

PRELIMINARY



NO	REVISION	DATE

SUMMIT COUNTY ENGINEER  
SUMMIT COUNTY/SPRINGFIELD LAKE NO.2  
WATERSHED STUDY  
15% CONCEPTUAL PLAN

SUMMIT COUNTY

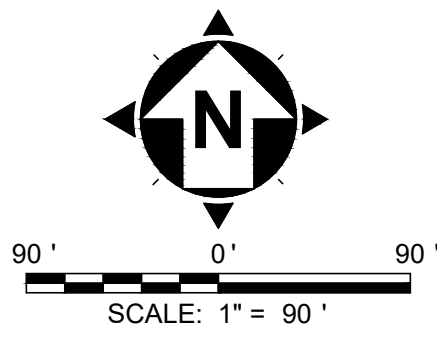
AKRON, OHIO

ISSUED FOR: 15% CONCEPT  
ISSUE DATE: 7/25/2024  
SCALE: AS SHOWN  
DESIGNED BY: PAB  
DRAWN BY: MRD  
CHECKED BY: PAB

OVERALL PROJECT AREAS MAP

PROJECT NO. <b>220741</b>	
DISCIPLINE <b>CIVIL</b>	
SHEET NAME <b>OVERALL</b>	
SHEET <b>1</b>	OF <b>10</b>



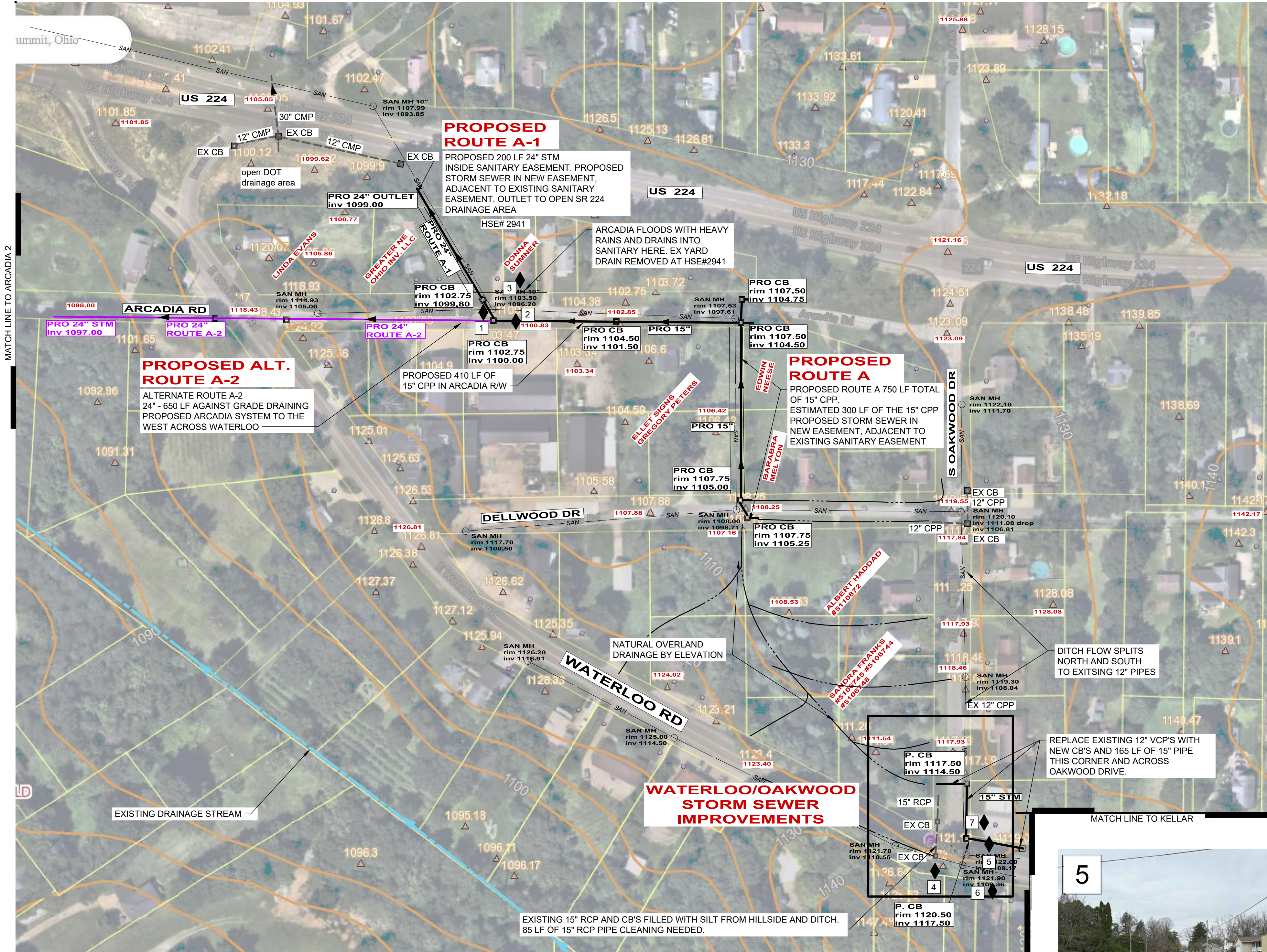


**LEGEND**

- PROPOSED STORM SEWER "A"
- PROPOSED STORM SEWER "A1"
- PROPOSED ALT STORM SEWER "A2"
- EXISTING STORM SEWER
- PROPOSED CATCH BASIN
- PROPOSED STORM MANHOLE
- FIELD PHOTO LOCATION

**GENERAL NOTES**

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- EXISTING TOPOGRAPHY SHOWN WAS OBTAINED FROM SUMMIT COUNTY GIS, AND WAS NOT OBTAINED FROM A FIELD GROUND SURVEY. PROPOSED ELEVATIONS ARE APPROXIMATE AND USED FOR PLANNING AND CONSTRUCTABILITY PURPOSES.
- WETLAND AND STREAM INFORMATION SHOWN WAS OBTAINED FROM THE NATIONAL WETLAND INVENTORY MAPS AND PRELIMINARY WETLAND DETERMINATIONS DURING SITE VISITS CONDUCTED BY CT CONSULTANTS, INC BETWEEN NOVEMBER 2023 TO FEBRUARY 2024.
- EXISTING UNDERGROUND UTILITIES WERE OBTAINED FROM VARIOUS SOURCES INCLUDING, BUT NOT LIMITED TO, FIELD OBSERVATIONS (E.G. ABOVE GROUND FEATURES) AND RECORDS MADE AVAILABLE (E.G. ORIGINAL CONSTRUCTION PLANS, AS-BUILT DRAWINGS, DISTRIBUTION AND SERVICE MAPS, GIS DATABASES, AERIAL PHOTOGRAPHY) TO CREATE A COMPOSITE DRAWING OF EXISTING CONDITIONS. ALTHOUGH GRAPHICALLY SHOWN AS ACCURATELY AS POSSIBLE FROM THE INFORMATION MADE AVAILABLE, THERE IS NO GUARANTEE OR WARRANTY, EXPRESSED OR IMPLIED, OF THE COMPLETENESS, CORRECTNESS OR ACCURACY OF SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED.



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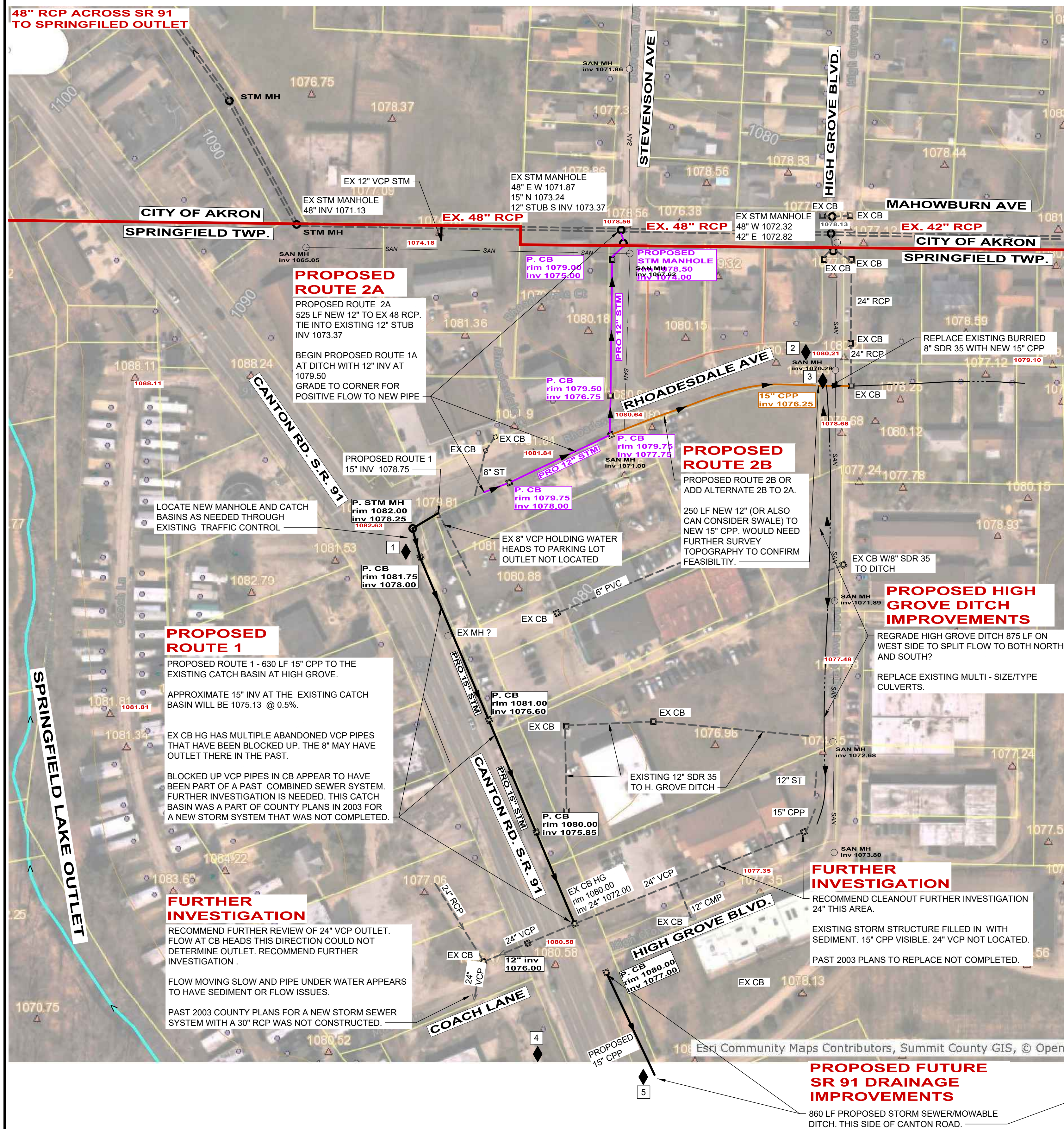
**SUMMIT COUNTY**

**AKRON, OHIO**









ISSUED FOR:	15% CONCEPT
ISSUE DATE:	7/25/2024
SCALE:	AS SHOWN
DESIGNED BY:	JK
DRAWN BY:	JK
CHECKED BY:	MRD

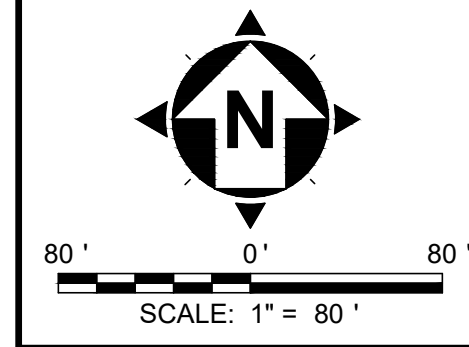
**CONCEPTUAL SITE PLAN #2- ARCADIA**

PROJECT NO.	220741
DISCIPLINE	CIVIL
SHEET NAME	CP-02
SHEET	OF
3	10



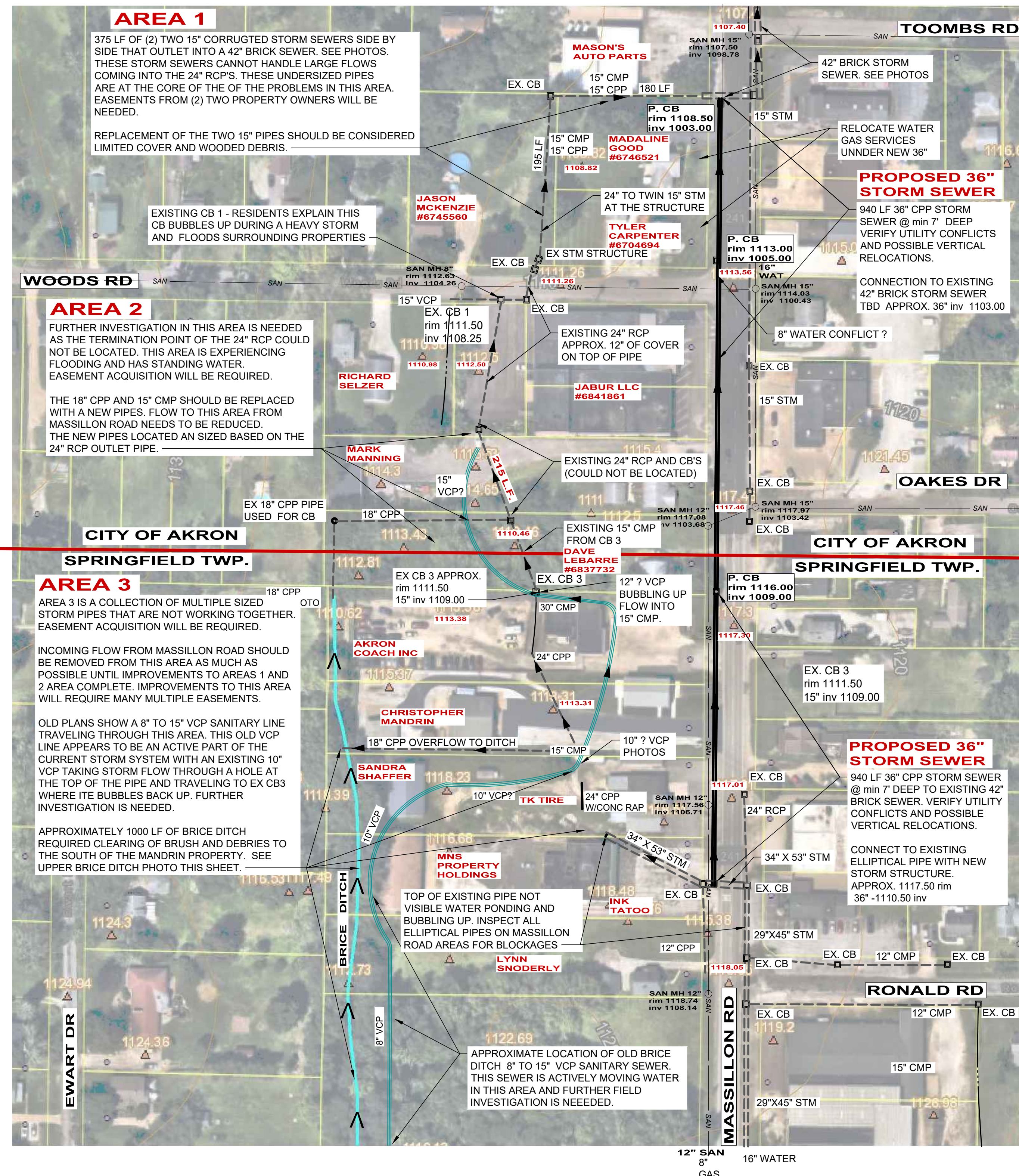
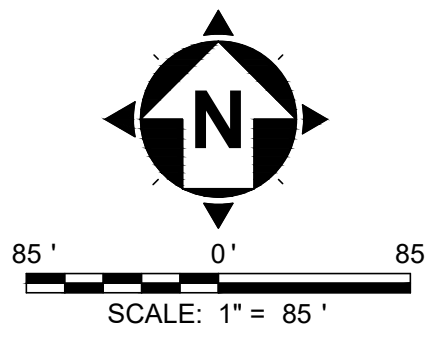
### **LEGEND**

	PROPOSED STORM SEWER "1"
	PROPOSED STORM SEWER "2A"
	PROPOSED STORM SEWER "2B"
	EXISTING DITCH LINE
	EXISTING STORM SEWER
	PROPOSED CATCH BASIN
	PROPOSED STORM MANHOLE
	FIELD PHOTO LOCATION

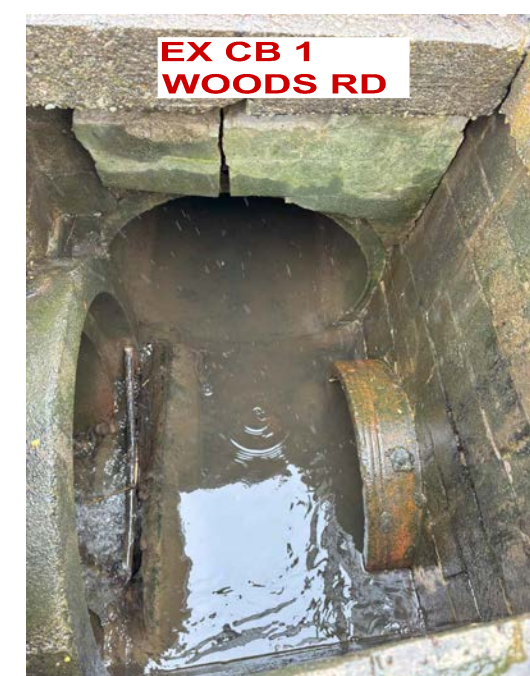


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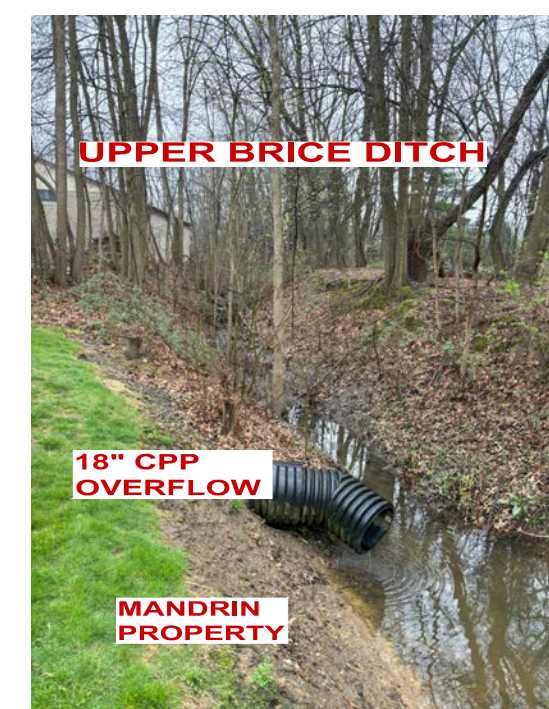
## AREA 1 PHOTOS







## AREA 2 PHOTOS



## AREA 3 PHOTOS



### LEGEND

-  PROPOSED 36" STORM SEWER  
 EXISTING STORM SEWER  
 PROPOSED CATCH BASIN  
 PROPOSED STORM MANHOLE

## GENERAL NOTES

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**SUMMIT COUNTY/SPRINGFIELD LAKE NO.2  
WATERSHED STUDY  
15% CONCEPTUAL PLAN**

SUMMIT COUNTY

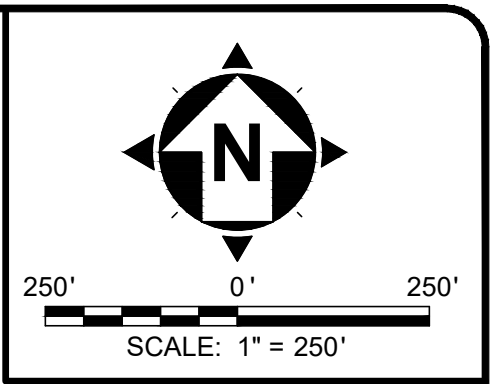
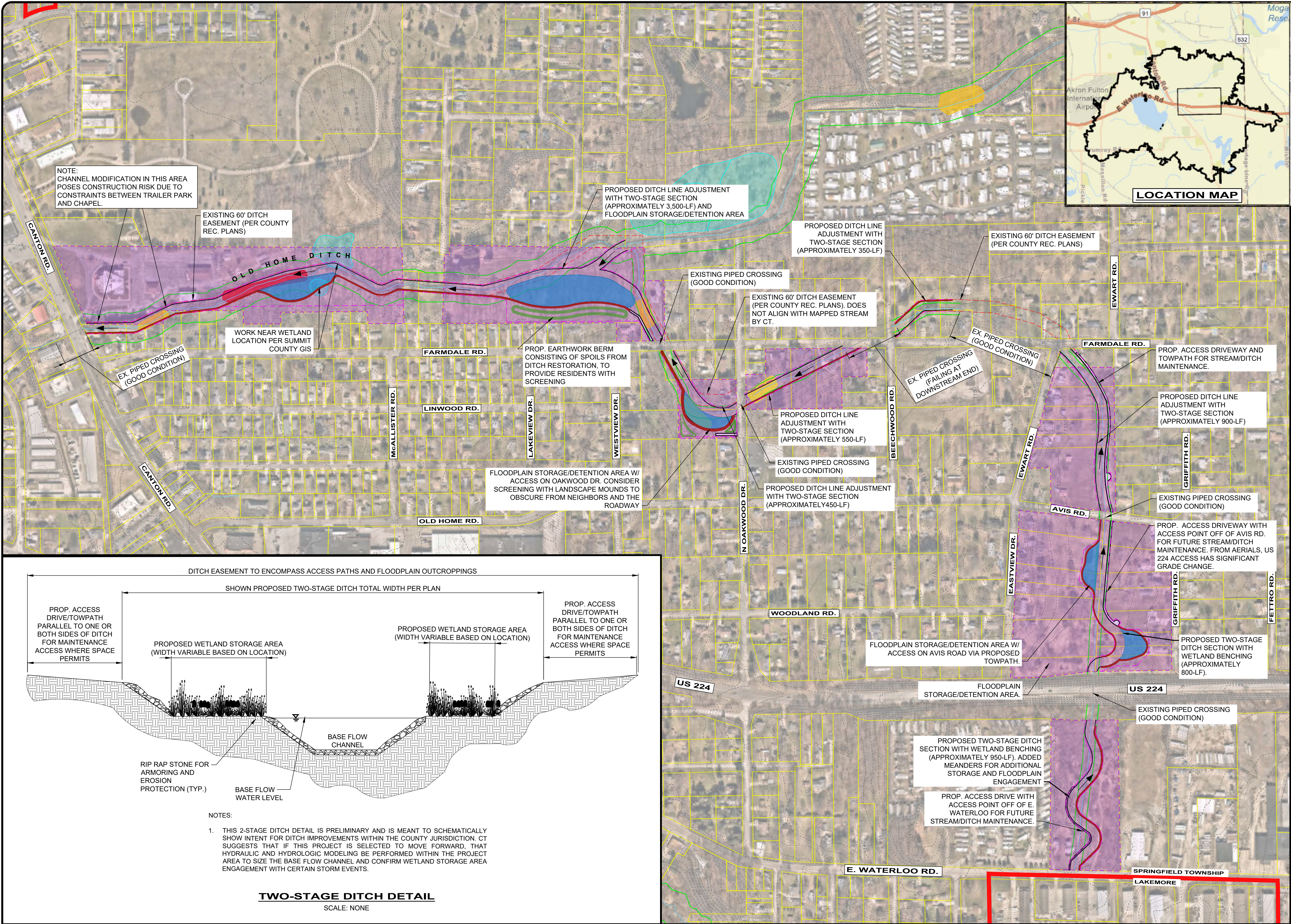
**AKRON, OHIO**

ISSUED FOR:	15% CONCEPT
ISSUE DATE:	7/25/2024
SCALE:	AS SHOWN
DESIGNED BY:	JKK
DRAWN BY:	JKK
CHECKED BY:	MRD

### CONCEPTUAL SITE PLAN #4 - BRICE DITCH

PROJECT NO.	
<b>220741</b>	
DISCIPLINE	
<b>CIVIL</b>	
SHEET NAME	
<b>CP-04</b>	
SHEET	OF
<b>5</b>	<b>10</b>



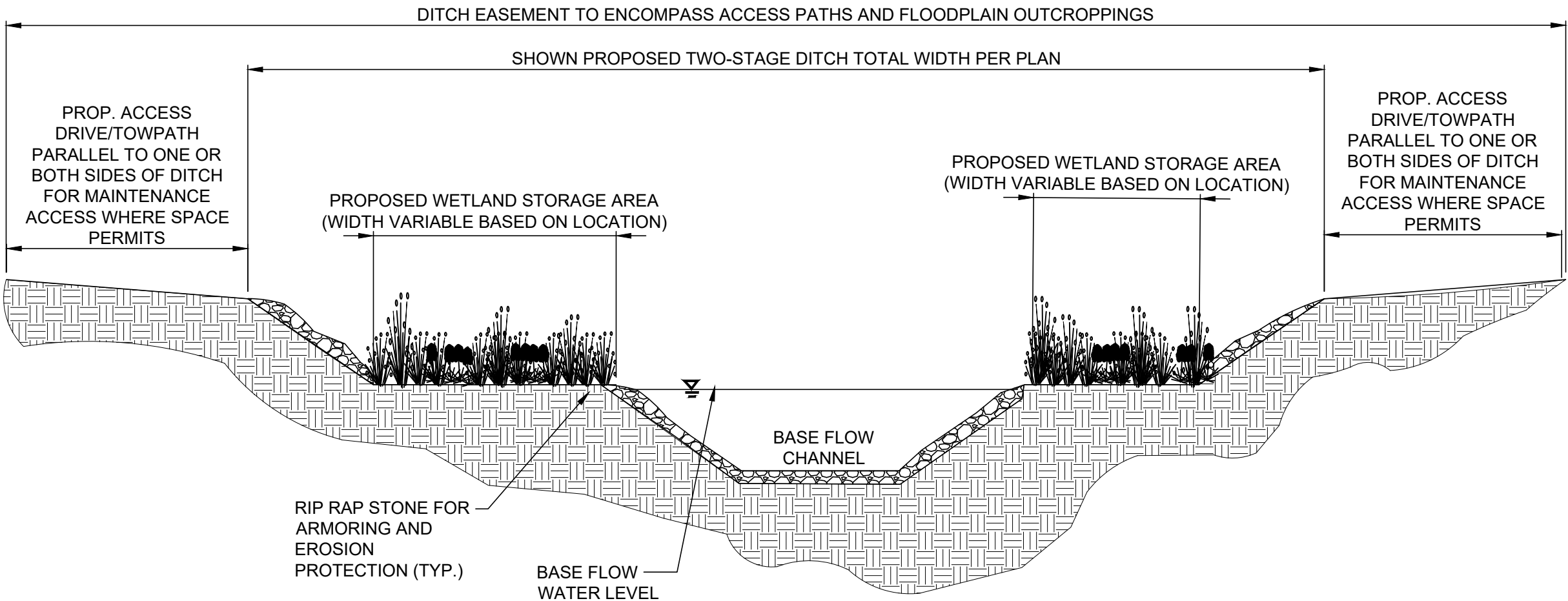


LEGEND

- CT MAPPED STREAM (IN FIELD)
- PROPOSED TWO STAGE DITCH SECTION (TOP WIDTH OF CHANNEL)
- PROPOSED FLOODPLAIN/DETENTION AREA
- OBSERVED MINOR EROSION
- OBSERVED MODERATE EROSION
- OBSERVED MAJOR EROSION
- PARCEL SUBJECT TO EASEMENT ACQUISITION
- PROPOSED ACCESS TOWPATH. KEEP TOWPATH BUFFER FREE OF TREE PLANTINGS. WIDE TRACK LIGHT TONNAGE MAINTENANCE VEHICLES ONLY.
- PROPOSED ACCESS DRIVE WITH TURNAROUNDS FOR MAINTENANCE VEHICLES.
- PROPOSED DITCH EASEMENT
- FLOW DIRECTION ARROW
- EXISTING RIPARIAN AREA (PER SUMMIT COUNTY GIS)
- EXISTING WETLAND AREAS (PER SUMMIT COUNTY GIS)

GENERAL NOTES

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- EXISTING TOPOGRAPHY SHOWN WAS OBTAINED FROM SUMMIT COUNTY GIS, AND WAS NOT OBTAINED FROM A FIELD GROUND SURVEY.
- EXISTING EASEMENT LINEWORK IS SHOWN FOR INTENT AND BASED ON BEST AVAILABLE COUNTY RECORDS FOR THE AREA. THE EXTENTS AND VALIDITY OF EASEMENTS SHOWN HEREIN SHOULD NOT BE ASSUMED TO BE COMPLETE OR TOTALLY ACCURATE. EASEMENT LINEWORK HAS BEEN DRAWN AS INDICATED IN RECORD PLANS. BREAKS IN THE EASEMENT LINEWORK MAY INDICATE EASEMENT DO NOT EXIST ALONG THE ENTIRE DITCH.
- WETLAND AND STREAM INFORMATION SHOWN WAS OBTAINED FROM THE NATIONAL WETLAND INVENTORY MAPS AND PRELIMINARY WETLAND DETERMINATIONS DURING SITE VISITS CONDUCTED BY CT CONSULTANTS, INC BETWEEN NOVEMBER 2023 TO FEBRUARY 2024.
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NOTES:

- THIS 2-STAGE DITCH DETAIL IS PRELIMINARY AND IS MEANT TO SCHEMATICALLY SHOW INTENT FOR DITCH IMPROVEMENTS WITHIN THE COUNTY JURISDICTION. CT SUGGESTS THAT IF THIS PROJECT IS SELECTED TO MOVE FORWARD, THAT HYDRAULIC AND HYDROLOGIC MODELING BE PERFORMED WITHIN THE PROJECT AREA TO SIZE THE BASE FLOW CHANNEL AND CONFIRM WETLAND STORAGE AREA ENGAGEMENT WITH CERTAIN STORM EVENTS.

TWO-STAGE DITCH DETAIL

SCALE: NONE

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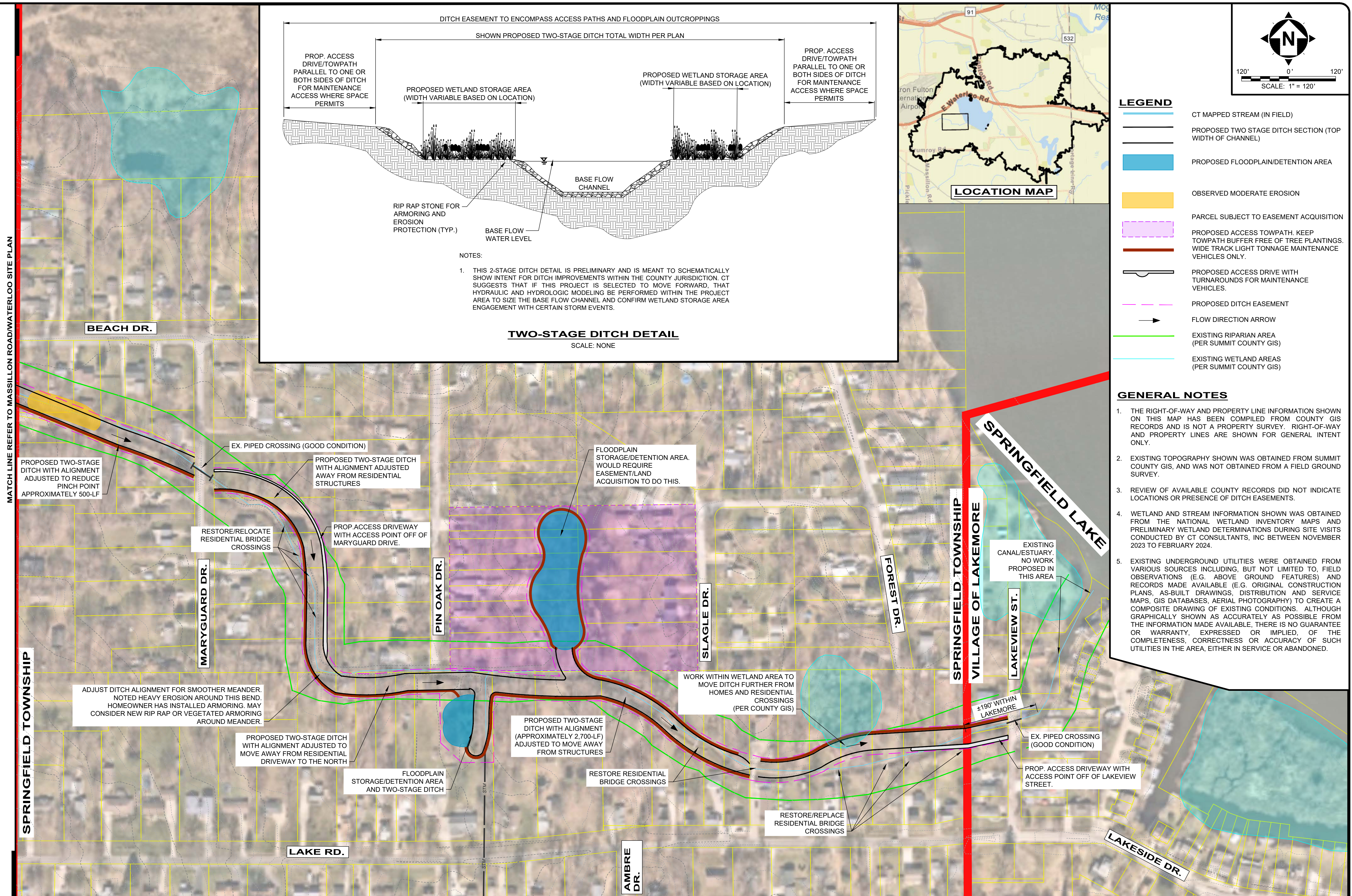
DESIGNED BY: PAB

DRAWN BY: PAB

CHECKED BY: MRD

CONCEPTUAL SITE PLAN #6 - OLD HOME DITCH

PROJECT NO.	
220741	
DISCIPLINE	
CIVIL	
SHEET NAME	
CP-06	
SHEET	OF
7	10



**PRELIMINARY**



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**SUMMIT COUNTY ENGINEER**  
**SUMMIT COUNTY/SPRINGFIELD LAKE NO.2**  
**WATERSHED STUDY**  
**15% CONCEPTUAL PLAN**

SUMMIT COUNTY

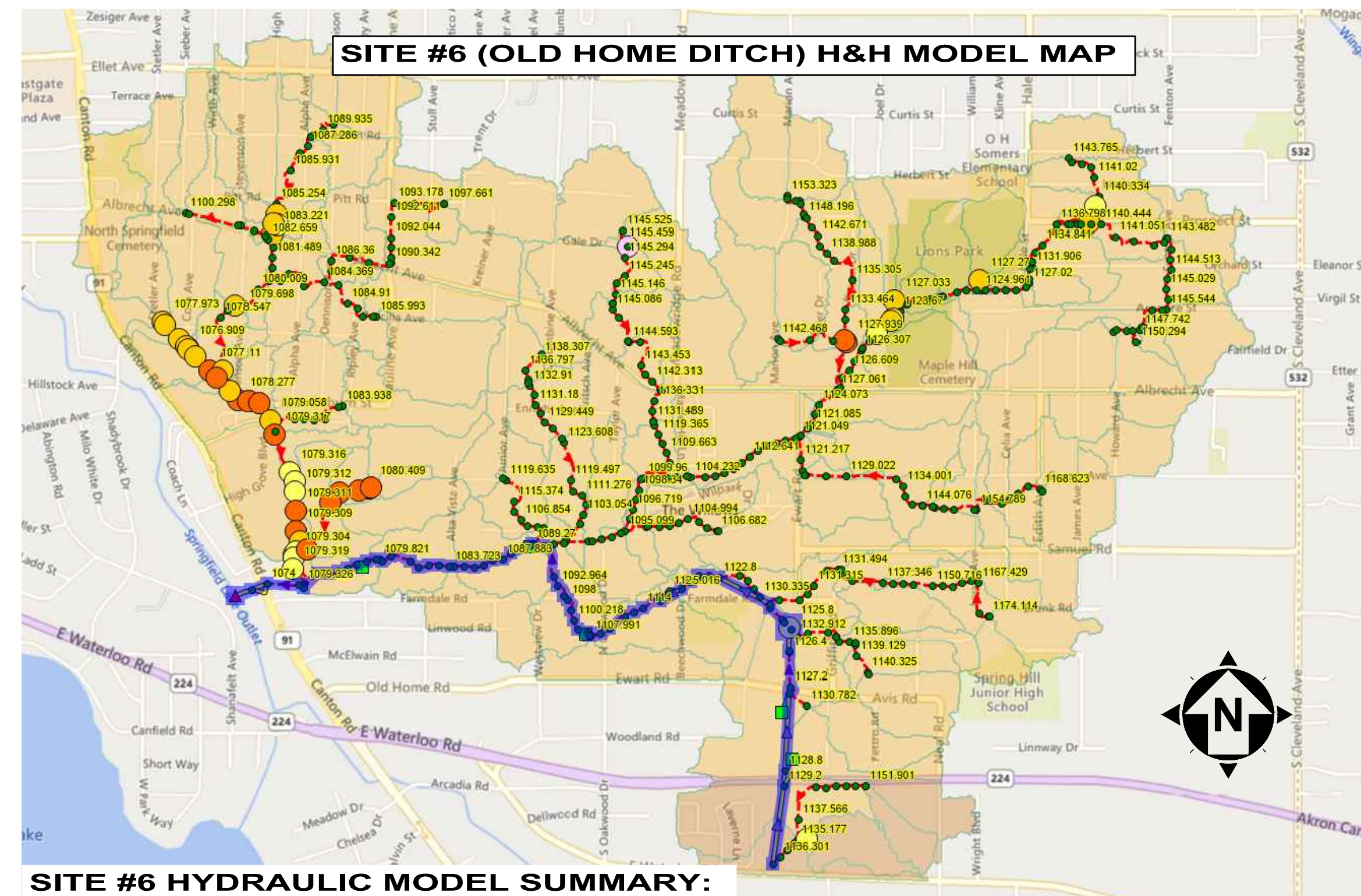
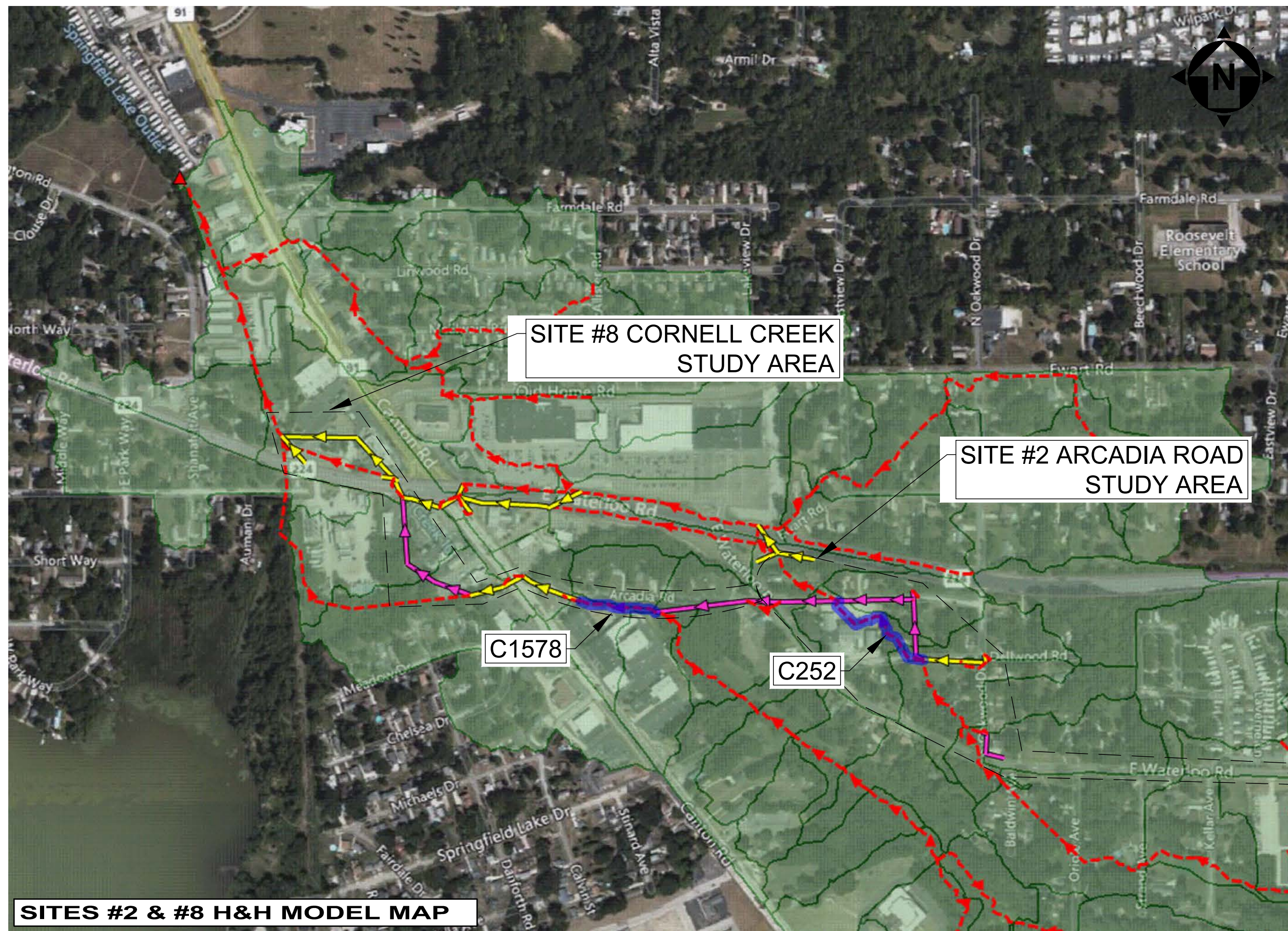
**AKRON, OHIO**

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CHECKED BY:	MRD

### CONCEPTUAL SITE PLAN #7 - PONTIUS DITCH

PROJECT NO.	
<b>220741</b>	
DISCIPLINE	
<b>CIVIL</b>	
SHEET NAME	
<b>CP-07</b>	
SHEET	OF
<b>8</b>	<b>10</b>

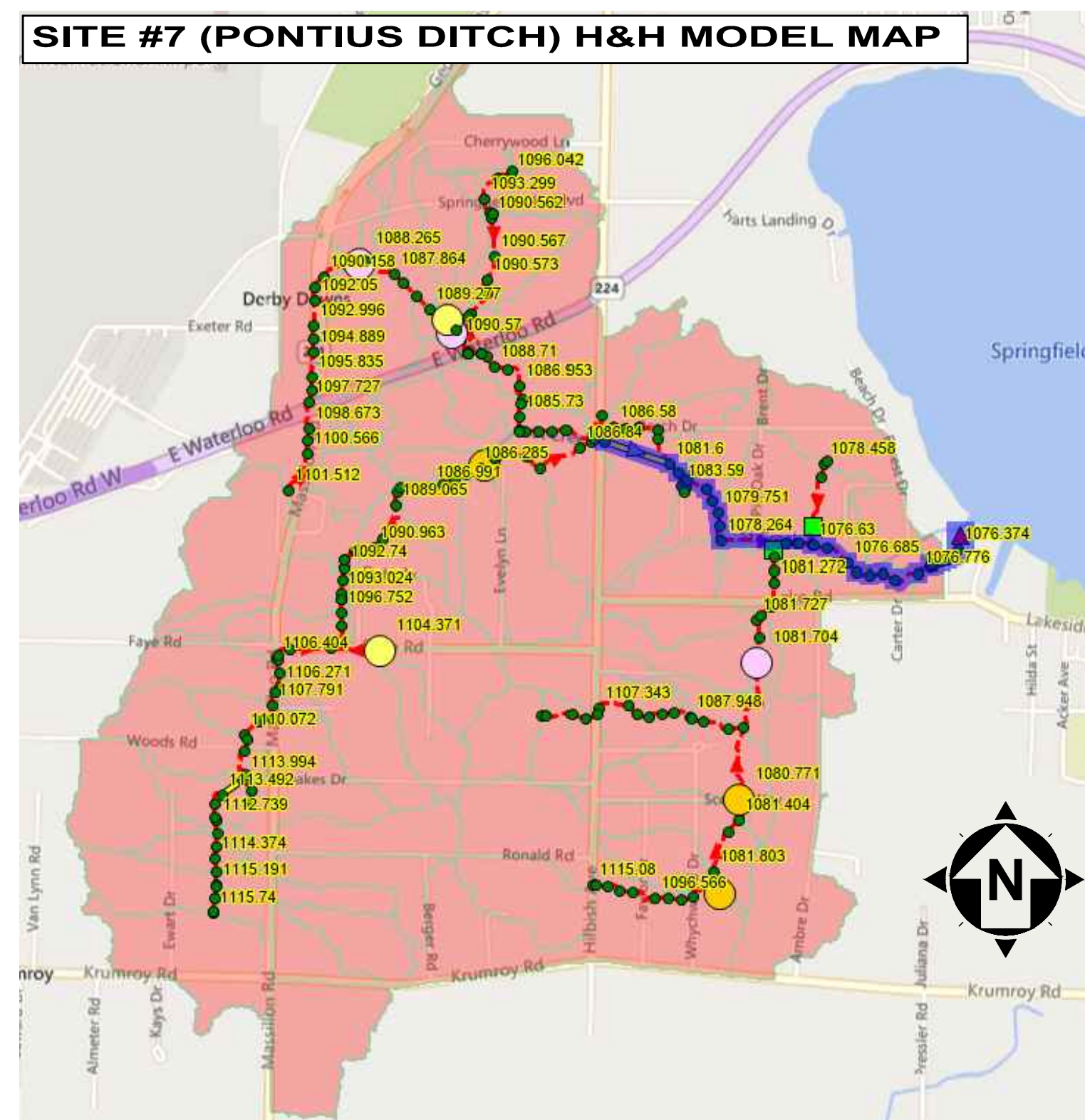




### SITE #6 HYDRAULIC MODEL SUMMARY:

OLD HOME DITCH AVERAGE HGL REDUCTION**		
	AVG. HGL (FEET)	% REDUCTION
100 YEAR EX. COND.	3.31	N/A
100 YEAR PROP. COND.	2.964	-10.48
25 YEAR EX. COND.	2.737	N/A
25 YEAR PROPOSED COND.	2.451	-10.45

\*\* CALCULATES THE AVERAGE CORRESPONDING TO THE SELECTION OF CONDUITS SHOWN IN THE MAP BELOW



### SITE #7 HYDRAULIC MODEL SUMMARY:

PONTIUS DITCH AVERAGE HGL REDUCTION**		
	AVG. HGL (FEET)	% REDUCTION
100 YEAR EX. COND.	2.155	N/A
100 YEAR PROP. COND.	2.040	-5.34
25 YEAR EX. COND.	1.732	N/A
25 YEAR PROPOSED COND.	1.641	-5.25

\*\* CALCULATES THE AVERAGE CORRESPONDING TO THE SELECTION OF CONDUITS SHOWN IN THE MAP BELOW

### SITES #2 & #8HYDRAULIC MODEL SUMMARY:

	Segment C252		Segment C1578
Storm	A-1 Reduction in Peak Overland Flow	A-2 Reduction in Peak Overland Flow	A-2 Increase in Peak Overland Flow
100 Year 24 Hrs	5.61%	5.96%	5%
25 Year 24 Hr	11%	20%	7%

**HYDRAULIC MODEL GENERAL NOTES:**

1. PCSWMM H&H SOFTWARE WAS UTILIZED TO PREPARE THE HYDRAULIC MODEL IN CONJUNCTION WITH PUBLICLY AVAILABLE GIS INFORMATION, AERIAL PHOTOGRAPHY, RECORD PLAN DATA, AND SUPPLEMENTAL FIELD INSPECTION.
2. THE PROJECT MODELS EXTENDS TO ALL TRIBUTARY AREAS BASED UPON THE POINTS OF ANALYSIS. HOWEVER, THE MODEL IS NOT REFINED IN ALL TRIBUTARY AREAS. THIS ENSURES HYDROLOGIC FLOWS CONVEY, BUT THE MODEL DOES NOT INCLUDE BURIED INFRASTRUCTURE REPRESENTATION IN MODEL AREAS OUTSIDE OF THE CONCEPT PLAN AREA.
3. THE COUNTY REQUESTED FIELD STUDY AT LIMITED LOCATIONS PRIOR TO MODEL BUILD. THE STUDY WAS NOT COMPREHENSIVE THROUGHOUT THE MODEL WATERSHED AND IS INTENDED ONLY FOR PRELIMINARY PLANNING PURPOSES. ADDITIONAL FIELD STUDY, CCTV, AND DETAILED MODEL UPDATES ARE RECOMMENDED TO IMPROVE MODEL ACCURACY AND BE UTILIZED AS A TOOL FOR DETAILED DESIGN.
4. THE COUNTY DID NOT PERFORM CCTV PRIOR TO MODEL BUILD. THE MODEL ASSUMES THE CONDITION OF THE PIPES TO BE "FREE AND CLEAR" OF DEBRIS.

**PRELIMINARY**



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**SUMMIT COUNTY ENGINEER**

**SUMMIT COUNTY/SPRINGFIELD LAKE NO.2**  
**WATERSHED STUDY**  
**15% CONCEPTUAL PLAN**

SUMMIT COUNTY

**AKRON, OHIO**

ISSUED FOR:	15% CONCEPT
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DRAWN BY:	PAB
CHECKED BY:	MRC

## PRELIMINARY HYDRAULIC MODEL SUMMARY

PROJECT NO.	
<b>220741</b>	
DISCIPLINE	
<b>CIVIL</b>	
SHEET NAME	
<b>HH-01</b>	
SHEET	OF
<b>10</b>	<b>10</b>

SCE   SPRINGFIELD LAKE WATERSHED STUDY: OVERALL PROJECT SUMMARY					
No.	Site ID/Name	AACE Level 4 Cost	Feasibility Considerations	Favorable Conditions	Unfavorable Factors
1	Kellar	\$196,000	<ul style="list-style-type: none"><li>Where work is proposed, no working storm infrastructure exists.</li></ul>	<ul style="list-style-type: none"><li>Provides relief homeowners experiencing flooding.</li><li>Provide public stormwater management to area.</li></ul>	<ul style="list-style-type: none"><li>Manage public opinion of the improvement. May be viewed as moving flooding from one area to another.</li><li>No pollutant load reduction is anticipated with this project.</li></ul>
2	Arcadia	<ul style="list-style-type: none"><li>A &amp; A-1: \$376,000</li><li>ALT A-2: \$531,000</li><li>Waterloo/Oakwood: \$115,000</li></ul>	<ul style="list-style-type: none"><li>Where work is proposed, no working storm infrastructure exists.</li><li>Vegetated swales can be considered as an alternative to storm sewers in areas where topography and property space allows.</li></ul>	<ul style="list-style-type: none"><li>Repair failing stormwater infrastructure at a major county thoroughfare.</li><li>Provide stormwater management to area.</li><li>Reduce sanitary sewer infiltration.</li></ul>	<ul style="list-style-type: none"><li>Estimated 5 Easements required.</li><li>No pollutant load reduction is anticipated with this project.</li></ul>
3	Rhoadsdale	<ul style="list-style-type: none"><li>Route 1: \$258,000 (in ODOT R/W)</li><li>Route 2A: \$252,000</li><li>Route 2B: \$95,000</li><li>High Grove Ditch: \$219,000</li><li>SR91 Drainage: \$319,000</li></ul>	<ul style="list-style-type: none"><li>Additional ownership and coordination with property owners &amp; the City of Akron would be necessary to complete the project.</li><li>Work on and adjacent to SR 91 may require additional ODOT permitting.</li></ul>	<ul style="list-style-type: none"><li>Transportation safety upgrade to a well-traveled thoroughfare area.</li><li>improve surface drainage and stabilize property values for properties adjacent to the improvements.</li></ul>	<ul style="list-style-type: none"><li>Coordination with Akron &amp; ODOT</li><li>No pollutant load reduction is anticipated with this project.</li></ul>
4	Brice Ditch	<ul style="list-style-type: none"><li>36" Storm (in ODOT R/W): \$935,000</li><li>Area 1: \$526,000</li><li>Area 3: \$212,000</li></ul>	<ul style="list-style-type: none"><li>Proposed options for improvements have been provided but more field investigation, including professional survey, and evaluation of improvements to these areas are needed.</li><li>Overall, this project is unlikely to occur soon due to obstacles including: ODOT coordination, City of Akron coordination, costs, and acquisition of easements and work on private property, based on recent discussion with SCE.</li></ul>	<ul style="list-style-type: none"><li>The proposed work would provide public stormwater management to an area that currently is relying on private landowners to manage and deflect flow from a large drainage area.</li><li>The improvement would reduce damage to properties.</li><li>If sanitary sewer infiltration is truly happening as assumed/anticipated in the field, water quality improvements stand to be gained.</li></ul>	<ul style="list-style-type: none"><li>Estimated 4 Easements required.</li><li>Extensive coordination with the City of Akron and ODOT for work within their Right-of-way along Massillon Road.</li></ul>
5	Massillon/ Waterloo Ditch	\$1,879,000	<ul style="list-style-type: none"><li>Easements will be required for construction and maintenance access.</li><li>Ex. Det Basin Outlet to the east will likely need to be adjusted and checked to ensure it is properly tied into the channel after construction.</li></ul>	<ul style="list-style-type: none"><li>Minimal infrastructure within the channel to contend with for construction.</li><li>Possibility of wasting excavated soils on site to reduce earthwork haul off.</li><li>Pollutant Load Reduction</li></ul>	<ul style="list-style-type: none"><li>Extensive tree clearing.</li><li>3 Easements estimated to be acquired.</li><li>Work near and around wetland areas per County GIS.</li><li>Storage BMP at higher grade requires additional analysis and design considerations to limit the height of the outfall berm.</li></ul>
6	Old Home Ditch	\$5,815,000	<ul style="list-style-type: none"><li>Work adjacent to US 224 may require additional DOT permitting.</li><li>Proposed work near Canton Road poses additional risks due to constraints between Grace Cathedral and the Trailer Park to the south.</li><li>Limited access to construct and maintain proposed area East of Canton Road.</li></ul>	<ul style="list-style-type: none"><li>Minimal infrastructure within the channel to contend with for construction.</li><li>Possibility of reusing excavated soil spoils from channel to use as embankment and provide screening for residents and may reduce haul off costs.</li><li>Pollutant Load Reduction</li></ul>	<ul style="list-style-type: none"><li>Limited space for access to construct and maintain.</li><li>61 estimated easements required for access and maintenance.</li><li>Work in and around riparian areas.</li><li>Extensive tree clearing.</li></ul>
7	Pontius Ditch	\$3,050,000	<ul style="list-style-type: none"><li>New easements and coordination with property owners will be required for modification of the ditch section and alignment.</li><li>Floodplain Storage areas proposed between Pin Oak Drive and Slagle Drive would require additional easements with homeowners, beyond what is required for the ditch.</li><li>Coordination with homeowners for bridges/walkways to be replaced.</li><li>Western Extents of work at Hilbish are within City of Akron jurisdiction and will require additional coordination.</li></ul>	<ul style="list-style-type: none"><li>Pollutant Load Reduction</li><li>Increased conveyance and storage capacity</li></ul>	<ul style="list-style-type: none"><li>Limited space for access to construct and maintain.</li><li>60 estimated easements required for access and maintenance.</li><li>Work in and around riparian areas.</li></ul>

8	Cornell Creek	\$614,000	<ul style="list-style-type: none"><li>• CT has reviewed the available Summit County and existing utility records along with multiple field investigations in this area.</li><li>• If CCTV reveals no impeding findings, consider modeling. Modeling may return no conveyance capacity limitations, but would at least verify slope, size, roughness are not the problem. A future combined model with downstream boundary conditions from Springfield Lake outlet may be necessary.</li><li>• Relocation of the existing 48” sewer that is underneath existing building footprints and near buried tank structures based on field information.</li></ul>	<ul style="list-style-type: none"><li>• The current observed field conditions of the sewer do not directly indicate structural disfunction or failure of the sewer. <b>We would suggest SCE considering CCTV of the sewer to Springfield Lake Outlet. If CCTV of the sewer is performed, and impediments or obstructions are observed in the sewer, then heavy cleaning of the sewers could be employed to provide an increased level of service and hydraulic capacity.</b></li><li>• Abandon sewers under building footprints and structures to limit flooding and any future issues.</li></ul>	<ul style="list-style-type: none"><li>• There are no BMPs proposed in the concept plan to reduce the pollutant loads at this time. Based on path forward for study by SCE, we can analyze available options for stormwater BMPs at a further stage in design.</li><li>• Potential risks associated with relocation of existing sewers beneath structures, on private property to be considered.</li><li>• If sewer relocation from under structures is considered, maintenance easements may be required on private property.</li></ul>
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220741: SCE Springfield Lake Watershed Study No.2      Pollutant Load Reduction Calculations

Date: 7/2/2024

PROJECT SHORT NAME: PONTIUS

Watershed	N Load (No BMP) (lbs/year)	P Load (No BMP) (lbs/year)	BOD Load (No BMP) (lbs/year)	Sediment Load (No BMP) (tons/year)	N Reduction (lbs/year)	P Reduction (lbs/year)	BOD Reduction (lbs/year)	Sediment Reduction (tons/year)	N Load (With BMP) (lbs/year)	P Load (With BMP) (lbs/year)	BOD Load (With BMP) (lbs/year)	Load (With BMP) (tons/year)	% N Reduction	% P Reduction	% BOD Reduction	% Sediment Reduction
041100020303 - Wingfoot Lake outlet-Little Cuyahoga River	190.07	49.32	695.53	12.94	29.16	8.1	137.76	5.77	160.91	41.22	557.77	7.18	15.34	16.43	19.81	44.55
TOTAL	190.07	49.32	695.53	12.94	29.16	8.1	137.76	5.77	160.91	41.22	557.77	7.18	15.34	16.43	19.81	44.55

PROJECT SHORT NAME: OLD HOME

Watershed	N Load (No BMP) (lbs/year)	P Load (No BMP) (lbs/year)	BOD Load (No BMP) (lbs/year)	Sediment Load (No BMP) (tons/year)	N Reduction (lbs/year)	P Reduction (lbs/year)	BOD Reduction (lbs/year)	Sediment Reduction (tons/year)	N Load (With BMP) (lbs/year)	P Load (With BMP) (lbs/year)	BOD Load (With BMP) (lbs/year)	Sediment Load (With BMP) (tons/year)	% N Reduction	% P Reduction	% BOD Reduction	% Sediment Reduction
041100020303 - Wingfoot Lake outlet-Little Cuyahoga River	828.41	285.22	1885.34	227.1	84.44	31.67	159.5	37.74	743.97	253.55	1725.84	189.36	10.19	11.1	8.46	16.62
TOTAL	828.41	285.22	1885.34	227.1	84.44	31.67	159.5	37.74	743.97	253.55	1725.84	189.36	10.19	11.1	8.46	16.62

PROJECT SHORT NAME: MASSILLON/WATERLOO

Watershed	N Load (No BMP) (lbs/year)	P Load (No BMP) (lbs/year)	BOD Load (No BMP) (lbs/year)	Sediment Load (No BMP) (tons/year)	N Reduction (lbs/year)	P Reduction (lbs/year)	BOD Reduction (lbs/year)	Sediment Reduction (tons/year)	N Load (With BMP) (lbs/year)	P Load (With BMP) (lbs/year)	BOD Load (With BMP) (lbs/year)	Sediment Load (With BMP) (tons/year)	% N Reduction	% P Reduction	% BOD Reduction	% Sediment Reduction
041100020303 - Wingfoot Lake outlet-Little Cuyahoga River	25.93	9.72	64.3	8.31	4.24	1.52	10.76	2.07	21.69	8.19	53.54	6.24	16.34	15.68	16.74	24.92
TOTAL	25.93	9.72	64.3	8.31	4.24	1.52	10.76	2.07	21.69	8.19	53.54	6.24	16.34	15.68	16.74	24.92