately during the next flood event.	
		U	Components of the electrical system will not function adequately during the next flood event and must be replaced.	
15. Megger Testing on Pump Motors and Critical Power Cables	A	A	Results of megger tests on pump motors or critical power cables show that the insulation meets manufacturer's or industry standards. Tested within the last year.	Justification: No issues noted.
		M	Megger testing not conducted within the past year. If megger tests on pump motors indicate that insulation resistance is below the manufacturer's or industry standard, but the resistance can be corrected with proper application of heat, this is minimally acceptable. (The application of heat does not relate to critical power cables.)	
		U	Megger tests not conducted within past two years, or tests indicate that insulation resistance is low enough that the equipment will not be able to meet design standards of operation; or evidence of arcing or shorting is detected visually.	
16. Enclosures, Panels, Conduit and Ducts	A	A	All enclosures, panels, conduits, and ducts are protected from corrosion damage and show no rust, damage, or deterioration that would cause a safety concern.	Justification: No issues noted.
		M	Minor surface corrosion which appears to be maintainable. Cleaning and painting required.	
		U	Severely corroded and must be replaced to prevent failure, equipment damage, or safety issues.	
17. Intake and Discharge Pipelines	A	A	Intake and discharge pipelines have no corrosion and paint is intact, except for minor touch up required. Pipe couplings and anchors have no leakage or corrosion.	Justification: No issues noted.
		M	Intake and discharge pipelines have minor corrosion and repair and painting is required. Pipe coupling with anchors have minor leakage, corrosion and require bolts to be tightened.	
		U	Intake and discharge pipelines have major corrosion and replacement is required. Pipe coupling with anchors have major leakage and is heavily corroded and requires replacement.	

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For use during Initial and Continuing Eligibility Inspections of pump stations

Rated Item	Rating	Rating Guidelines		Location/Remarks/Recommendations
18. Sluice/ Slide Gates	A	A	Gates open and close freely to a tight seal or minor leakage. Gate operators are in good working condition and are properly maintained. Sill is free of sediment and other obstructions. Gates and lifters have been maintained and are free of corrosion. Documentation provided during the inspection.	Justification: No issues noted.
		M	Gates and/or operators have been damaged or have minor corrosion, and open and close with resistance or binding. Leakage quantity is controllable, but maintenance is required. Sill is free of sediment and other obstructions.	
		U	Gates do not open or close and/or operators do not function. Gate, stem, lifter and/or guides may be damaged or have major corrosion.	
		N/A	There are no sluice/ slide gates.	
19. Flap Gates/ Flap Valves/ Pinch Valves	M	A	Gates/ valves open and close easily with minimal leakage, have no corrosion damage, and have been exercised and lubricated as required.	2021-0027 : PS-81: Flap gate slightly ajar, likely won't seal in the event of a flood. Clear any debris and adjust so that flap gate seals fully. (M)
		M	Gates/ valves will not fully open or close because of obstructions that can be easily removed, or have minor corrosion damage that requires maintenance.	
		U	Gates/ valves are missing, have been damaged, or have deteriorated to the point that they need to be replaced.	
		N/A	There are no gates on discharge lines from pump station.	
20. Cranes	NA	A	Cranes operational and have been inspected and load tested in accordance with applicable standards within the last year. Documentation is on hand.	
		M	Cranes have not been inspected or operationally tested within the past year, or there are visible signs of corrosion, oil leakage, etc, requiring maintenance.	
		U	Cranes are not operational, and this may prevent the pump station from functioning as required. No documentation available on cranes.	
		N/A	There are no cranes.	
21. Other Metallic Items (Equipment, Ladders, Platform Anchors, etc)	A	A	All metal parts are protected from corrosion damage and show no rust, damage, or deterioration that would cause a safety concern.	Justification: No issues noted.
		M	Corrosion seen on metallic parts appears to be maintainable.	
		U	Metallic parts are severely corroded and require replacement to prevent failure, equipment damage, or safety issues.	
		N/A	There are no other significant metallic items.	

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Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems





Inspect ID: 2021-0035 **Title:** 2604000007_CELRC_2021_A_0035_1_20210622T144122.jpg **Rated Item:** 2. Emergency Supplies and Equipment (A or M only) **Caption:** Acceptable - Sandbag storage



Inspect ID: 2021-0034 **Title:** 2604000007_CELRC_2021_A_0034_1_20210622T133821.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Small trees and bushes on landside along fence. Cut.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

	<p>Inspect ID: 2021-0037 Title: 2604000007_CELRC_2021_A_0037_1_20210622T133933.jpg Rated Item: 1. Unwanted Vegetation Growth Caption: Minimally Acceptable - Tree line around bend of levee on riverside within 15 ft. Cut.</p>
	<p>Inspect ID: 2021-0040 Title: 2604000007_CELRC_2021_A_0040_1_20210622T134441.jpg Rated Item: 1. Unwanted Vegetation Growth Caption: Minimally Acceptable - Trim tree line back in this area.</p>

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0043 **Title:** 2604000007_CELRC_2021_A_0043_1_20210622T134652.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Tree on landside of fence within 15 ft of toe. Cut.



Inspect ID: 2021-0046 **Title:** 2604000007_CELRC_2021_A_0046_1_20210622T134823.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Tree on landside of fence within 15 ft of toe. Cut.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

	<p>Inspect ID: 2021-0049 Title: 2604000007_CELRC_2021_A_0049_1_20210622T135158.jpg Rated Item: 1. Unwanted Vegetation Growth Caption: Minimally Acceptable - Trim back tree line.</p>
	<p>Inspect ID: 2021-0070 Title: 2604000007_CELRC_2021_A_0070_1_20210622T140709.jpg Rated Item: 1. Unwanted Vegetation Growth Caption: Minimally Acceptable - Remove trees on landside.</p>

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0079 **Title:** 2604000007_CELRC_2021_A_0079_1_20210622T141218.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Trees on landside toe. Cut.



Inspect ID: 2021-0091 **Title:** 2604000007_CELRC_2021_A_0091_1_20210622T141929.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Trees on landside toe. Cut.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

	<p>Inspect ID: 2021-0142 Title: 2604000007_CELRC_2021_A_0142_1_20210622T153437.jpg Rated Item: 1. Unwanted Vegetation Growth Caption: Minimally Acceptable - Small trees and tall veg on riverside toe. Cut.</p>
	<p>Inspect ID: 2021-0154 Title: 2604000007_CELRC_2021_A_0154_1_20210622T154454.jpg Rated Item: 1. Unwanted Vegetation Growth Caption: Minimally Acceptable - Small trees on riverside toe. Cut.</p>

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

	<p>Inspect ID: 2021-0163 Title: 2604000007_CELRC_2021_A_0163_1_20210622T155008.jpg Rated Item: 1. Unwanted Vegetation Growth Caption: Minimally Acceptable - Large shrub on riverside toe.</p>
	<p>Inspect ID: 2021-0166 Title: 2604000007_CELRC_2021_A_0166_1_20210622T155132.jpg Rated Item: 1. Unwanted Vegetation Growth Caption: Minimally Acceptable - Small trees on riverside toe. Cut.</p>

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0196 **Title:**

2604000007_CELRC_2021_A_0196_1_20210622T160313.jpg **Rated**
Item: 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable -
Small trees and tall veg on riverside toe. Cut.



Inspect ID: 2021-0208 **Title:**

2604000007_CELRC_2021_A_0208_1_20210622T161047.jpg **Rated**
Item: 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable -
Clear back trees to 15 ft.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0082 **Title:** 2604000007_CELRC_2021_A_0082_1_20210622T141252.jpg **Rated Item:** 2. Sod Cover **Caption:** Minimally Acceptable - Poor sod on crest. Reseed.



Inspect ID: 2021-0146 **Title:** 2604000007_CELRC_2021_A_0146_1_20210622T163137.jpg **Rated Item:** 2. Sod Cover **Caption:** Minimally Acceptable - Poor sod cover. Reseed.

Photos: Highland

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Inspect ID: 2021-0097 **Title:** 2604000007_CELRC_2021_A_0097_1_20210622T142802.jpg **Rated Item:** 3. Encroachments **Caption:** Minimally Acceptable - Logs on riverside slope. Remove.



Inspect ID: 2021-0137 **Title:** 2604000007_CELRC_2021_A_0137_1_20210622T162444.jpg **Rated Item:** 3. Encroachments **Caption:** Minimally Acceptable - Large rocks on crown. Remove.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0152 **Title:** 2604000007_CELRC_2021_A_0152_1_20210622T163624.jpg **Rated Item:** 3. Encroachments **Caption:** Minimally Acceptable - Logs close to riverside toe. Remove.



Inspect ID: 2021-0157 **Title:** 2604000007_CELRC_2021_A_0157_1_20210622T154623.jpg **Rated Item:** 3. Encroachments **Caption:** Minimally Acceptable - Logs on riverside toe in riprap. Remove.

Photos: Highland

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	Inspect ID: 2021-0160 Title: 2604000007_CELRC_2021_A_0160_1_20210622T154837.jpg Rated Item: 3. Encroachments Caption: Minimally Acceptable - Logs on riverside toe. Remove.
	Inspect ID: 2021-0217 Title: 2604000007_CELRC_2021_A_0217_1_20210622T161840.jpg Rated Item: 3. Encroachments Caption: Minimally Acceptable - Remove log on riverside toe.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0253 **Title:** 2604000007_CELRC_2021_A_0253_1_20210622T164203.jpg **Rated Item:** 3. Encroachments **Caption:** Minimally Acceptable - Remove logs and debris on riverside slope.



Inspect ID: 2021-0061 **Title:** 2604000007_CELRC_2021_A_0061_1_20210622T140131.jpg **Rated Item:** 6. Erosion/ Bank Caving **Caption:** Minimally Acceptable - Erosion on riverside toe that is starting to eat into the toe. Add riprap to restore the bank.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0064 **Title:** 2604000007_CELRC_2021_A_0064_1_20210622T140354.jpg **Rated Item:** 6. Erosion/ Bank Caving **Caption:** Minimally Acceptable - Erosion cutting into corner. Add riprap to restore bank.



Inspect ID: 2021-0199 **Title:** 2604000007_CELRC_2021_A_0199_1_20210622T160459.jpg **Rated Item:** 6. Erosion/ Bank Caving **Caption:** Minimally Acceptable - Erosion around HI-9 headwall on both sides. Add riprap or fill.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0232 **Title:** 2604000007_CELRC_2021_A_0232_1_20210622T163110.jpg **Rated Item:** 6. Erosion/ Bank Caving **Caption:** Minimally Acceptable - Erosion along riverside toe. Add fill to restore slope.



Inspect ID: 2021-0214 **Title:** 2604000007_CELRC_2021_A_0214_1_20210622T161718.jpg **Rated Item:** 7. Settlement **Caption:** Acceptable - Possible low spot. Location where two contracts tie in. Monitor.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0031 **Title:** 2604000007_CELRC_2021_A_0031_2_20210622T133606.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Acceptable - Floodwall does not tie in to height of road from 408 permit modification, 3 inches higher. Monitor.



Inspect ID: 2021-0085 **Title:** 2604000007_CELRC_2021_A_0085_1_20210622T141401.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Minimally Acceptable - Depression on riverside toe and slope. Fill.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0088 **Title:** 2604000007_CELRC_2021_A_0088_1_20210622T141725.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Acceptable - Low area east of Indianapolis Blvd. Monitor.



Inspect ID: 2021-0100 **Title:** 2604000007_CELRC_2021_A_0100_1_20210622T143319.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Minimally Acceptable - Depression on riverside slope. Fill to grade.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems





Inspect ID: 2021-0125 **Title:** 2604000007_CELRC_2021_A_0125_1_20210622T161818.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Minimally Acceptable - Rutting on crown by HI-11. Fill.



Inspect ID: 2021-0128 **Title:** 2604000007_CELRC_2021_A_0128_1_20210622T161914.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Minimally Acceptable - Rutting on crown closer to landside slope. Fill.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

	Inspect ID: 2021-0149 Title: 2604000007_CELRC_2021_A_0149_1_20210622T163335.jpg Rated Item: 8. Depressions/ Rutting Caption: Minimally Acceptable - Rutting riverside slope. Fill to grade.
	Inspect ID: 2021-0158 Title: 2604000007_CELRC_2021_A_0158_1_20210622T164056.jpg Rated Item: 8. Depressions/ Rutting Caption: Minimally Acceptable - Depression on landside. Fill.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

	Inspect ID: 2021-0161 Title: 2604000007_CELRC_2021_A_0161_1_20210622T164240.jpg Rated Item: 8. Depressions/ Rutting Caption: Minimally Acceptable - Large depression on riverside toe. Fill.
	Inspect ID: 2021-0164 Title: 2604000007_CELRC_2021_A_0164_1_20210622T164426.jpg Rated Item: 8. Depressions/ Rutting Caption: Minimally Acceptable - Rutting riverside toe. Fill to grade.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems

	<p>Inspect ID: 2021-0167 Title: 2604000007_CELRC_2021_A_0167_1_20210622T164617.jpg Rated Item: 8. Depressions/ Rutting Caption: Minimally Acceptable - Large ruts on riverside slope causing uneven slope. Restore slope.</p>
	<p>Inspect ID: 2021-0170 Title: 2604000007_CELRC_2021_A_0170_1_20210622T164731.jpg Rated Item: 8. Depressions/ Rutting Caption: Minimally Acceptable - Riverside slope rutting. Fill to grade.</p>

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0202 **Title:** 2604000007_CELRC_2021_A_0202_1_20210622T160712.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Minimally Acceptable - Depression on riverside slope. Fill.



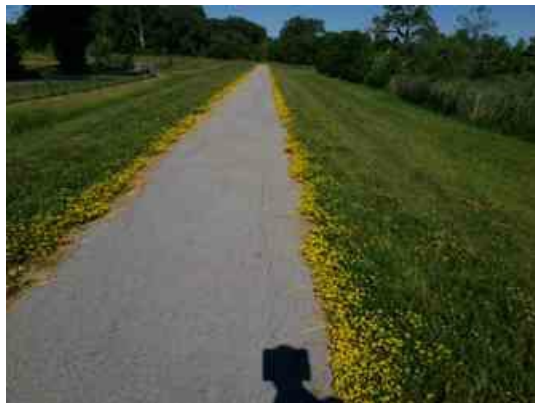
Inspect ID: 2021-0259 **Title:** 2604000007_CELRC_2021_A_0259_1_20210622T164833.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Minimally Acceptable - Rutting on riverside toe. Fill to grade.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0262 **Title:** 2604000007_CELRC_2021_A_0262_1_20210622T165150.jpg **Rated Item:** 8. Depressions/ Rutting **Caption:** Minimally Acceptable - Rutting on riverside toe. Fill to grade.



Inspect ID: 2021-0058 **Title:** 2604000007_CELRC_2021_A_0058_1_20210622T135924.jpg **Rated Item:** 9. Cracking **Caption:** Acceptable - Pavement cracking. Monitor.

Photos: Highland

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	<p>Inspect ID: 2021-0139 Title: 2604000007_CELRC_2021_A_0139_1_20210622T153118.jpg Rated Item: 9. Cracking Caption: Acceptable - Cracking pavement, typical. Monitor.</p>
	<p>Inspect ID: 2021-0173 Title: 2604000007_CELRC_2021_A_0173_1_20210622T164934.jpg Rated Item: 9. Cracking Caption: Acceptable - Desiccation crack on riverside slope. Monitor.</p>

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0211 **Title:** 2604000007_CELRC_2021_A_0211_1_20210622T161451.jpg **Rated Item:** 9. Cracking **Caption:** Acceptable - Long longitudinal cracking on crown. Monitor.



Inspect ID: 2021-0176 **Title:** 2604000007_CELRC_2021_A_0176_1_20210622T165147.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - Animal burrows on riverside slope, around 10 in deep. Fill holes.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0223 **Title:** 2604000007_CELRC_2021_A_0223_1_20210622T162732.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - Turtle egg holes on riverside slope, 7 inches deep. Fill holes.



Inspect ID: 2021-0226 **Title:** 2604000007_CELRC_2021_A_0226_1_20210622T162828.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - Turtle egg holes on riverside slope, 8 inches deep. Fill holes.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0229 **Title:** 2604000007_CELRC_2021_A_0229_1_20210622T163012.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - 6 inches deep on riverside slope, turtle hole. Fill hole.



Inspect ID: 2021-0235 **Title:** 2604000007_CELRC_2021_A_0235_1_20210622T163308.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - Turtle egg hole on riverside toe and slope. Fill hole.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0238 **Title:** 2604000007_CELRC_2021_A_2021-0238_2_20210622T163453.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - Multiple animal burrows on riverside toe and slope, 1.5 ft deep. Fill holes.



Inspect ID: 2021-0241 **Title:** 2604000007_CELRC_2021_A_0241_1_20210622T163722.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - Multiple turtle egg holes on riverside toe and slope, 8 inch deep. Fill holes.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0244 **Title:** 2604000007_CELRC_2021_A_0244_1_20210622T163828.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - 2 turtle egg holes on riverside slope. Fill holes.



Inspect ID: 2021-0247 **Title:** 2604000007_CELRC_2021_A_0247_1_20210622T163946.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - Burrow cluster on riverside toe and slope. Fill holes.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0256 **Title:** 2604000007_CELRC_2021_A_0256_1_20210622T164449.jpg **Rated Item:** 10. Animal Control **Caption:** Minimally Acceptable - Turtle egg hole on riverside slope.



Inspect ID: 2021-0263 **Title:** 2604000007_CELRC_2021_A_0263_1_20210913T144720.jpg **Rated Item:** 15. Seepage **Caption:** Minimally Acceptable - Area of pin boils on landside toe by asphalt path. No repairs performed but monitoring.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0007 **Title:** 2604000007_CELRC_2021_A_0007_1_20210622T131640.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Bushes on riverside. Cut.



Inspect ID: 2021-0019 **Title:** 2604000007_CELRC_2021_A_0019_1_20210622T132537.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Bushes on riverside. Cut.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0103 **Title:** 2604000007_CELRC_2021_A_0103_1_20210622T144427.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Trees on landside. Cut.



Inspect ID: 2021-0112 **Title:** 2604000007_CELRC_2021_A_0112_1_20210622T145053.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Large bushes on landside. Cut.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0115 **Title:**

2604000007_CELRC_2021_A_0115_1_20210622T145308.jpg **Rated**
Item: 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable -
Small trees and bushes on waterside. Cut.



Inspect ID: 2021-0140 **Title:**

2604000007_CELRC_2021_A_0140_1_20210622T162829.jpg **Rated**
Item: 1. Unwanted Vegetation Growth **Caption:** Acceptable - Small tree
growing at the bottom of floodwall on landside.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0145 **Title:** 2604000007_CELRC_2021_A_0145_1_20210622T153620.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Trees on riverside. Cut.



Inspect ID: 2021-0172 **Title:** 2604000007_CELRC_2021_A_0172_1_20210622T155320.jpg **Rated Item:** 1. Unwanted Vegetation Growth **Caption:** Minimally Acceptable - Trees on riverside. Cut.

Photos: Highland

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Inspect ID: 2021-0106 **Title:** 2604000007_CELRC_2021_A_0106_1_20210622T144607.jpg **Rated Item:** 3. Closure Structures (Stop Log Closures and Gates) (A or U only) **Caption:** Acceptable - Crack on concrete sill. Repair.



Inspect ID: 2021-0109 **Title:** 2604000007_CELRC_2021_A_0109_1_20210622T144909.jpg **Rated Item:** 3. Closure Structures (Stop Log Closures and Gates) (A or U only) **Caption:** Acceptable - Missing rubber seal. Replace.

Photos: Highland

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Inspect ID: 2021-0130 **Title:** 2604000007_CELRC_2021_A_0130_1_20210622T151234.jpg **Rated Item:** 3. Closure Structures (Stop Log Closures and Gates) (A or U only) **Caption:** Acceptable - Spalling and grass on sill. Clear off concrete.



Inspect ID: 2021-0013 **Title:** 2604000007_CELRC_2021_A_0013_1_20210622T132200.jpg **Rated Item:** 4. Concrete Surfaces **Caption:** Minimally Acceptable - Crack on riverside. Seal.

Photos: Highland

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	<p>Inspect ID: 2021-0022 Title: 2604000007_CELRC_2021_A_0022_1_20210622T132738.jpg Rated Item: 4. Concrete Surfaces Caption: Minimally Acceptable - Crack on riverside.</p>
	<p>Inspect ID: 2021-0025 Title: 2604000007_CELRC_2021_A_0025_1_20210622T132845.jpg Rated Item: 4. Concrete Surfaces Caption: Acceptable - Minor cracks on riverside. Monitor.</p>

Photos: Highland

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Inspect ID: 2021-0118 **Title:** 2604000007_CELRC_2021_A_0118_1_20210622T145630.jpg **Rated Item:** 4. Concrete Surfaces **Caption:** Minimally Acceptable - Crack on landside. Seal.



Inspect ID: 2021-0121 **Title:** 2604000007_CELRC_2021_A_0121_1_20210622T150007.jpg **Rated Item:** 4. Concrete Surfaces **Caption:** Acceptable - Minor cracking on top, typical. Monitor.

Photos: Highland

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Inspect ID: 2021-0148 **Title:** 2604000007_CELRC_2021_A_0148_1_20210622T153751.jpg **Rated Item:** 4. Concrete Surfaces **Caption:** Minimally Acceptable - Spalling by North 5th PS outlet. Patch.



Inspect ID: 2021-0175 **Title:** 2604000007_CELRC_2021_A_0175_1_20210622T155400.jpg **Rated Item:** 4. Concrete Surfaces **Caption:** Minimally Acceptable - Crack in cap, typical. Seal.

Photos: Highland

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Inspect ID: 2021-0181 **Title:** 2604000007_CELRC_2021_A_0181_1_20210622T155637.jpg **Rated Item:** 4. Concrete Surfaces **Caption:** Minimally Acceptable - Spalling on landside cap. Patch.



Inspect ID: 2021-0187 **Title:** 2604000007_CELRC_2021_A_0187_1_20210622T160001.jpg **Rated Item:** 4. Concrete Surfaces **Caption:** Minimally Acceptable - Crack on landside. Seal.

Photos: Highland

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Inspect ID: 2021-0178 **Title:** 2604000007_CELRC_2021_A_0178_1_20210622T155446.jpg **Rated Item:** 5. Tilting, Sliding or Settlement of Concrete Structures **Caption:** Minimally Acceptable - 1.5 inch offset. Continued deterioration of sealant. Remove old sealant, seal, and monitor for continued movement.



Inspect ID: 2021-0127 **Title:** 2604000007_CELRC_2021_A_0127_1_20210622T151045.jpg **Rated Item:** 6. Foundation of Concrete Structures **Caption:** Minimally Acceptable - Low spot along wall on landside. Fill.

Photos: Highland

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Inspect ID: 2021-0016 **Title:** 2604000007_CELRC_2021_A_0016_1_20210622T132404.jpg **Rated Item:** 7. Monolith Joints **Caption:** Minimally Acceptable - Deterioration of sealant. Remove old caulking and reseal.



Inspect ID: 2021-0124 **Title:** 2604000007_CELRC_2021_A_0124_1_20210622T150320.jpg **Rated Item:** 7. Monolith Joints **Caption:** Minimally Acceptable - Deteriorating sealant on both sides, typical. Remove old caulking and reseal.

Photos: Highland

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Inspect ID: 2021-0133 **Title:** 2604000007_CELRC_2021_A_0133_1_20210622T151322.jpg **Rated Item:** 7. Monolith Joints **Caption:** Minimally Acceptable - Deteriorating sealant on both sides. Remove old caulking and reseal.



Inspect ID: 2021-0143 **Title:** 2604000007_CELRC_2021_A_0143_1_20210622T162939.jpg **Rated Item:** 7. Monolith Joints **Caption:** Minimally Acceptable - Missing sealant on both sides of the floodwall. Check that filler is present and seal.

Photos: Highland

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Inspect ID: 2021-0184 **Title:** 2604000007_CELRC_2021_A_0184_1_20210622T155910.jpg **Rated Item:** 7. Monolith Joints **Caption:** Minimally Acceptable - Deteriorating sealant. Remove old caulking and reseal.



Inspect ID: 2021-0193 **Title:** 2604000007_CELRC_2021_A_0193_1_20210622T160142.jpg **Rated Item:** 7. Monolith Joints **Caption:** Minimally Acceptable - Sealant missing from bottom of joint. Seal.

Photos: Highland

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Inspect ID: 2021-0008 **Title:** 2604000007_CELRC_2021_A_0008_1_20210622T132900.jpg **Rated Item:** 1. Vegetation and Obstructions **Caption:** Minimally Acceptable - HI-4: The inlet is free of debris but there is vegetation and trees growing around the concrete structure. Cut.



Inspect ID: 2021-0010 **Title:** 2604000007_CELRC_2021_A_0010_1_20210622T131924.jpg **Rated Item:** 1. Vegetation and Obstructions **Caption:** Minimally Acceptable - HI-1: Clear vegetation.

Photos: Highland

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	<p>Inspect ID: 2021-0017 Title: 2604000007_CELRC_2021_A_0017_1_20210622T135701.jpg Rated Item: 1. Vegetation and Obstructions Caption: Minimally Acceptable - HI-5: Large amount vegetation/debris in the inlet. Clear.</p>
	<p>Inspect ID: 2021-0028 Title: 2604000007_CELRC_2021_A_2021-0028_2_20210622T133326.jpg Rated Item: 1. Vegetation and Obstructions Caption: Minimally Acceptable - HI-2: Remove tree.</p>

Photos: Highland

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Inspect ID: 2021-0050 **Title:** 2604000007_CELRC_2021_A_0050_1_20210622T150247.jpg **Rated Item:** 1. Vegetation and Obstructions **Caption:** Minimally Acceptable - HI-9: Tall vegetation blocking inlet.



Inspect ID: 2021-0055 **Title:** 2604000007_CELRC_2021_A_2021-0055_1_20210622T140009.jpg **Rated Item:** 1. Vegetation and Obstructions **Caption:** Minimally Acceptable - Whole length of ditch filled with tall vegetation. Cut.

Photos: Highland

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Inspect ID: 2021-0068 **Title:** 2604000007_CELRC_2021_A_0068_2_20210622T151714.jpg **Rated**
Item: 1. Vegetation and Obstructions **Caption:** Minimally Acceptable - HI-1: Vegetation blocking outlet. Clear.



Inspect ID: 2021-0094 **Title:** 2604000007_CELRC_2021_A_0094_1_20210622T142621.jpg **Rated**
Item: 1. Vegetation and Obstructions **Caption:** Minimally Acceptable - HI-6: Trees on riverside toe. Remove.

Photos: Highland

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Inspect ID: 2021-0104 **Title:** 2604000007_CELRC_2021_A_0104_1_20210622T155636.jpg **Rated**
Item: 1. Vegetation and Obstructions **Caption:** Minimally Acceptable - HI-11: Tall vegetation blocking inlet. Clear.



Inspect ID: 2021-0107 **Title:** 2604000007_CELRC_2021_A_0107_1_20210622T155716.jpg **Rated**
Item: 1. Vegetation and Obstructions **Caption:** Minimally Acceptable - HI-11: Tall vegetation blocking outlet. Clear.

Photos: Highland

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Inspect ID: 2021-0002 **Title:** 2604000007_CELRC_2021_A_0002_1_20210622T132231.jpg **Rated Item:** 4. Fencing and Gates **Caption:** Acceptable - HI-4: Minor vegetation growing along the fence.



Inspect ID: 2021-0047 **Title:** 2604000007_CELRC_2021_A_0047_1_20210622T145229.jpg **Rated Item:** 4. Fencing and Gates **Caption:** Acceptable - HI-7: The fence is intact and in good condition. There is a small amount of graffiti on the side of the concrete structure.

Photos: Highland

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Inspect ID: 2021-0053 **Title:** 2604000007_CELRC_2021_A_2021-0053_1_20210622T150354.jpg **Rated Item:** 4. Fencing and Gates
Caption: Acceptable - HI-9: Minor vegetation near fence.



Inspect ID: 2021-0071 **Title:** 2604000007_CELRC_2021_A_0071_1_20210622T151847.jpg **Rated Item:** 4. Fencing and Gates
Caption: Minimally Acceptable - HI-10: Tall vegetation in fence, remove.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0083 **Title:** 2604000007_CELRC_2021_A_0083_1_20210622T152945.jpg **Rated Item:** 4. Fencing and Gates **Caption:** Minimally Acceptable - HI-10a-d: Trash needs to be remove from gate periodically.



Inspect ID: 2021-0122 **Title:** 2604000007_CELRC_2021_A_0122_1_20210622T160733.jpg **Rated Item:** 4. Fencing and Gates **Caption:** Acceptable - HI-11: The fence has minor vegetation.

Photos: Highland

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Inspect ID: 2021-0023 **Title:** 2604000007_CELRC_2021_A_0023_1_20210622T140602.jpg **Rated Item:** 5. Concrete Surfaces (Such as gate wells, outfalls, intakes, or culverts) **Caption:** Acceptable - HI-5: Minor spalling at the edges.



Inspect ID: 2021-0065 **Title:** 2604000007_CELRC_2021_A_0065_1_20210622T150934.jpg **Rated Item:** 5. Concrete Surfaces (Such as gate wells, outfalls, intakes, or culverts) **Caption:** Minimally Acceptable - HI-9: There is a crack reforming on the outlet headwall. Seal or repair.

Photos: Highland

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Inspect ID: 2021-0011 **Title:** 2604000007_CELRC_2021_A_0011_1_20210622T133321.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Acceptable - HI-3: The sluice gate moved up and down without any resistance. Note that the crew in charge of operating these gates oiled it before starting.



Inspect ID: 2021-0014 **Title:** 2604000007_CELRC_2021_A_0014_1_20210622T133553.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Acceptable - HI-3: The sluice gate opens and closed without resistance. There was a small amount of sediment inside the gatewell.

Photos: Highland

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Inspect ID: 2021-0026 **Title:**

2604000007_CELRC_2021_A_0026_1_20210622T142056.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-5: The gate is having issues when it comes to opening. It appears there was a cover over the opening but has been removed. This can lead to corrosion. Replace cover.



Inspect ID: 2021-0032 **Title:**

2604000007_CELRC_2021_A_0032_1_20210622T142613.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-5: The sluice gate couldn't be closed all the way. Viewing the picture you can see that the top bolt doesn't match line up with the side bars. The gate also moves back and forth when being raised and lowered so the side rails are corroded or have sediment inside of it. Investigate and repair.

Photos: Highland

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Inspect ID: 2021-0041 **Title:** 2604000007_CELRC_2021_A_0041_1_20210622T144840.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Acceptable - HI-7: There isn't an appropriate wet well to view the gate for an proper inspection.



Inspect ID: 2021-0044 **Title:** 2604000007_CELRC_2021_A_0044_1_20210622T144920.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Acceptable - HI-7 The sluice gate opened without any resistance. The operators oiled it that day.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0056 **Title:** 2604000007_CELRC_2021_A_0056_1_20210622T150432.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Acceptable - HI-9: Sluice gate opened and closed without resistance. The team oiled the gate the same day.



Inspect ID: 2021-0059 **Title:** 2604000007_CELRC_2021_A_0059_1_20210622T150648.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Acceptable - HI-9: The sluice gate opened and closed without any resistance.

Photos: Highland

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Inspect ID: 2021-0077 **Title:**

2604000007_CELRC_2021_A_0077_1_20210622T152400.jpg **Rated**

Item: 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-10d:

The sluice gate operated but there was some resistance on the way down. The gate also made squeaking noises. Investigate and repair. The operators oiled the gates that day.



Inspect ID: 2021-0080 **Title:**

2604000007_CELRC_2021_A_0080_1_20210622T152615.jpg **Rated**

Item: 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-10d:

The gate made a small noise going down but was able to close completely. A small amount of sediment is on the bottom. Clean.

Photos: Highland

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Inspect ID: 2021-0086 **Title:** 2604000007_CELRC_2021_A_0086_1_20210622T153148.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-10c: The sluice gate opened and closed without any resistance. There is some mild cohesion outside the Matlin casting. Recommend painting. The operators oiled them the day of the inspection.



Inspect ID: 2021-0089 **Title:** 2604000007_CELRC_2021_A_0089_1_20210622T153440.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Acceptable - HI-10c: The sluice gate opens and closes without any resistance.

Photos: Highland

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Inspect ID: 2021-0092 **Title:** 2604000007_CELRC_2021_A_0092_1_20210622T153954.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-10a: The sluice gate opened and closed with little to no resistance. There is some mild corrosion on the outside. Recommend painting.



Inspect ID: 2021-0095 **Title:** 2604000007_CELRC_2021_A_0095_1_20210622T154304.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-10a: The sluice gate opened and closed without any resistance. There is mild corrosion on top of the gate, recommend painting.

Photos: Highland

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Inspect ID: 2021-0098 **Title:**

2604000007_CELRC_2021_A_0098_1_20210622T154652.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-10b: The sluice gate opened without any resistance. There is mild corrosion on the outside of the metallic casing, recommend painting.



Inspect ID: 2021-0101 **Title:**

2604000007_CELRC_2021_A_0101_1_20210622T154815.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Acceptable - HI-10b: The sluice gate opened and closed without any resistance.

Photos: Highland

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Inspect ID: 2021-0113 **Title:** 2604000007_CELRC_2021_A_0113_1_20210622T160102.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-11: SG gage hard to see, replace lens.



Inspect ID: 2021-0116 **Title:** 2604000007_CELRC_2021_A_0116_1_20210622T160122.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-11: The sluice gate was able to close completely without resistance. There is a large amount of sediment in the gate pit. The gate struggled to open but was eventually opened. Might need to reinstall side railing.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0119 **Title:** 2604000007_CELRC_2021_A_0119_1_20210622T160250.jpg **Rated Item:** 10. Sluice/ Slide Gates **Caption:** Minimally Acceptable - HI-11: Sluice gate was oiled the same day. The outside, attic casing is starting to rust, recommend painting.



Inspect ID: 2021-0005 **Title:** 2604000007_CELRC_2021_A_0005_1_20210622T132623.jpg **Rated Item:** 11. Flap Gates/ Flap Valves/ Pinch Valves **Caption:** Acceptable - HI-4: The flap gate is fully closed and nothing is blocking the outlet.

Photos: Highland

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Inspect ID: 2021-0020 **Title:** 2604000007_CELRC_2021_A_0020_1_20210622T140046.jpg **Rated Item:** 11. Flap Gates/ Flap Valves/ Pinch Valves **Caption:** Acceptable - HI-5: Flap gate is closed completely, no obstruction blocks the outlet path. Trees around the concrete structure.



Inspect ID: 2021-0038 **Title:** 2604000007_CELRC_2021_A_0038_1_20210622T144558.jpg **Rated Item:** 11. Flap Gates/ Flap Valves/ Pinch Valves **Caption:** Acceptable - HI-9: The flap gate is closed completely. There is a very small amount of debris around the exit. Mild corrosion along bottom of the flap gate.

Photos: Highland

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Inspect ID: 2021-0062 **Title:** 2604000007_CELRC_2021_A_0062_1_20210622T150750.jpg **Rated Item:** 11. Flap Gates/ Flap Valves/ Pinch Valves **Caption:** Acceptable - HI-9: The flap gate is completely closed. There is a small amount of debris at the outlet point.



Inspect ID: 2021-0074 **Title:** 2604000007_CELRC_2021_A_0074_1_20210622T152100.jpg **Rated Item:** 11. Flap Gates/ Flap Valves/ Pinch Valves **Caption:** Minimally Acceptable - HI-10: Multiple flap gates not shut completely. Clear debris.

Photos: Highland

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Inspect ID: 2021-0110 **Title:** 2604000007_CELRC_2021_A_0110_1_20210622T155812.jpg **Rated Item:** 11. Flap Gates/ Flap Valves/ Pinch Valves **Caption:** Minimally Acceptable - HI-11: Flap gate not fully closed. Clear debris.



Inspect ID: 2021-0066 **Title:** 2604000007_CELRC_2021_A_0066_1_20210622T145119.jpg **Rated Item:** 1. Pump Stations Operating, Maintenance, Training, & Inspection Records **Caption:** Acceptable - PS-ND: Operations manuals on site.

Photos: Highland

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Inspect ID: 2021-0024 **Title:** 2604000007_CELRC_2021_A_0024_1_20210622T133613.jpg **Rated Item:** 2. Pump Station Operations and Maintenance Equipment Manuals **Caption:** Acceptable - PS-81: Operations manuals on site.



Inspect ID: 2021-0021 **Title:** 2604000007_CELRC_2021_A_0021_1_20210622T133521.jpg **Rated Item:** 3. Safety Compliance **Caption:** Minimally Acceptable - PS-81: Confined space warnings needed throughout.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0045 **Title:** 2604000007_CELRC_2021_A_0045_1_20210622T141724.jpg **Rated Item:** 3. Safety Compliance **Caption:** Minimally Acceptable - PS-N5: Arc flash labels on switchboard needed.



Inspect ID: 2021-0048 **Title:** 2604000007_CELRC_2021_A_0048_1_20210622T141908.jpg **Rated Item:** 3. Safety Compliance **Caption:** Minimally Acceptable - PS-N5: Confined space labels needed throughout building.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0051 **Title:** 2604000007_CELRC_2021_A_0051_1_20210622T142106.jpg **Rated Item:** 3. Safety Compliance **Caption:** Minimally Acceptable - PS-N5: Confined space label needed.



Inspect ID: 2021-0069 **Title:** 2604000007_CELRC_2021_A_0069_1_20210622T145318.jpg **Rated Item:** 3. Safety Compliance **Caption:** Minimally Acceptable - PS-N5: Arc flash labels need updating.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0003 **Title:** 2604000007_CELRC_2021_A_0003_1_20210622T131830.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - Ps-81: Concrete cracked and loose near handrail. Repair.



Inspect ID: 2021-0006 **Title:** 2604000007_CELRC_2021_A_0006_1_20210622T132039.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-81: Surface cracking of concrete pad. Monitor and repair as needed.

Photos: Highland

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Inspect ID: 2021-0006 **Title:** 2604000007_CELRC_2021_A_0006_2_20210622T132055.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-81: Surface cracking of concrete pad. Monitor and repair as needed.



Inspect ID: 2021-0006 **Title:** 2604000007_CELRC_2021_A_0006_3_20210622T132110.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-81: Surface cracking of concrete pad. Monitor and repair as needed.

Photos: Highland

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Inspect ID: 2021-0006 **Title:** 2604000007_CELRC_2021_A_0006_4_20210622T132120.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-81: Surface cracking of concrete pad. Monitor and repair as needed.



Inspect ID: 2021-0015 **Title:** 2604000007_CELRC_2021_A_0015_1_20210622T133206.jpg **Rated Item:** 5. Plant Building **Caption:** Acceptable - PS-81: Concrete section of approach has been replaced early 2021. Good condition.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0033 **Title:** 2604000007_CELRC_2021_A_0033_1_20210622T140203.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-N5: Minor surface rust on SWP-5 and SWP-6. Perform regular maintenance by painting and scaling.



Inspect ID: 2021-0036 **Title:** 2604000007_CELRC_2021_A_0036_1_20210622T140352.jpg **Rated Item:** 5. Plant Building **Caption:** Acceptable - PS-N5: Minor spalling on exterior pads. Monitor and repair as necessary.

Photos: Highland

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Inspect ID: 2021-0039 **Title:** 2604000007_CELRC_2021_A_0039_1_20210622T140515.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-N5: Crack along exterior wall infiltrated with moss. Remove vegetation and seal crack.



Inspect ID: 2021-0042 **Title:** 2604000007_CELRC_2021_A_0042_1_20210622T140818.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-N5: Erosion of soil near door. Replace soil to avoid undercutting of pavement.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0057 **Title:** 2604000007_CELRC_2021_A_0057_1_20210622T142535.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-N5: Ceiling showing rust spalling near old skylight. Monitor and repair If additional concrete becomes loose.



Inspect ID: 2021-0060 **Title:** 2604000007_CELRC_2021_A_0060_1_20210622T144117.jpg **Rated Item:** 5. Plant Building **Caption:** Minimally Acceptable - PS-ND: Joint seal failed on south side near entrance., water stop exposed. Repair and replace along entire length.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0063 **Title:** 2604000007_CELRC_2021_A_0063_1_20210622T144556.jpg **Rated Item:** 5. Plant Building **Caption:** Acceptable - PS-ND: Minor cracking along riverside headwall. Monitor for growth.



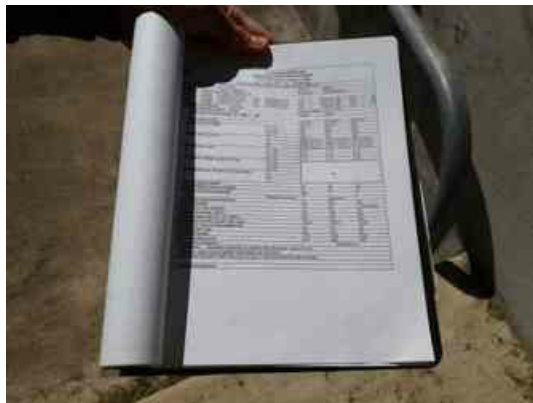
Inspect ID: 2021-0012 **Title:** 2604000007_CELRC_2021_A_0012_1_20210622T132547.jpg **Rated Item:** 7. Pumps **Caption:** Minimally Acceptable - PS-81: Hydraulic fluid leak coming from pump DWP-2. Monitor and investigate.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0018 **Title:** 2604000007_CELRC_2021_A_0018_1_20210622T133435.jpg **Rated Item:** 7. Pumps **Caption:** Acceptable - PS-81: Replaced pump on water sealage unit in 2021.



Inspect ID: 2021-0072 **Title:** 2604000007_CELRC_2021_A_0072_1_20210622T145418.jpg **Rated Item:** 7. Pumps **Caption:** Minimally Acceptable - PS-ND: Pumps not directly accessible for inspection. Cavitation observed on impeller vane of pump 1 and 2. Holes in both impeller. Should be addressed, local sponsor is aware.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0054 **Title:**

2604000007_CELRC_2021_A_0054_1_20210622T142312.jpg **Rated**

Item: 8. Motors, Engines, Fans, Gear Reducers, Back Stop Devices, etc.

Caption: Minimally Acceptable - PS-N5: EF-3 exhaust fan is inoperable. Local sponsor is aware of issue and planning for replacement.



Inspect ID: 2021-0009 **Title:**

2604000007_CELRC_2021_A_0009_1_20210622T132349.jpg **Rated**

Item: 14. Electrical Systems **Caption:** Minimally Acceptable - PS-81:

DWP-2 MCC connection is inoperable. Pump appears to be fine, but contacts to energize it are damaged. Investigate and repair.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0009 **Title:** 2604000007_CELRC_2021_A_2021-0009_2_20210622T133741.jpg **Rated Item:** 14. Electrical Systems
Caption: Minimally Acceptable - PS-81: DWP-2 MCC connection is inoperable. Pump appears to be fine, but contacts to energize it are damaged. Investigate and repair.



Inspect ID: 2021-0030 **Title:** 2604000007_CELRC_2021_A_0030_1_20210622T135045.jpg **Rated Item:** 14. Electrical Systems
Caption: Minimally Acceptable - PS-81: Arc-flash warnings are needed for equipment throughout building.

Photos: Highland

For use during Initial and Continuing Eligibility Inspections of levee segments / systems



Inspect ID: 2021-0027 **Title:**

2604000007_CELRC_2021_A_0027_1_20210622T134420.jpg **Rated**

Item: 19. Flap Gates/ Flap Valves/ Pinch Valves **Caption:** Minimally Acceptable - PS-81: Flap gate slightly ajar, likely won't seal in the event of a flood. Clear any debris and adjust so that flap gate seals fully.



**US Army Corps
of Engineers ®**

Flood Damage Reduction System 2605000005 / Segment 2604000007

Public Sponsor Pre-Inspection Form

The following information is to be provided by the levee district sponsor prior to an inspection. This information will be used to help evaluate the organizational capability of the levee district to manage the levee segment / system maintenance program.

1. Levee segment / system and sponsor: (name of the segment / system and levee sponsor) System 2605000005 / Segment 2604000007 CELRC		
2. Reporting period: (month/day/year to month/day/year) 06/30/2020 to 06/22/2021		
3. Summary of maintenance required by last inspection report: Remove unwanted vegetation along levee. Fill in all holes from animals along levee.		
4. Summary of maintenance performed this reporting period: Bank tested all generators. Changed oil and filters on generators at North 5th, North Drive, and 81st St. storm stations. Changed oil on all pump motors at 81st storm and North 5th storm stations. Greased all drive shafts and pumps. Megger tested all motors at 81st St, North 5th, and North Drive. Sprayed weed control along riprap. Monitored all sluice gates for silt.		
5. Summary of maintenance planned next reporting period: Bank test all generators. Change oil and filters on all generators. Grease all sluice gates and flap gates in river, and monitor for silt. Grease all pumps and drive shafts. Megger test all motors at North 5th St, 81st, and North Dr pump stations. Spray weed control on rock areas of pump stations. Paint where needed. Work on some concrete repairs. Cut away unwanted trees along water side of levee. Replace some hand rails on stairwells.		
6. Summary of changes to segment / system since last inspection: None		
7. Problems/ issues requiring the assistance of the US Army Corps of Engineers: Advised of a problem along Hart Ditch in Wicker Park by Army Corps to monitor some pin boils. Also to monitor joints in concrete walls for separation.		

National Flood Insurance Program (NFIP) - 44 CFR 65.10 Provision Evaluation

<u>FINDING</u>		44 CFR 65.10 Criterion	CFR Section
<input checked="" type="checkbox"/> POSITIVE	<input type="checkbox"/> NEGATIVE	All closure devices, whether manual or automatic, are operated in accordance with an officially adopted operation manual.	65.10(c)
<input checked="" type="checkbox"/> POSITIVE	<input type="checkbox"/> NEGATIVE	Manuals document a flood warning system that will be used to trigger emergency operation activities and demonstration that sufficient flood warning time exists for the completed operation of all closure structures.	65.10(c)(1)i
<input checked="" type="checkbox"/> POSITIVE	<input type="checkbox"/> NEGATIVE	Manuals identify specific actions and assignments of responsibility by individual name or title.	65.10(c)(1)ii
<input checked="" type="checkbox"/> POSITIVE	<input type="checkbox"/> NEGATIVE	Manuals identify provisions for periodic operation of closure structures for testing and training purposes, in accordance with the adopted operation manual.	65.10(c)(1)iii
<input checked="" type="checkbox"/> POSITIVE	<input type="checkbox"/> NEGATIVE	Officially adopted maintenance plans documents the formal procedure that ensures that the stability, height, & overall integrity of the levee and its associated structures and systems are maintained.	65.10(d)
<input checked="" type="checkbox"/> POSITIVE	<input type="checkbox"/> NEGATIVE	Maintenance plans specify the maintenance activities to be performed, the frequency of their performance, and the person by name or title responsible for their performance.	65.10(d)

General Instructions for the Inspection of Flood Damage Reduction Segments / Systems

A. Purpose of USACE Inspections

The primary purpose of these inspections is to prevent loss of life and catastrophic damages; preserve the value of Federal investments, and to encourage non-Federal sponsors to bear responsibility for their own protection. Inspections should assure that Flood Damage Reduction structures and facilities are continually maintained and operated as necessary to obtain the maximum benefits. Inspections are also conducted to determine eligibility for Rehabilitation Assistance under authority of PL 84-99 for Federal and non-Federal systems. (ER 1130-2-530, ER 500-1-1)

B. Types of Inspections:

The Corps conducts several types of inspections of Flood Damage Reduction systems, as outlined below:

Initial Eligibility Inspections	Continuing Eligibility Inspections	
	Routine Inspections	Periodic Inspections
IEIs are conducted to determine whether a non-Federally constructed Flood Damage Reduction system meets the minimum criteria and standards set forth by the Corps for initial inclusion into the Rehabilitation and Inspection Program.	RIIs are intended to verify proper maintenance, owner preparedness, and component operation.	PIIs are intended to verify proper maintenance and component operation and to evaluate operational adequacy, structural stability, and safety of the system. Periodic Inspections evaluate the system's original design criteria vs. current design criteria to determine potential performance impacts, evaluate the current conditions, and compare the design loads and design analysis used against current design standards. This is to be done to identify components and features for the sponsor that need to be monitored more closely over time or corrected as needed. (Periodic Inspections are used as the basis of risk assessments.)

C. Inspection Boundaries:

Inspections should be conducted so as to rate each Flood Damage Reduction "Segment" of the system. The overall system rating will be the lowest segment rating in the system.

Project	System	Segment
A flood damage reduction project is made up of one or more flood damage reduction systems which were under the same authorization.	A flood damage reduction system is made up of one or more flood damage reduction segments which collectively provide flood damage reduction to a defined area. Failure of one segment within a system constitutes failure of the entire system. Failure of one system does not affect another system.	A flood damage reduction segment is defined as a discrete portion of a flood damage reduction system that is operated and maintained by a single entity. A flood damage reduction segment can be made up of one or more features (levee, floodwall, pump stations, etc).

D. Land Use Definitions:

The following three definitions are intended for use in determining minimum required inspection intervals and initial requirements for inclusion into the Rehabilitation and Inspection Program. Inspections should be considered for all systems that would result in significant environmental or economic impact upon failure regardless of specific land use.

Agricultural	Rural	Urban
Protected population in the range of zero to 5 households per square mile protected.	Protected population in the range of 6 to 20 households per square mile protected.	Greater than 20 households per square mile; major industrial areas with significant infrastructure investment. Some protected urban areas have no permanent population but may be industrial areas with high value infrastructure with no overnight population.

E. **Use of the Inspection Report Template:**

The report template is intended for use in all Army Corps of Engineers inspections of levee and floodwall systems and flood damage reduction channels. The section of the template labeled \"Initial Eligibility\" only needs to be completed during Initial Eligibility Inspections of Non-Federally constructed Flood Damage Reduction Systems. The section labeled \"General Items\" needs to be completed with every inspection, along with all other sections that correspond to features in the system. The section labeled \"Public Sponsor Pre-Inspection Report\" is intended for completion before the inspection, if possible.

F. **Individual Item / Component Ratings:**

Assessment of individual components rated during the inspection should be based on the criteria provided in the inspection report template, though inspectors may incorporate additional items into the report based on the characteristics of the system. The assessment of individual components should be based on the following definitions.

Acceptable Item	Minimally Acceptable Item	Unacceptable Item
The inspected item is in satisfactory condition, with no deficiencies, and will function as intended during the next flood event.	The inspected item has one or more minor deficiencies that need to be corrected. The minor deficiency or deficiencies will not seriously impair the functioning of the item as intended during the next flood event.	The inspected item has one or more serious deficiencies that need to be corrected. The serious deficiency or deficiencies will seriously impair the functioning of the item as intended during the next flood event.

G. **Overall Segment / System Ratings:**

Determination of the overall system rating is based on the definitions below. Note that an Unacceptable System Rating may be either based on an engineering determination that concluded that noted deficiencies would prevent the system from functioning as intended during the next flood event, or based on the sponsor's demonstrated lack of commitment or inability to correct serious deficiencies in a timely manner.

Acceptable System	Minimally Acceptable System	Unacceptable System
All items or components are rated as Acceptable.	One or more items are rated as Minimally Acceptable or one or more items are rated as Unacceptable and an engineering determination concludes that the Unacceptable items would not prevent the segment / system from performing as intended during the next flood event.	One or more items are rated as Unacceptable and would prevent the segment / system from performing as intended, or a serious deficiency noted in past inspections (which had previously resulted in a minimally acceptable system rating) has not been corrected within the established timeframe, not to exceed two years.

H. **Eligibility for PL84-99 Rehabilitation Assistance:**

Inspected systems that are not operated and maintained by the Federal government may be Active in the Corps' Rehabilitation and Inspection Program (RIP) and eligible for rehabilitation assistance from the Corps as defined below:

If the Overall System Rating is Acceptable	If the Overall System Rating is Minimally Acceptable	If the Overall System Rating is Unacceptable
The system is active in the RIP and eligible for PL84-99 rehabilitation assistance.	The system is Active in the RIP during the time that it takes to make needed corrections. Active systems are eligible for rehabilitation assistance. However, if the sponsor does not present USACE with proof that serious deficiencies (which had previously resulted in a minimally acceptable system rating) were corrected within the established timeframe, then the system will become Inactive in the RIP.	The system is Inactive in the RIP, and the status will remain Inactive until the sponsor presents USACE with proof that all items rated Unacceptable have been corrected. Inactive systems are ineligible for rehabilitation assistance.

I. **Reporting:**

After the inspection, the Corps is responsible for assembling an inspection report (or a summary report if it was a Periodic Inspection) including the following information:

- a. All sections of the report template used during the inspection, including the cover and pre-inspection materials. (Supplemental data collected, and any sections of the template that weren't used during the inspection do not need to be included with the report.)
- b. Photos of the general system condition and noted deficiencies.
- c. A plan view drawing of the system, with stationing, to reference locations of items rated less than acceptable.
- d. The relative importance of the identified maintenance issues should be specified in the transmittal letter.
- e. If the Overall System Rating is Minimally Acceptable, the report needs to establish a timeframe for correction of serious deficiencies noted (not to exceed two years) and indicate that if these items are not corrected within the required timeframe, the system will be rated as Unacceptable and made Inactive in the Rehabilitation Inspection Program.

J. **Notification:**

Reports are to be disseminated as follows within 30 days of the inspection date.

If the Overall System Rating is Acceptable	If the Overall System Rating is Minimally Acceptable	If the Overall System Rating is Unacceptable
Reports need to be provided to the local sponsor and the county emergency management agency.	Reports need to be provided to the local sponsor, state emergency management agency, county emergency management agency, and to the FEMA region.	Reports need to be provided to the local sponsor, state emergency management agency, county emergency management agency, FEMA region, and to the Congressional delegation within 30 days of the inspection.

National Levee Database

NLD

For Official Use Only

LEVEE INSPECTION MAPBOOK

Levee Segment Highland

NLD Levee Segment ID
2604000007

Location
Highland

Inspection Type
Routine

Start Date
22-Jun-2021

End Date
22-Jun-2021

Inspected By
Jeremy Harris, Yuki Galisanao



US Army Corps
of Engineers

SHEET INDEX

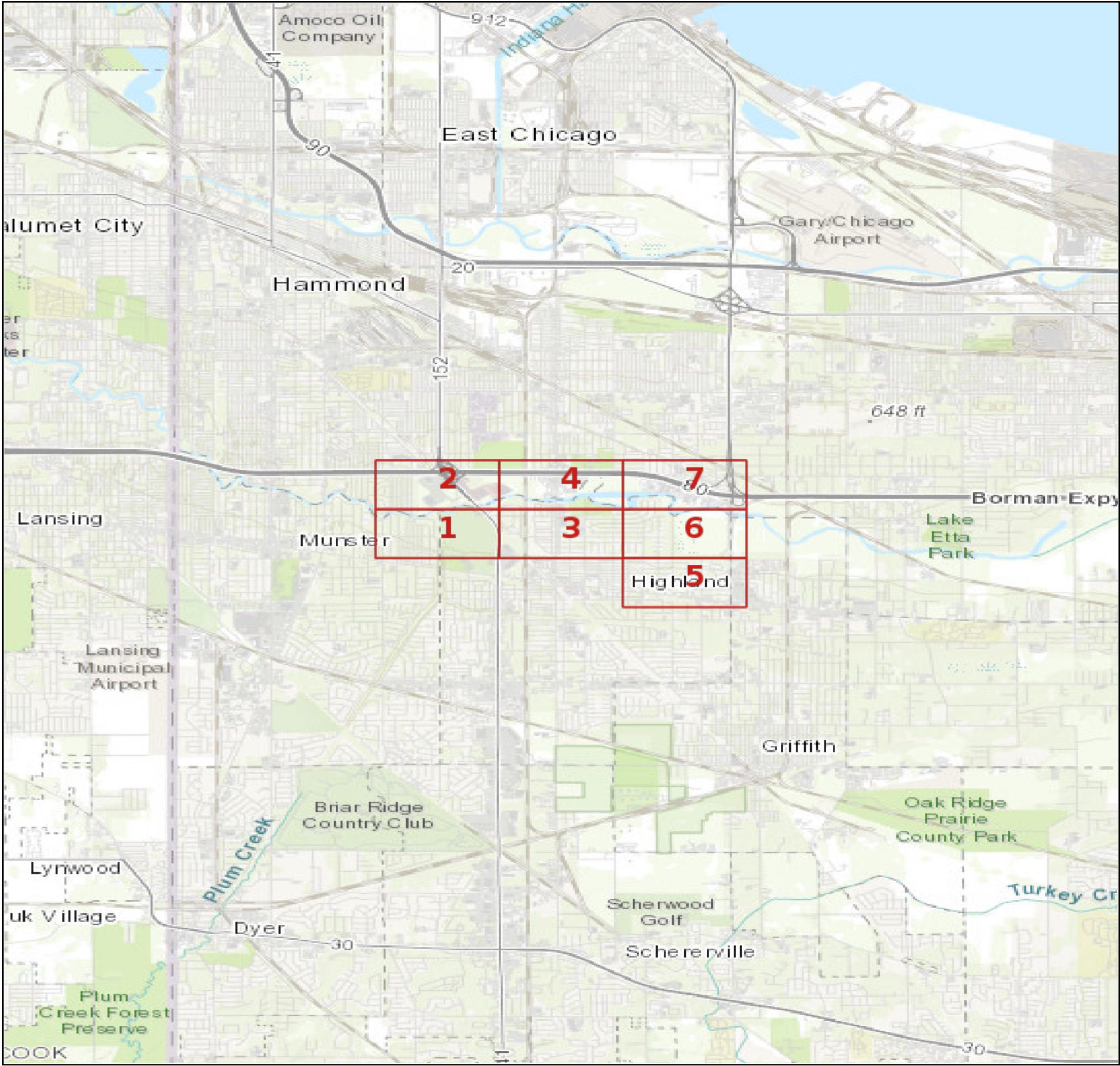
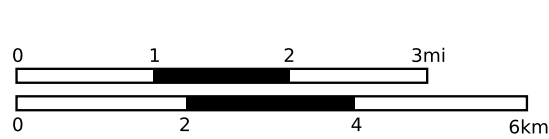
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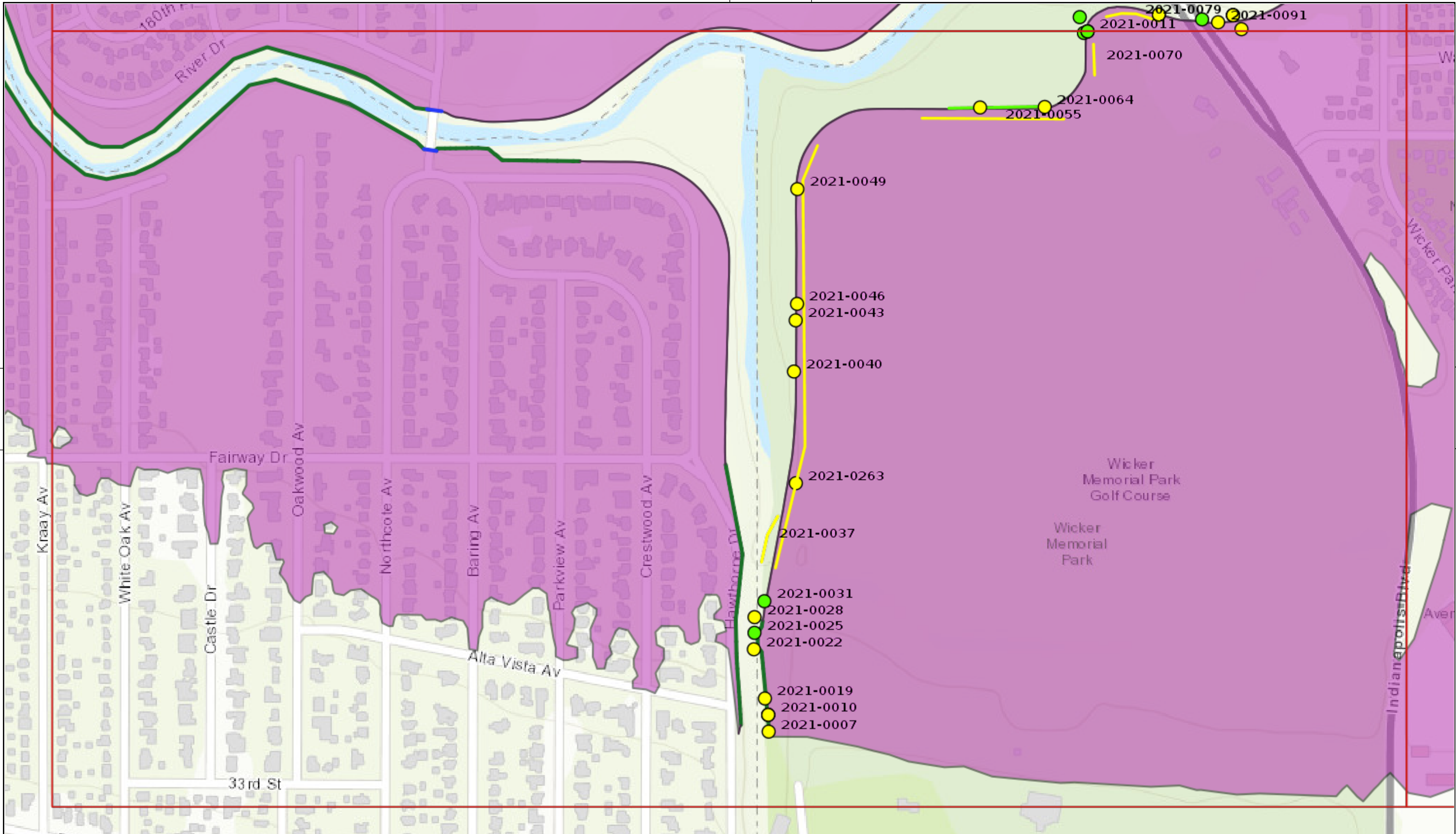
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MAP ELEMENTS

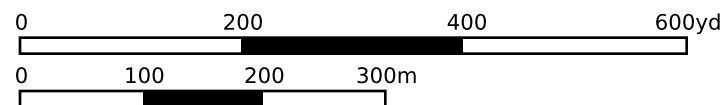
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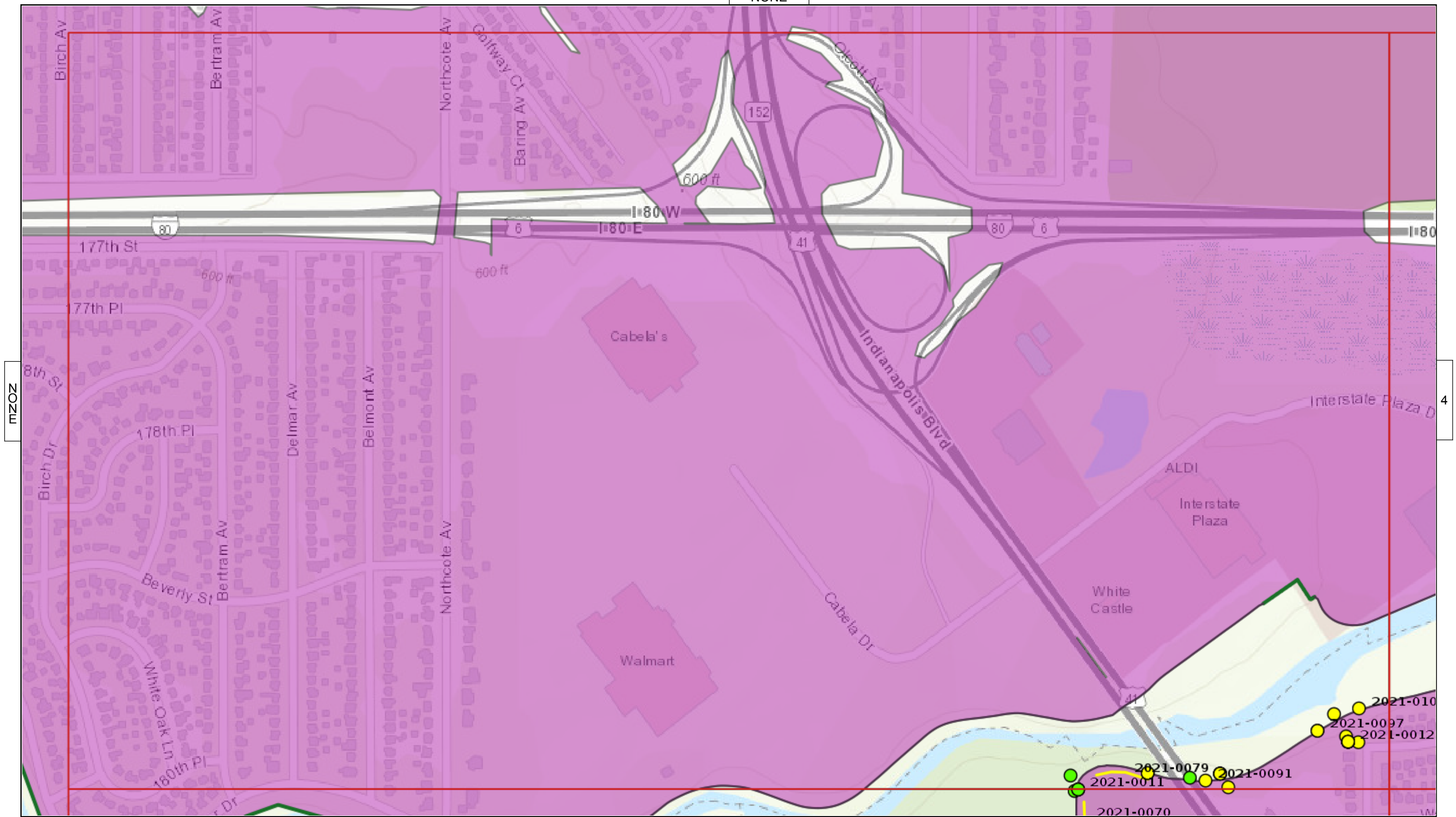


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 - Unacceptable
 - Not Applicable

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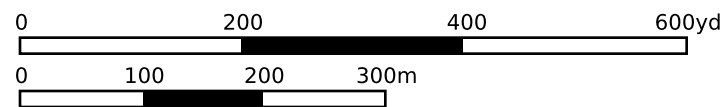
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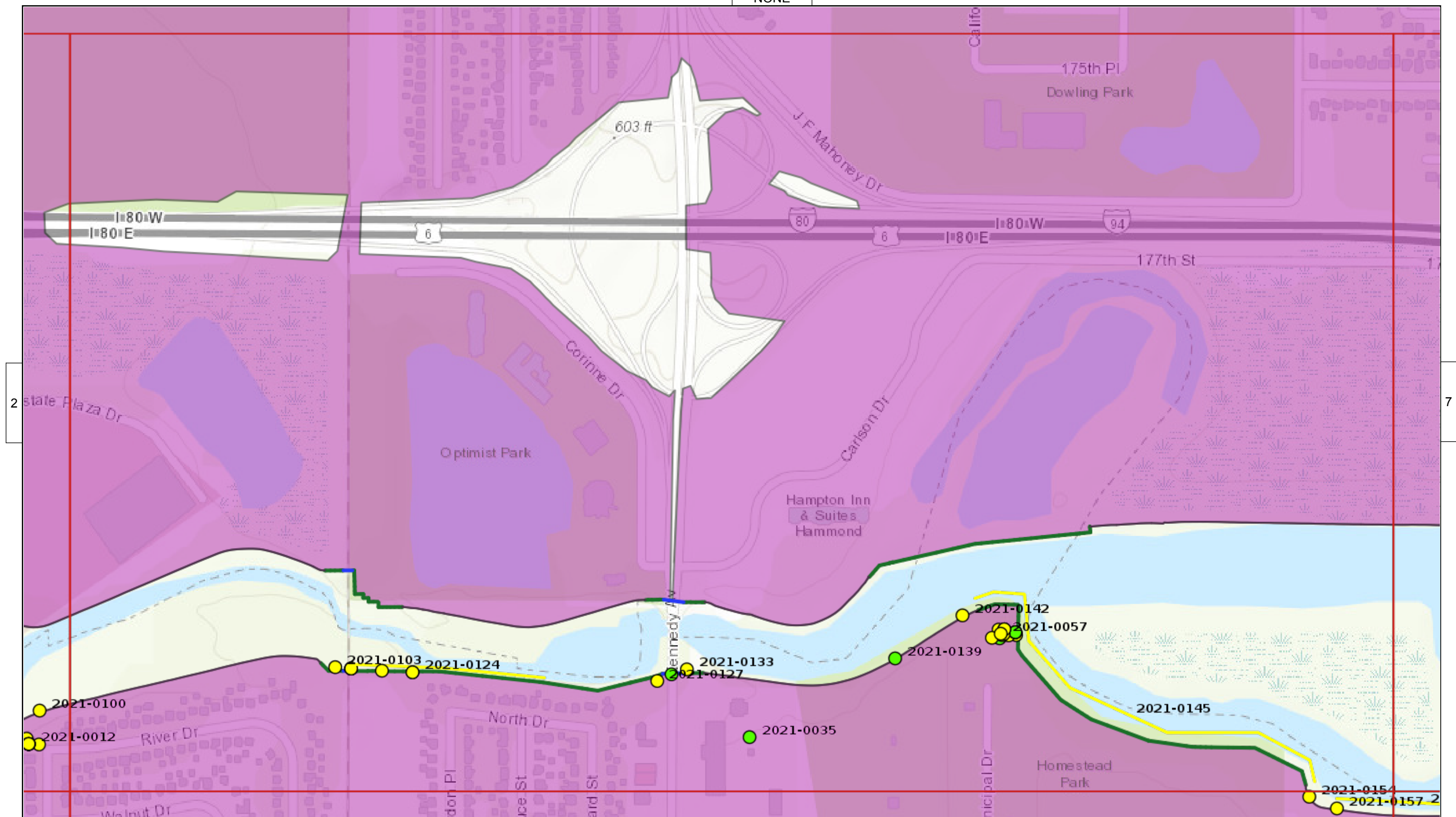
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22-Jun-2021

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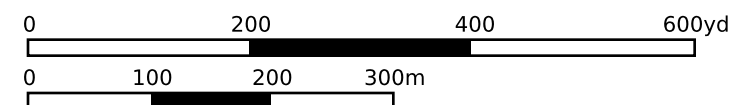
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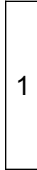
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Type: Routine

22-Jun-2021



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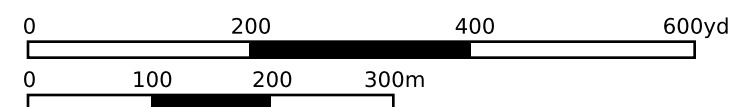
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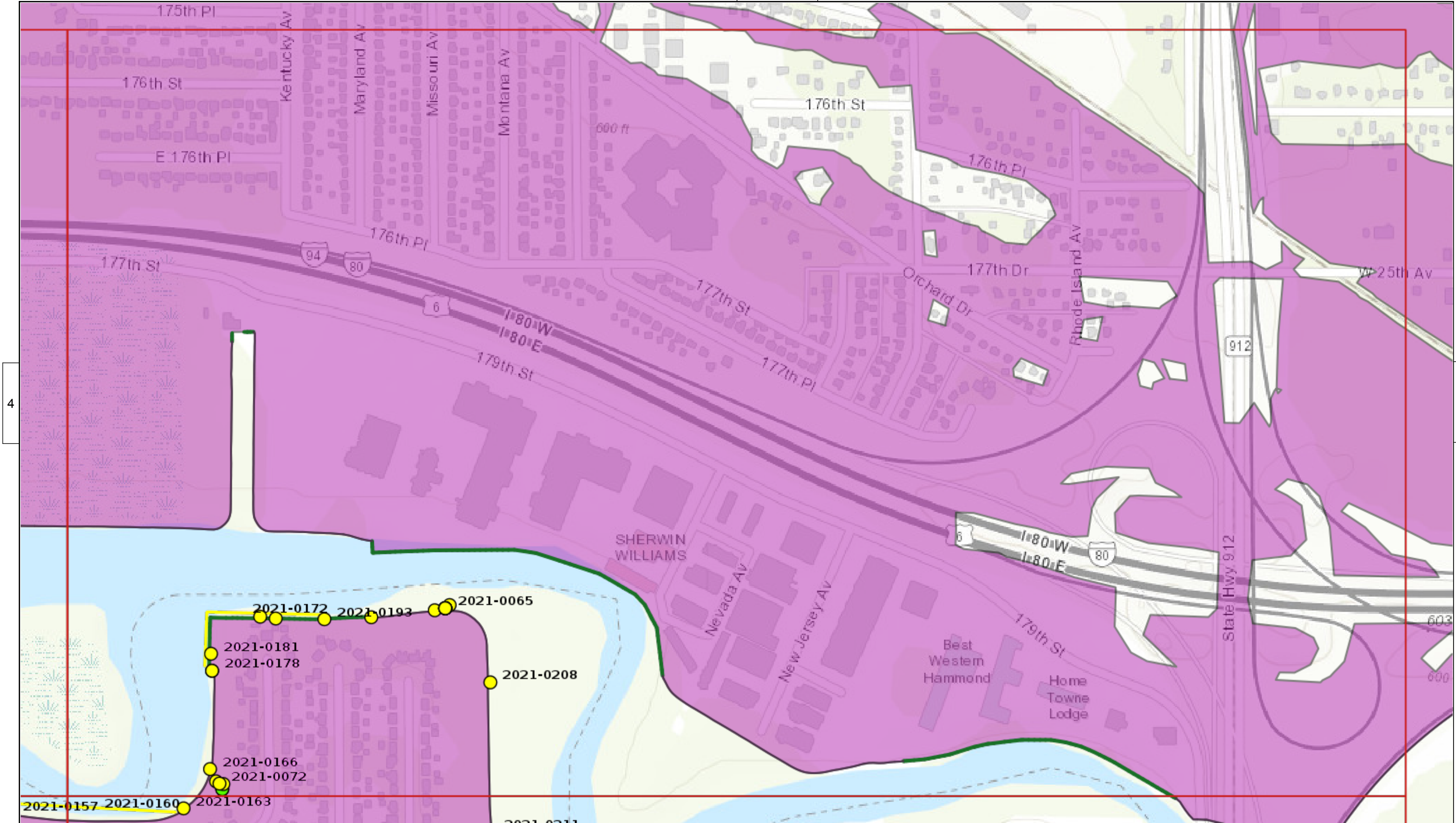
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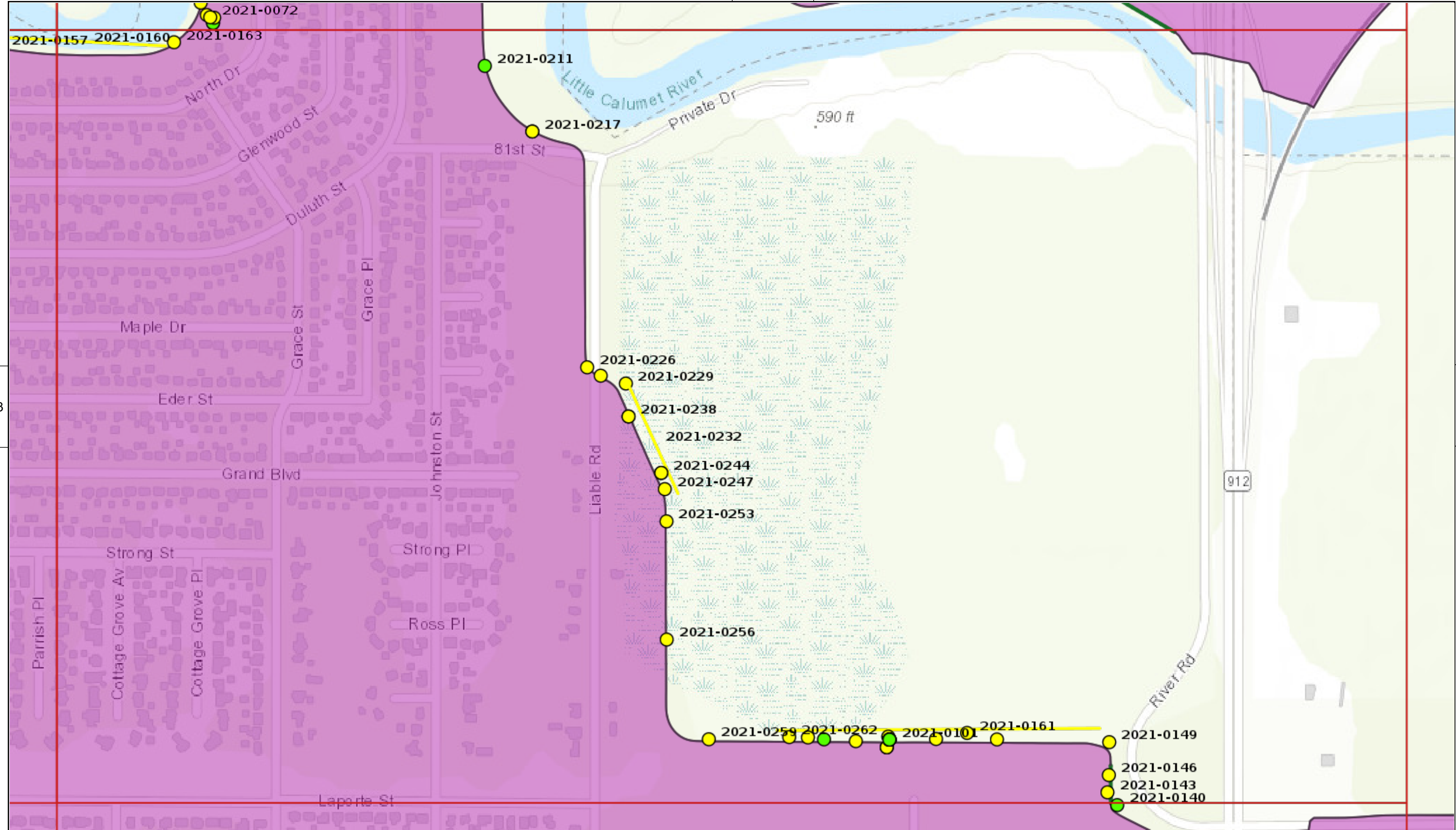
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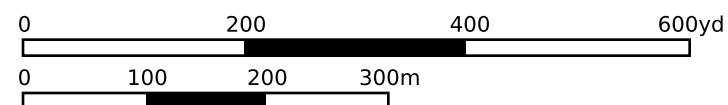
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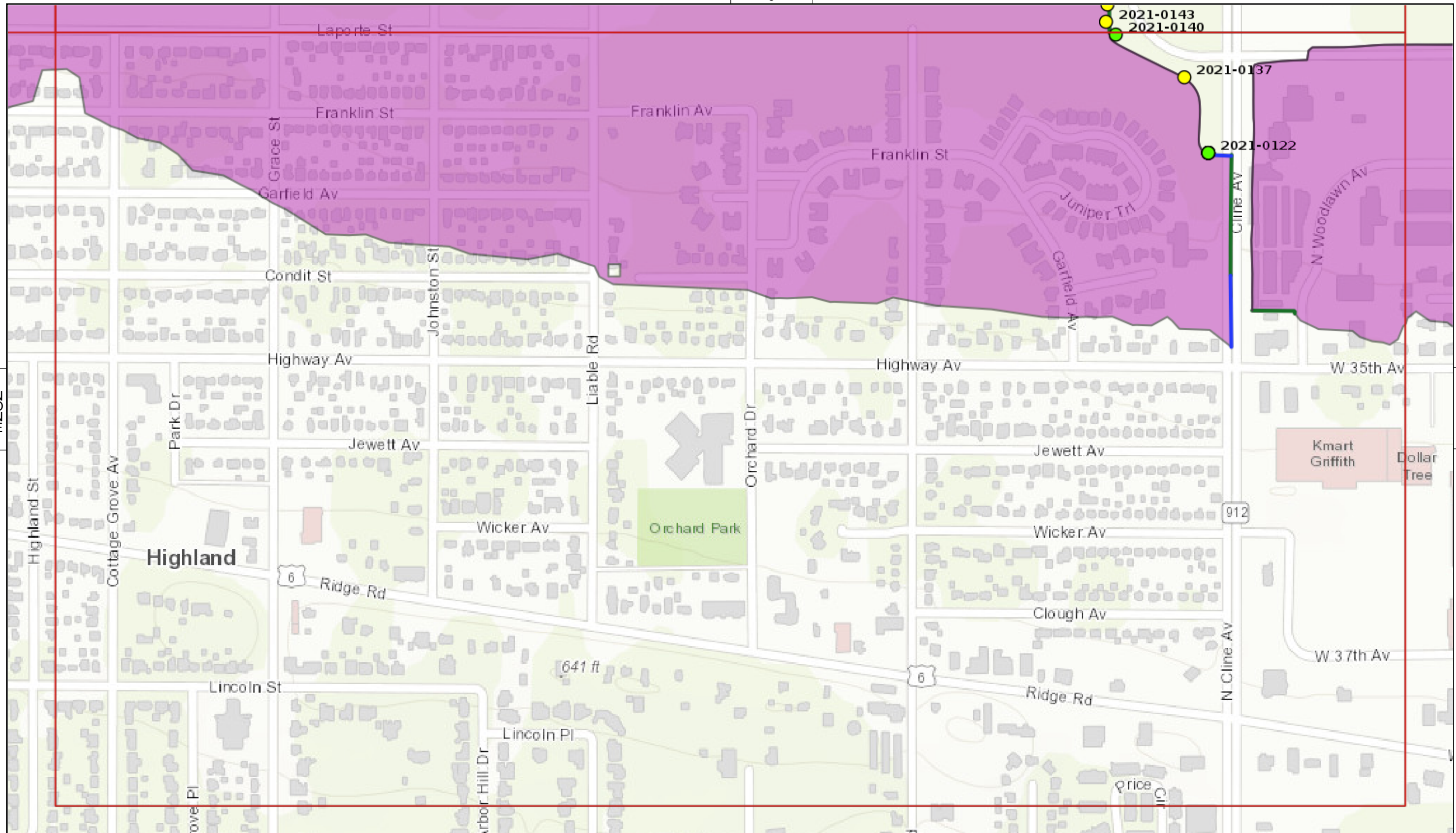
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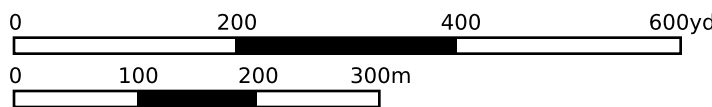
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