Dennis Dreher and Matt Bardol
Cowhey Gudmundson Leder, Ltd.

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Project Highlights

- Exceptional coordination between CenterPoint Properties, City of Joliet, and key regulatory agencies
- Proactive engagement of resource agencies and conservation groups in project planning and design
- Design and quantification of state-of-the-art BMPs
- Design of wetland mitigation to achieve regionally significant biodiversity goals

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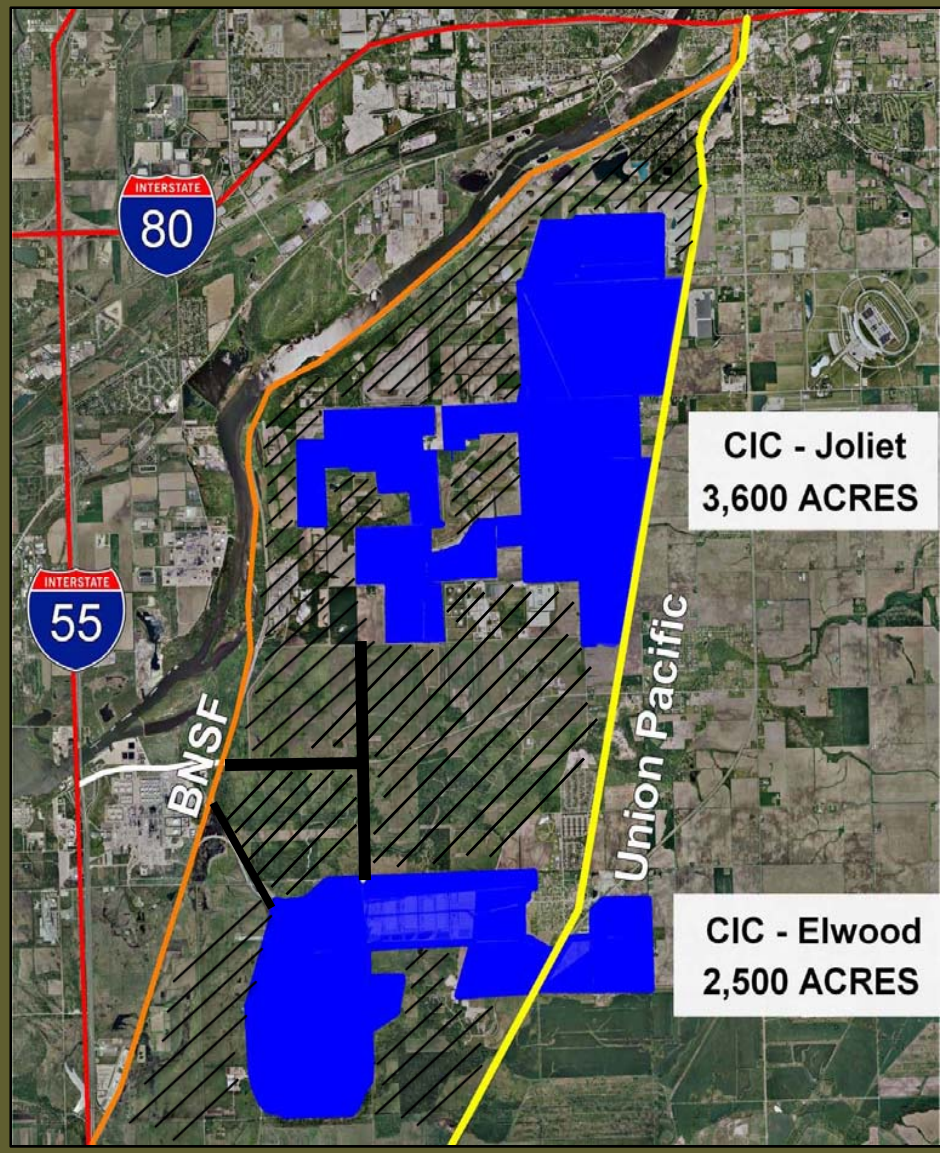
CenterPoint Intermodal Centers

Elwood and Joliet

Elements of Integrated Intermodal Center

- Proximity to: I-80 AND I-55
- Proximity to major rail: Burlington Northern and Union Pacific
- Adequate and available labor: Joliet and the SW suburbs
- Relieves rail, truck and commuter congestion in the region
- Integrates warehouses with rail terminals



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CIC – Joliet Job Creation

- 14,800+ New Jobs
- Union Construction Jobs = 5,900
- Intermodal Facility Permanent Jobs = 1,300
- Industrial Park Permanent Jobs = 4,500
- Trucking Permanent Jobs = 3,100
- Master Union Labor Agreement with Local Focus

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CIC-Joliet Green Initiatives

- Energy Production -- Solar, wind, renewable energy
- Energy Reduction – e.g., lighting efficiencies, day lighting
- Electric Cranes
  - Wide-Span Gantry Cranes engaged in stacking operations, reduce truck activities & noise
- Preferred Parking for Carpool and Vanpool
- Centralizes and Minimizes Truck Movements
- Stormwater Management BMPs
- Extensive stream buffers
- Regionally significant wetland and bird habitat mitigation

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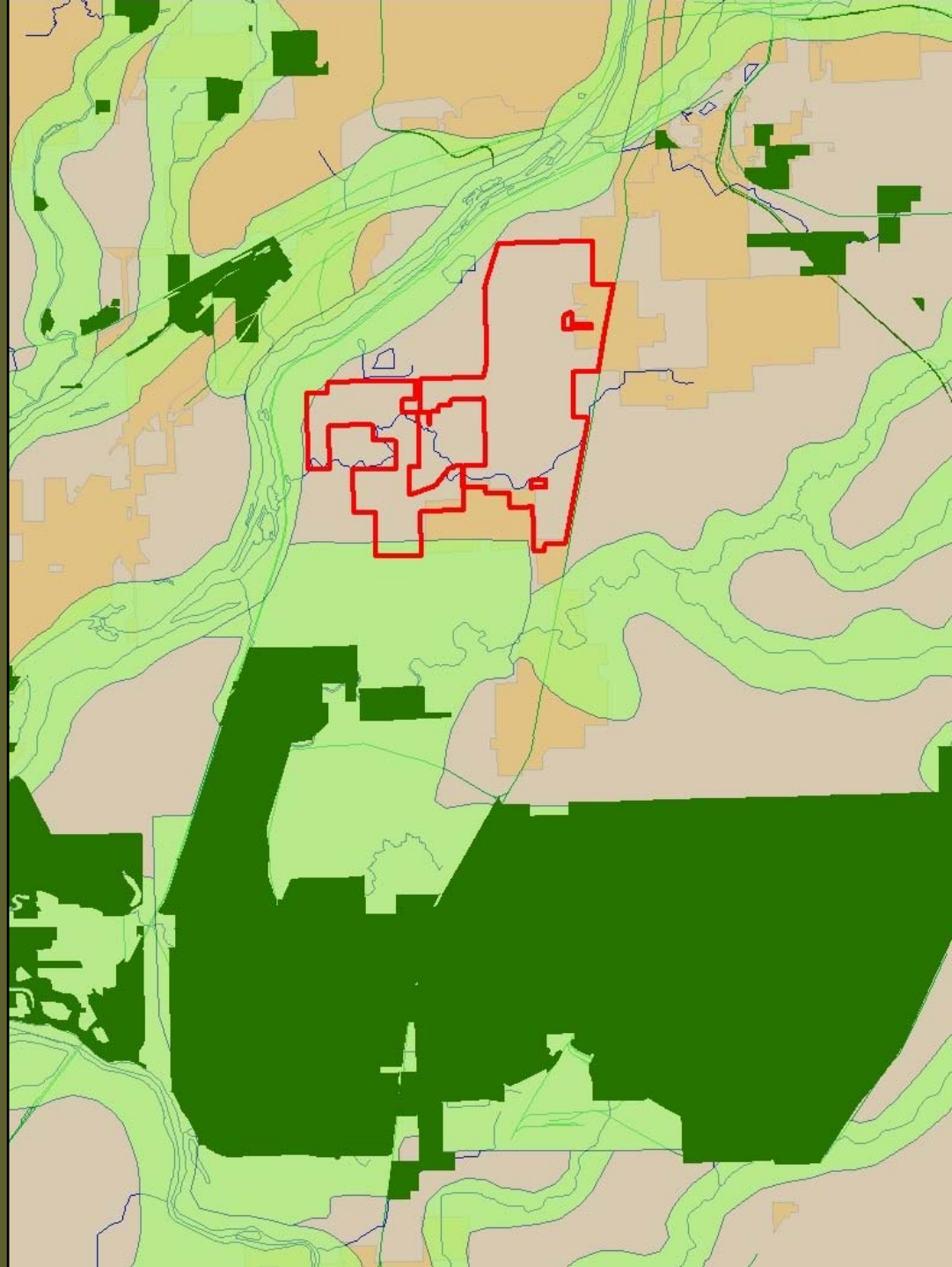
Regional Context:

Chicago Wilderness Green Infrastructure Vision



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Creative Regulatory Coordination

- City of Joliet
  - Southside Comprehensive Plan
  - Creek Watershed Protection Ordinance
  - Annexation agreement
- Wetland Permitting
  - US Army Corps of Engineers/IEPA
  - Federal, state, and local resource agencies
  - Non-governmental agencies (NGOs)

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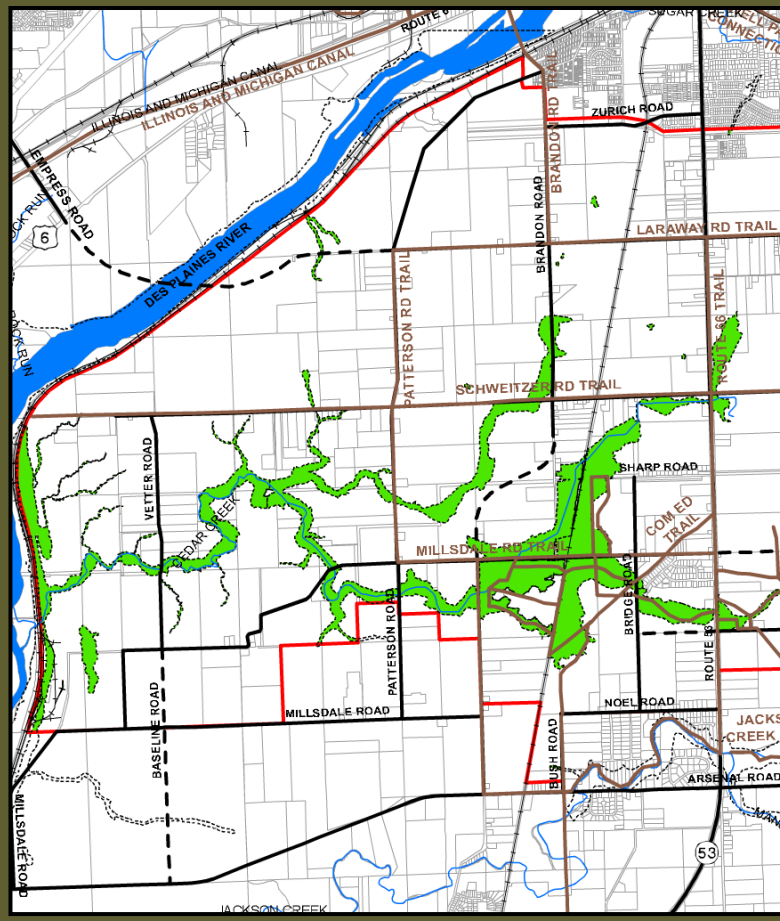
Joliet South Side Comprehensive Plan:
Sustainability Elements

- Protect green space, flood prone areas, wetlands, and wooded areas
- Minimize impervious surfaces
- Minimize stormwater impacts via holistic BMPs
- Install and maintain native vegetation
- Construct interconnected trail systems



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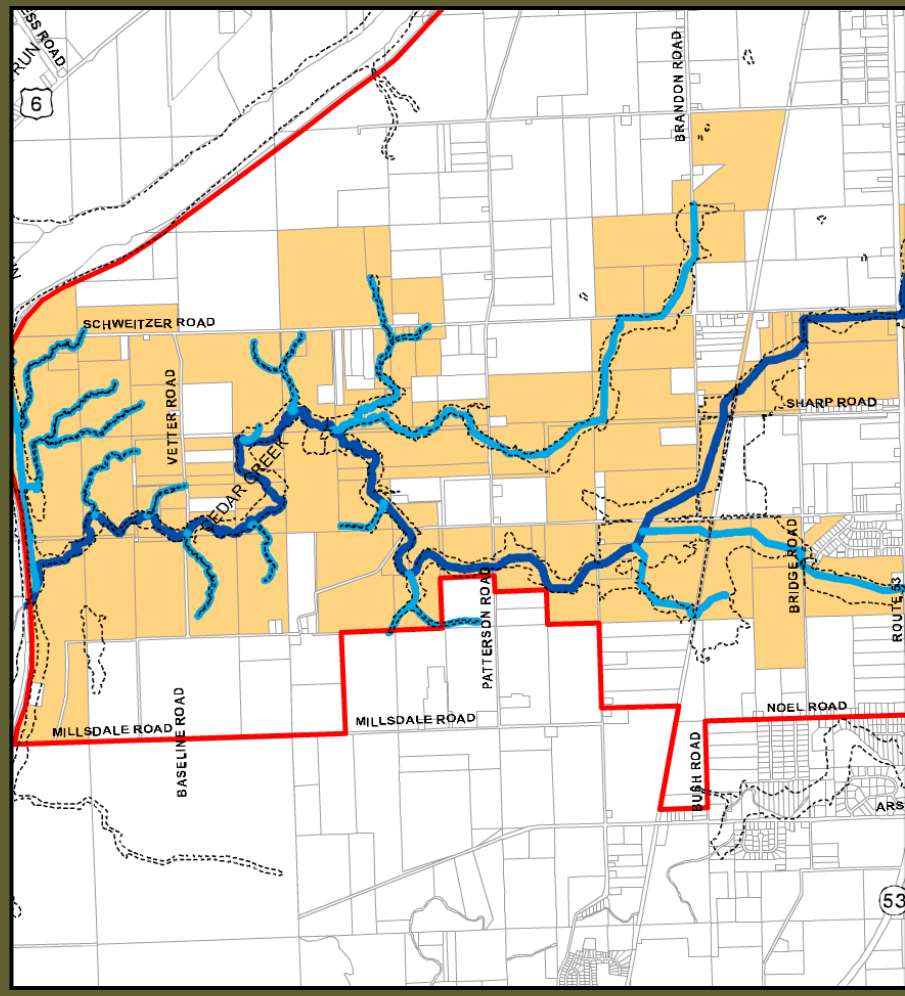
Creek Watershed Protection Ordinance

- Minimize alterations of watercourses
- Protect and restore stream buffers



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Annexation Agreement:
City of Joliet and CenterPoint Properties

- Stipulated key environmental protection and mitigation provisions
  - Tree protection and replacement
  - "Green road" designs
  - Aggressive natural landscaping theme
    - Perimeter berms and buffers
    - Roadsides and parkways
    - Stormwater facilities
  - Stream buffer requirements of 100 feet
  - Dark sky lighting

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Synergy with Federal Wetland Permitting

- Unavoidable wetland impacts required:
  - Creative site planning to minimize impacts
  - An innovative wetland mitigation approach
  - AND, holistic implementation of a runoff "treatment train"
- These federal requirements were *consistent with* and *supported by* the Joliet plans, policies, and regulations

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Sustainable Site Design Approach

- Adhered to the Chicago District USACE conservation design checklist and “treatment train” approach
- Followed Joliet’s guidelines and requirements
- The specific BMP approach was tailored to the site characteristics considering:
  - Onsite and downstream aquatic resources
  - Onsite soils and hydrology
  - Development characteristics

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Site Design Goal

- Protect aquatic resources through preservation and restoration of existing:
  - Hydraulic and hydrologic functions
  - Water quality functions
  - Habitat functions

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Basis for Approach

- Regional and National BMP Guidelines
  - *Model BMP Selection Methodology and Lake County Decision-Making Framework*, Price, Dreher, and Schaal, 1994.
- Local Guidelines and Recommendations
  - *City of Joliet South Side Comprehensive Plan and Creek Watershed Protection Ordinance*, February 2007, City of Joliet.
  - Prairie Creek Watershed Committee, 2004, *Prairie Creek Watershed Habitat Protection and Restoration Strategy*.
  - Prairie Creek Watershed Committee, 2006, *Prairie Streams Draft Watershed Plan.*

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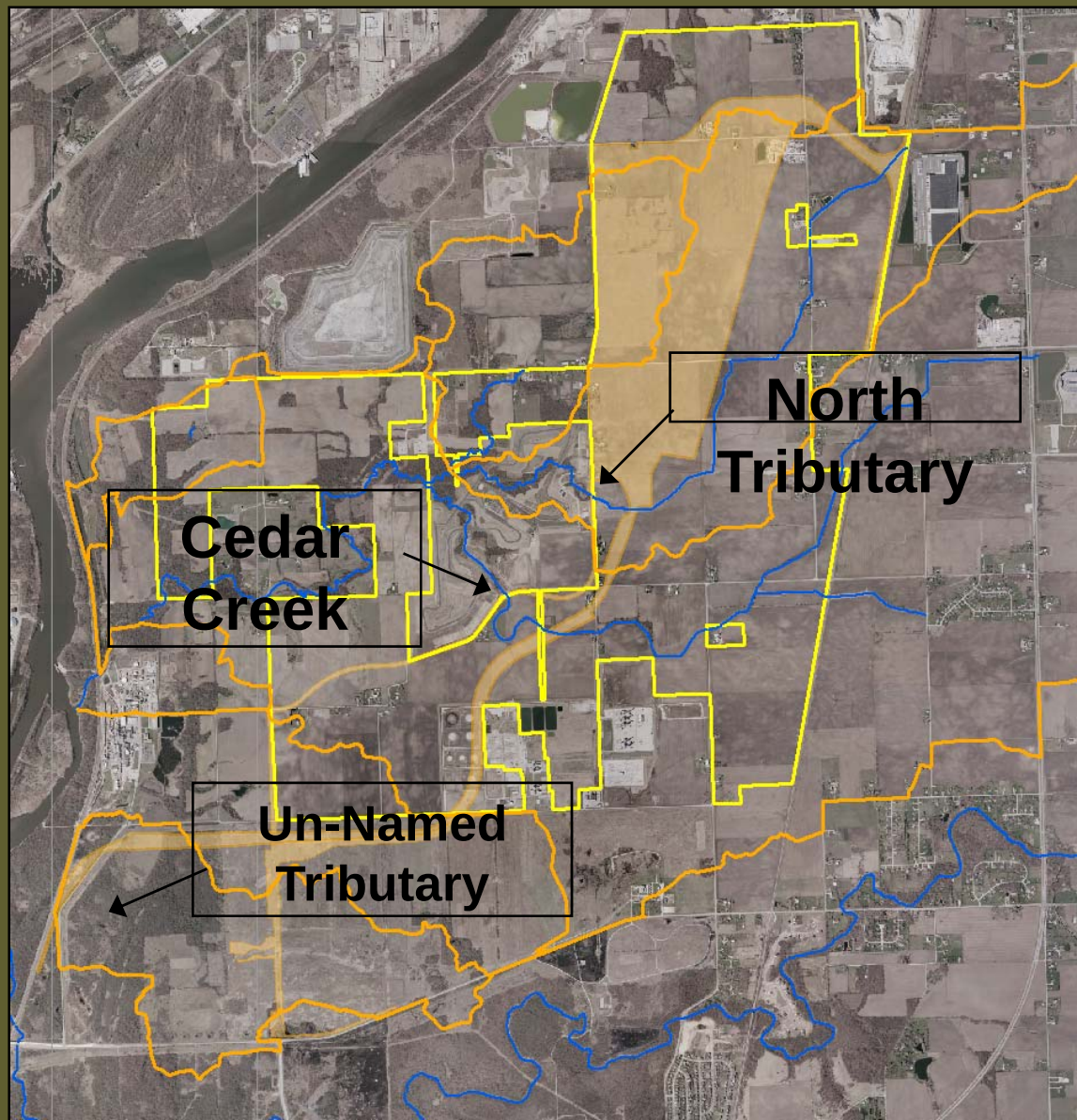
Receiving Waters Overview

- Cedar Creek
- North Tributary
- Unnamed tributary
- Jackson Creek
- Various wetlands



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Cedar Creek

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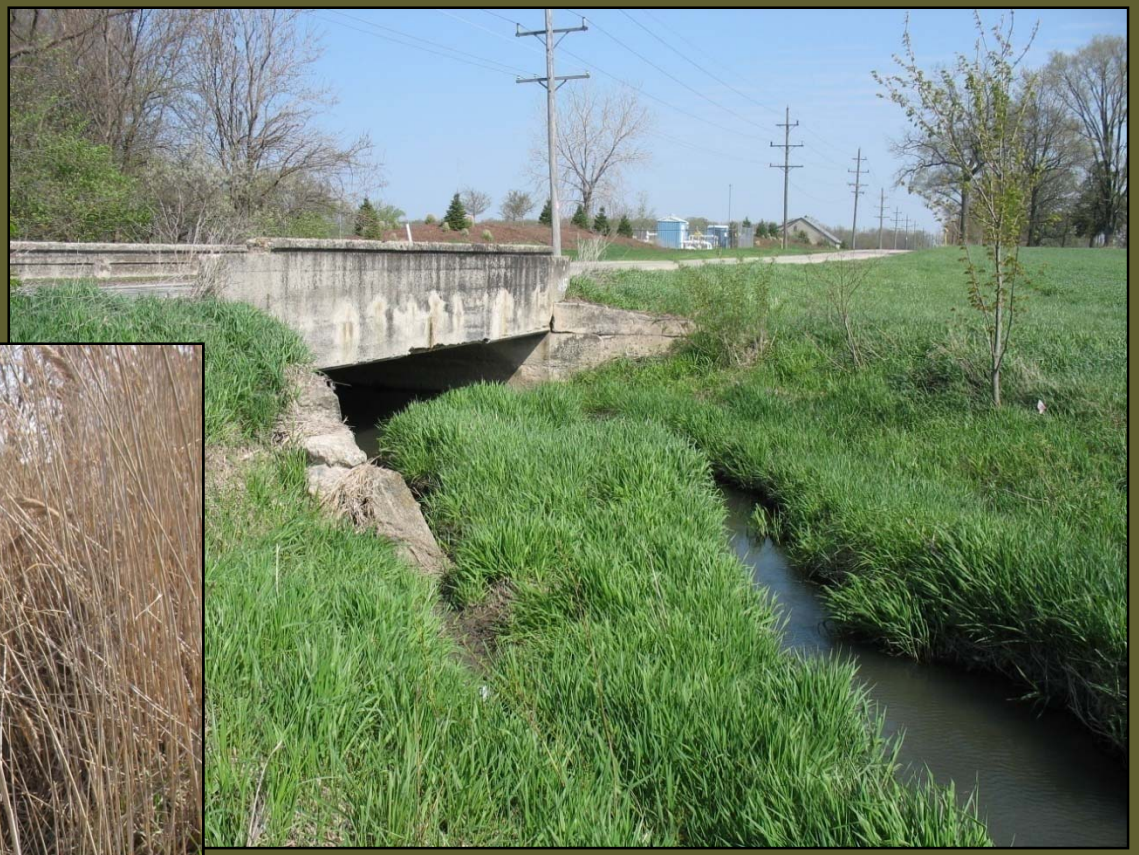
Cedar Creek North Tributary



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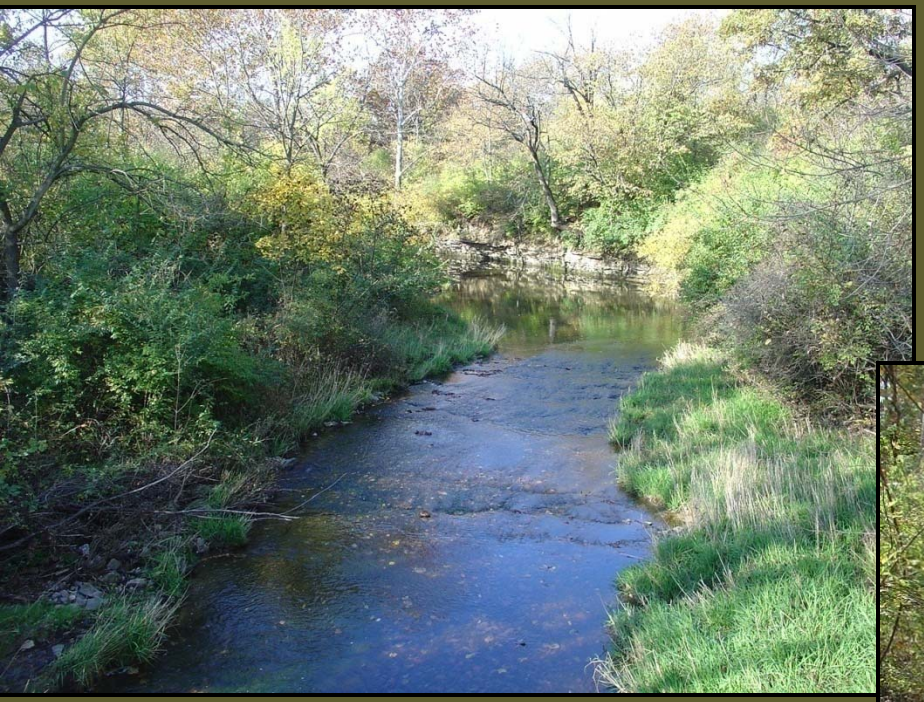
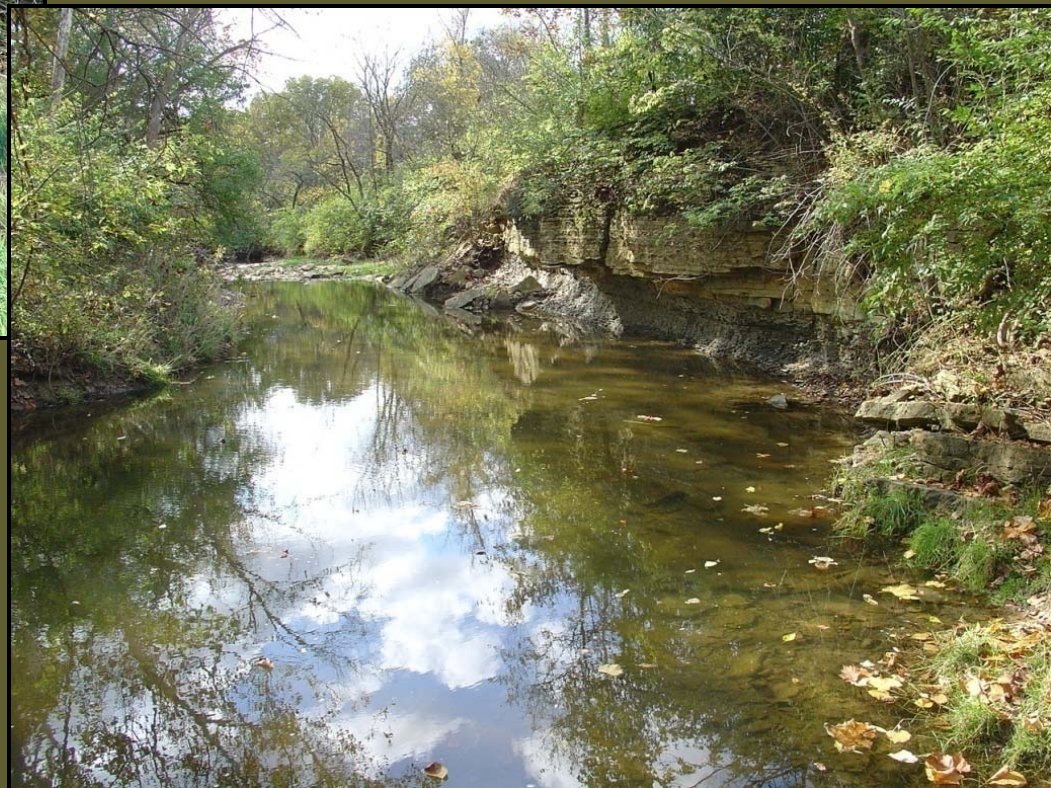
Cedar Creek Downstream:
Labeled a "High Quality Aquatic Resource”





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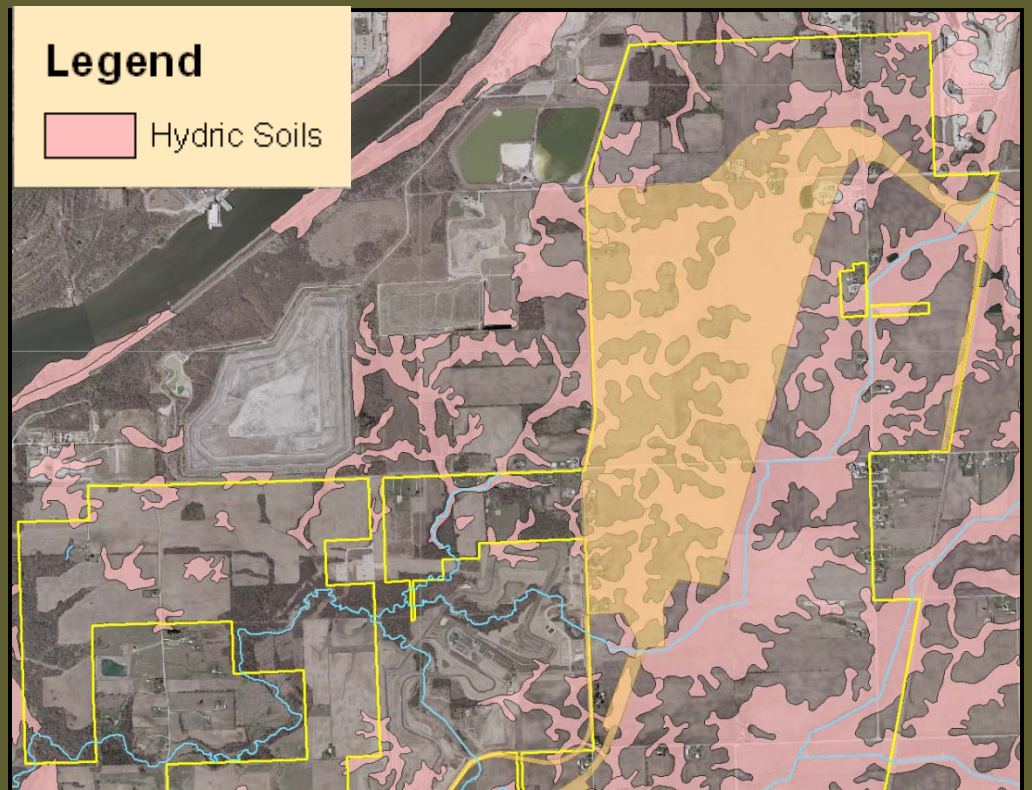
Pre-Development Soils and Hydrology

- Mostly poorly drained soils, including drained hydric
- Typical infiltration rate: 0.05 inches/hr.



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Principal BMP Objectives
(recommended by regulators)

- Runoff rate attenuation to < existing conditions
  - 2-year control
  - 100-year control
- Runoff sediment and pollutant removal (80% TSS)
- Stream corridor protection and enhancement
- Runoff volume control/infiltration

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Principal BMPs

(Based on receiving waters, site conditions, and development characteristics)

- Impervious area reduction
- Natural landscaping (all common areas and BMPs)
- Runoff BMPs (filtering and infiltration)
- Naturalized detention
- Protection/mitigation of depressional storage
- Stream protection and riparian area enhancement

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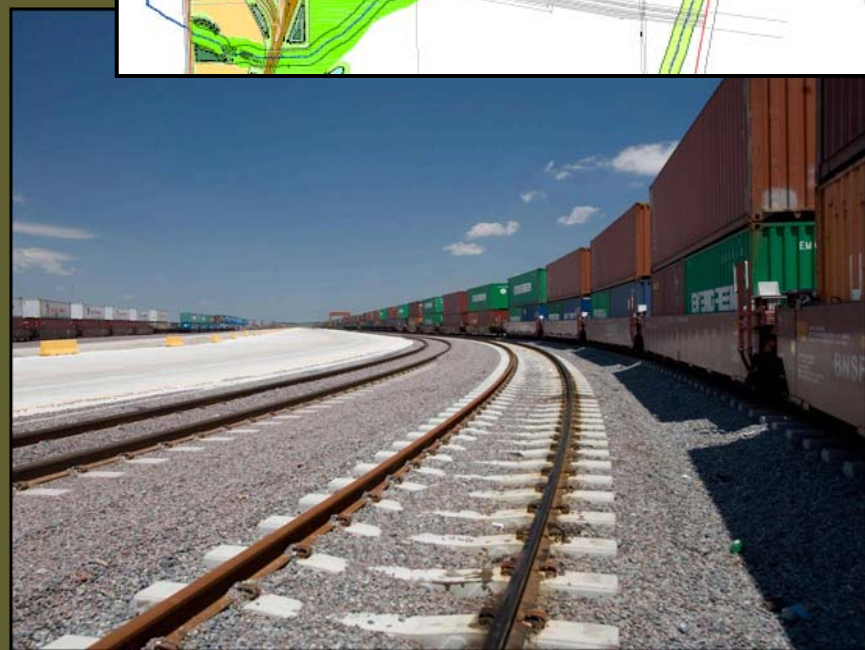
Impervious Area Reduction

- 43% reduction of footprint of main intermodal yard due to state of the art intermodal facility technology and efficient site design
- Use of ballast in rail yards improves permeability (slightly) and rainfall interception



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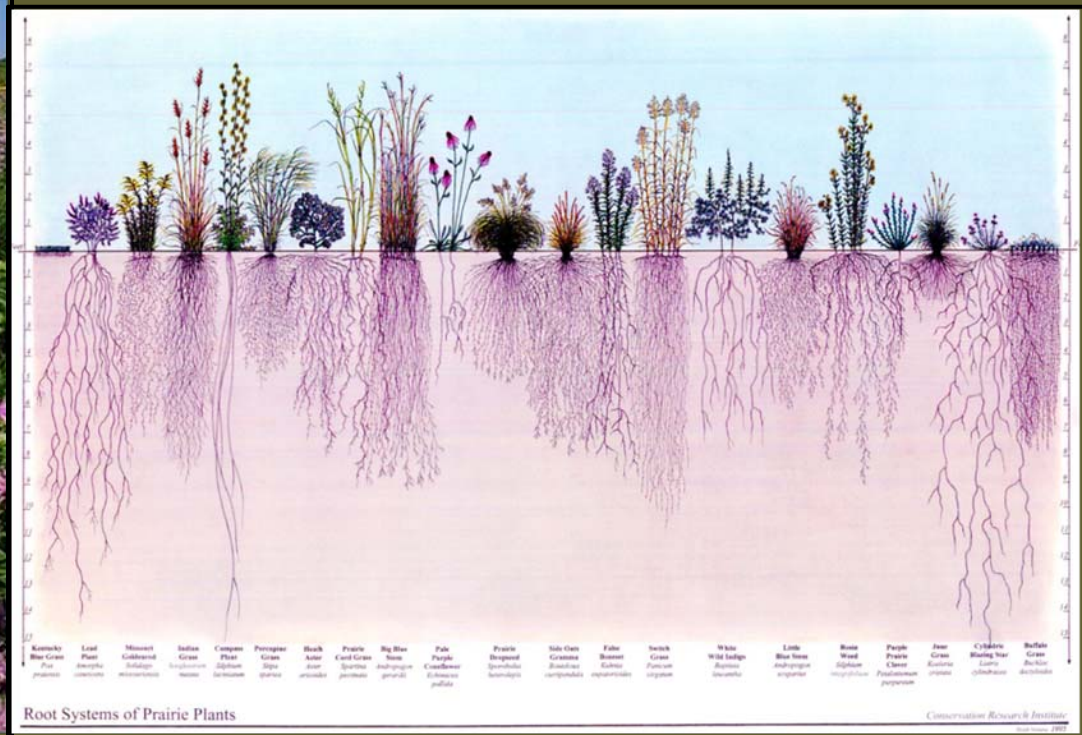
Natural Landscaping

- Used for berms, common areas, and BMPs
- Specified in Joliet/CenterPoint Annexation Agreement for existing and future phases



Runoff BMPs: Filtering and Infiltration

- Naturalized swale/bio-swales
- Filter strips
- Applications:
  - Rural x-section roadways
  - Hybrid x-section roadways
  - All rail lines
  - Future phases

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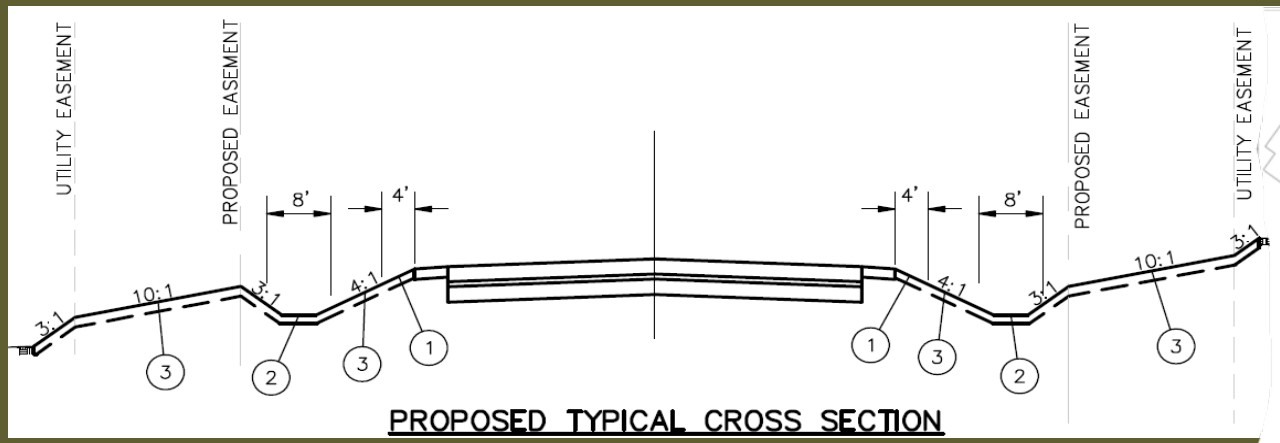
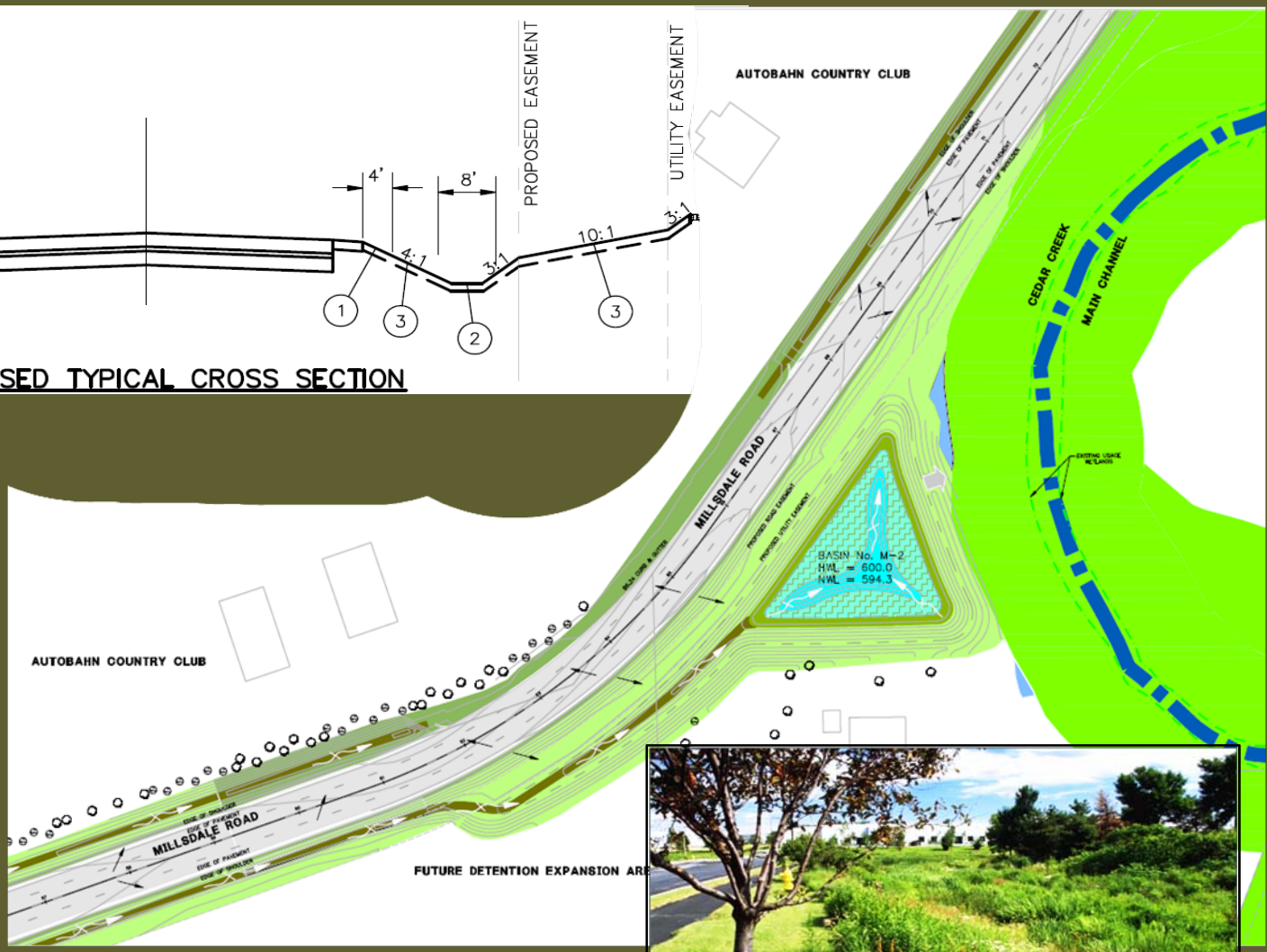
Roadway Bioswales



PROPOSED TYPICAL CROSS SECTION

1. BUFFALO GRASS (20 LBS/ACRE)
2. NATURALIZED SWALE SEED MIX
3. PRAIRIE SEED MIX



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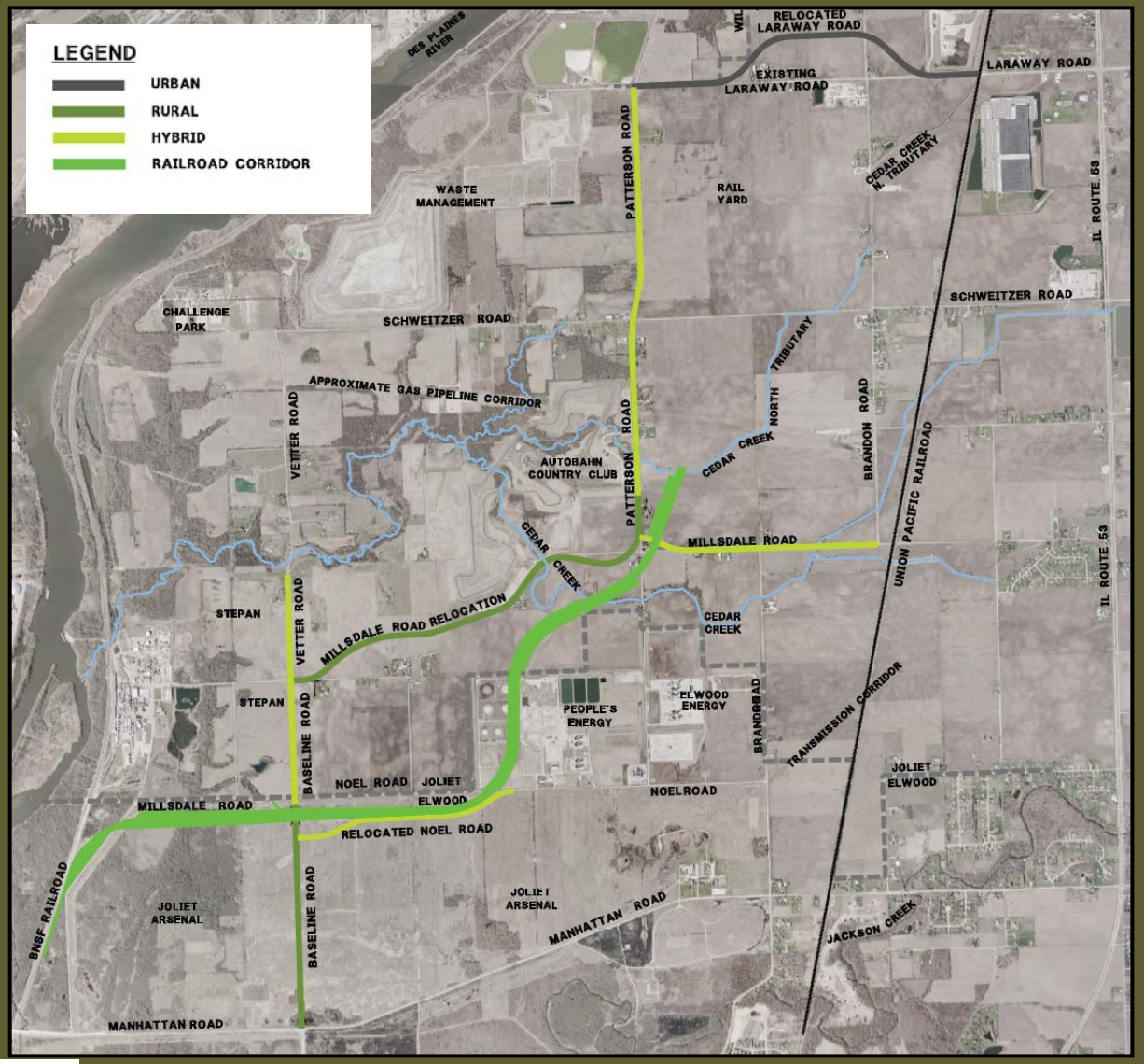
Green Road and Rail Corridors



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Naturalized Detention

- Native vegetated shorelines and side slopes
- Flat (10:1) shoreline/emergent zones
- Swale outlets through enhanced stream edge for most discharges
  - Minimizing new pipe discharges into creeks

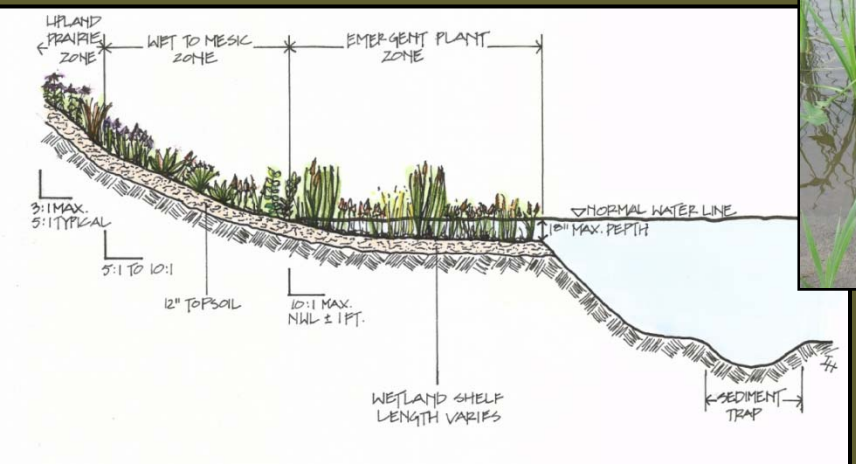
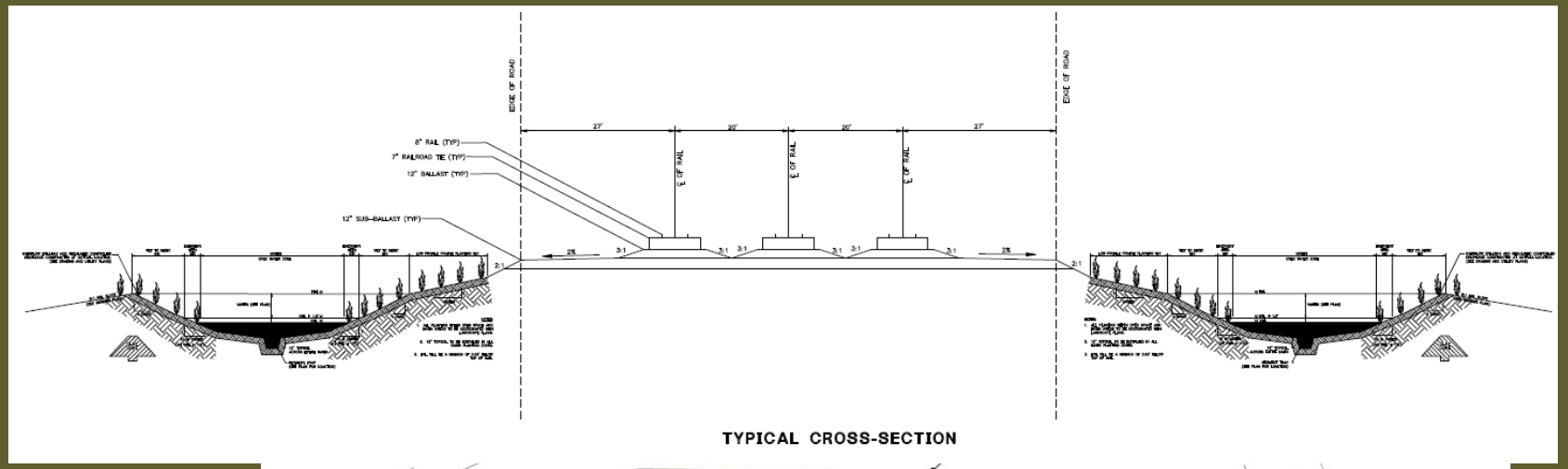
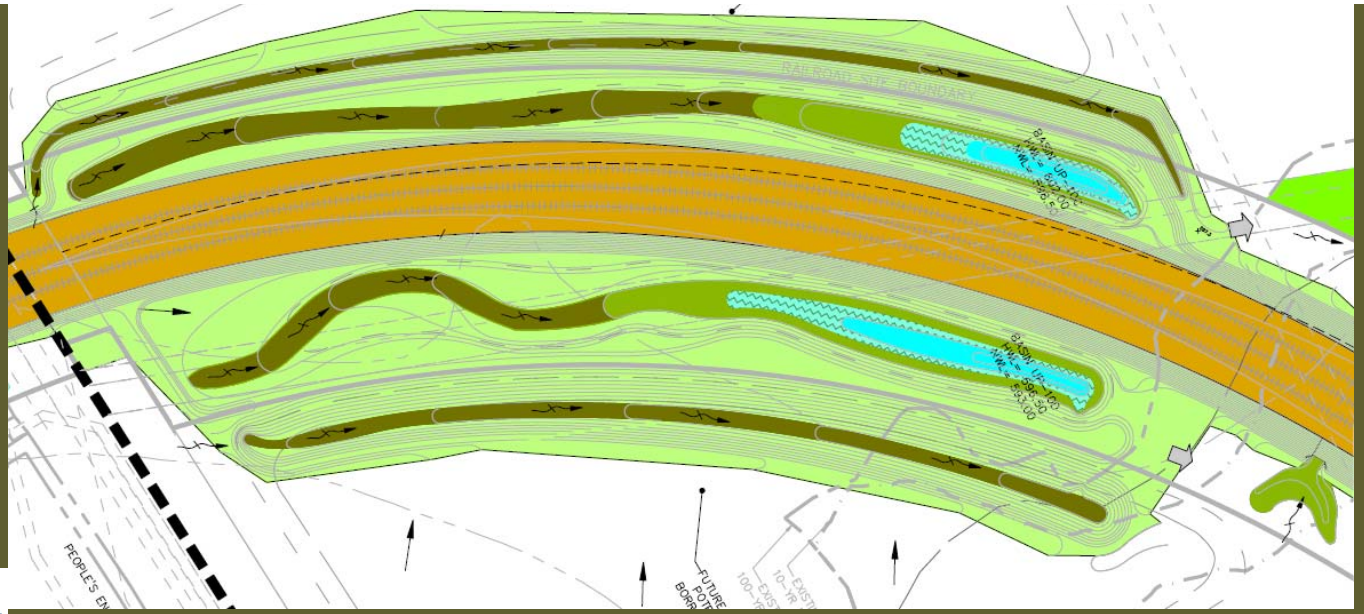


Illustration of Treatment Train



TYPICAL CROSS-SECTION



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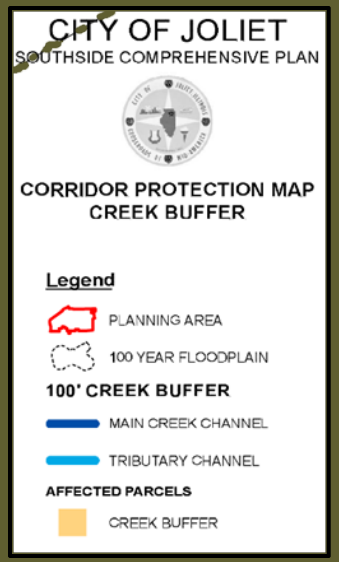
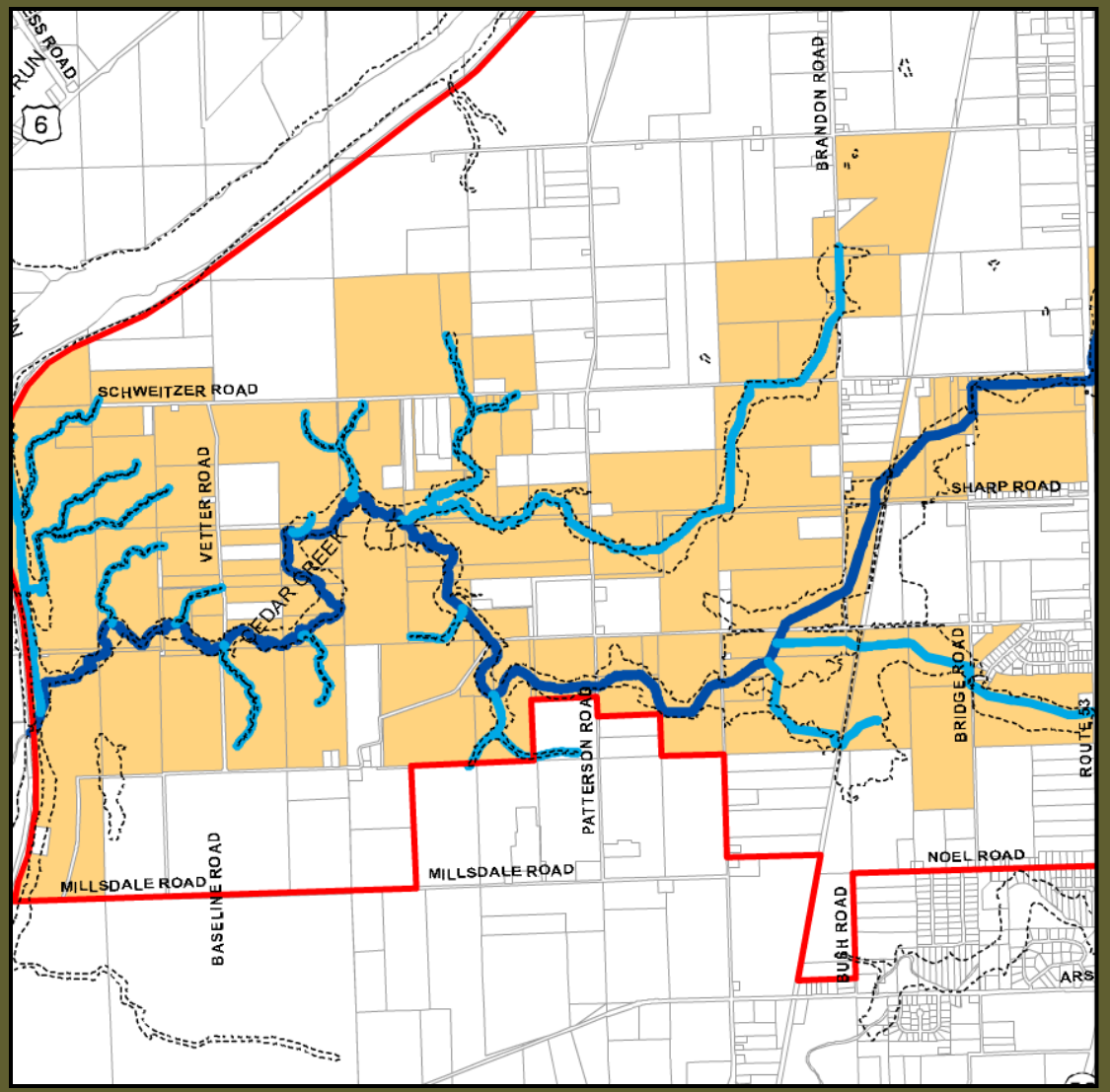
Creek and Riparian Wetland Buffers

- Minimum buffers in Creek Protection Ordinance:
  - Cedar Creek - 100’ measured from top of bank
  - North Tributary – 100’ measured from centerline





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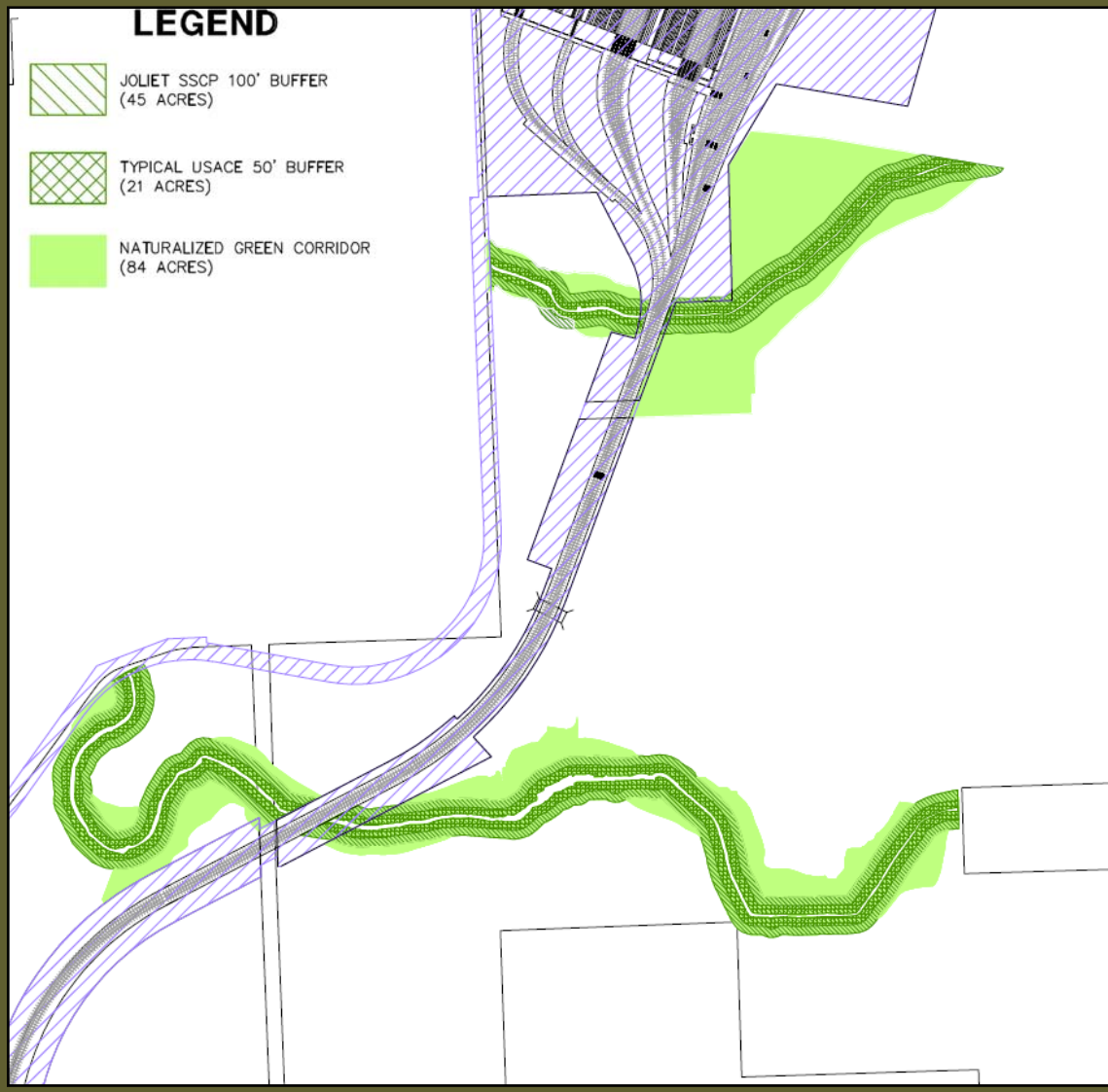
Creek Corridor Enhancement Areas

- USACE 50’ buffer
  - 21 acres
- Joliet 100’ buffer
  - 45 acres
- Proposed buffer
  - 84 acres



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Typical Riparian Zone Vegetative Enhancement

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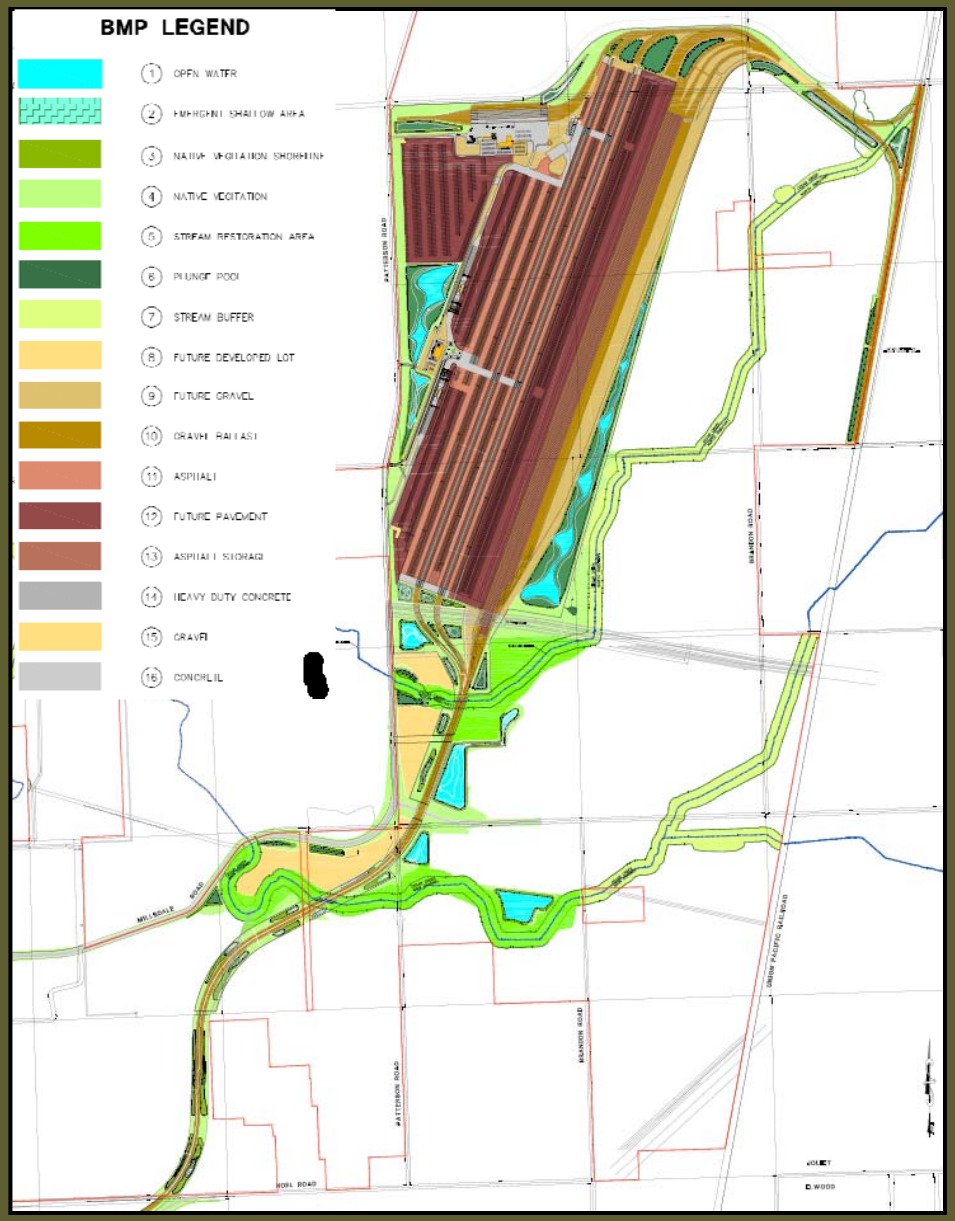
BMP Plan North



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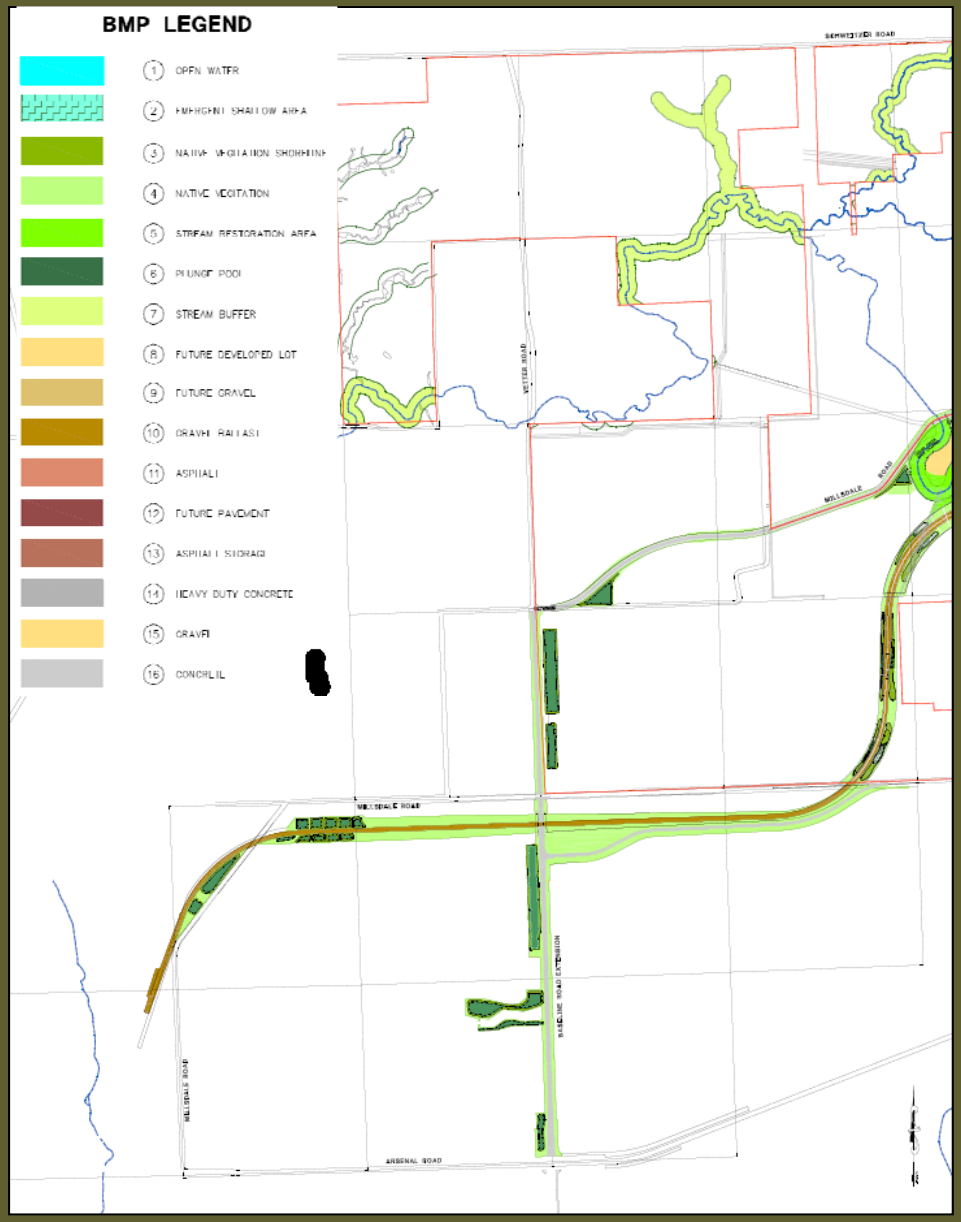
BMP Plan South



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Quantification of BMP Effectiveness

- Modeling was performed to quantify:
  - Pollutant removal
  - Runoff rate control
  - Preservation of existing hydrology and infiltration
  - Preservation of instream flow rates
- Models included WinSLAMM, PondPack, and HEC-RAS
- Conclusion: all BMP objectives were met or exceeded

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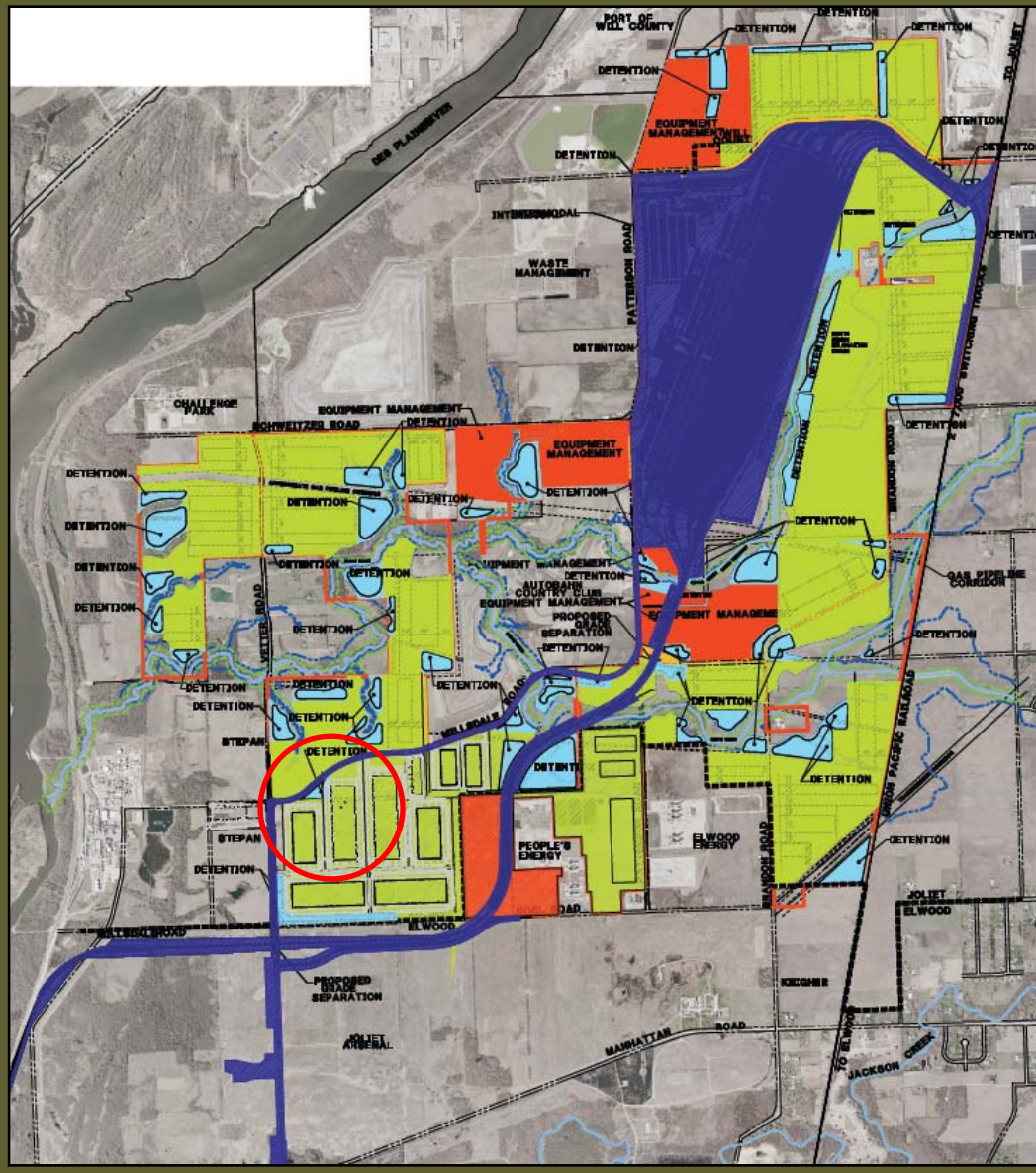
Future Phase Best Management Practices

- Must conform to progressive principles of Joliet/CenterPoint annexation agreement and ordinance
- In addition, Corps of Engineers and USFWS requested:
  - Quantitative analysis of future runoff infiltration
  - Commitment to runoff infiltration goals (derived from Wisconsin NR-151 runoff standards)

Analysis of Potential Future Development



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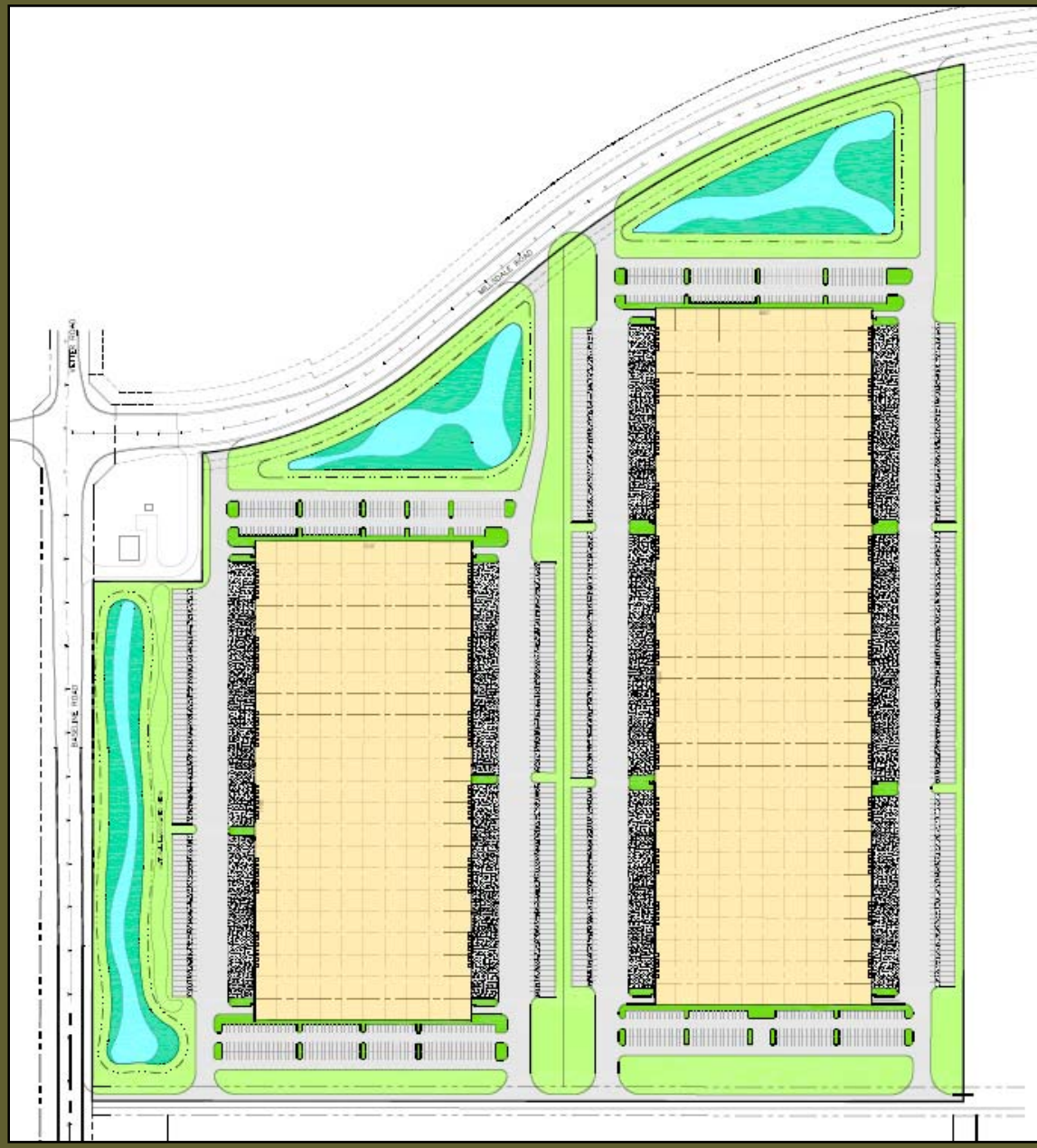
Distribution Facility Template

% Impervious	% Stay-on
75%-80%	66%



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Quantification of Entire Site (3900+ acres)

COMPONENT	*ACREAGE*	*% IMPERVIOUS*	*% STAY-ON*
INTERMODAL YARD	**701.7**	**80%**	**40%**
RAIL CORRIDOR	**148.7**	**35%**	**91%**
ROADWAY	**194.0**	**58%**	**100%**
NATURALIZED OPEN SPACE (Formerly Agricultural)	**446.3**	**0**	**150%**
NATURALIZED OPEN SPACE (Stream corridor)	**35.2**	**0**	**100%**
FUTURE DISTRIBUTION CENTERS	**2,466.2**	**75% - 80%**	**66%**
AGGREGATE TOTAL	**3,992.1**	**65%-68%**	**74%**

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Permit Conditions Established for Imperviousness and Runoff Infiltration

- Maximum aggregate imperviousness of 68% (over 3900-acre CIC-Joliet site)
- Meet a “stay-on” goal of 74%
- Develop covenants, conditions, and restrictions (CCRs) with Joliet for future development
  - Include a conservation design/treatment train approach
  - Emphasize natural landscaping, bioswales, and naturalized detention

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Proposed Management of BMPs and Open Space

- Owner/Management Entities:
  - CenterPoint
  - Railroads
  - Joliet
  - Army/Midewin
- Long-term funding through CenterPoint, Railroad, and/or Property Owners Association
- Clear performance criteria established
- Covenants will spell out details

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Wetland Permitting

- Under jurisdiction of US Army Corps of Engineers and IEPA
- Approach:
  - Minimize wetland and stream impacts through creative site planning
  - Discuss creative mitigation alternatives
    - Mitigation bank
    - Mitigation on adjacent federal lands

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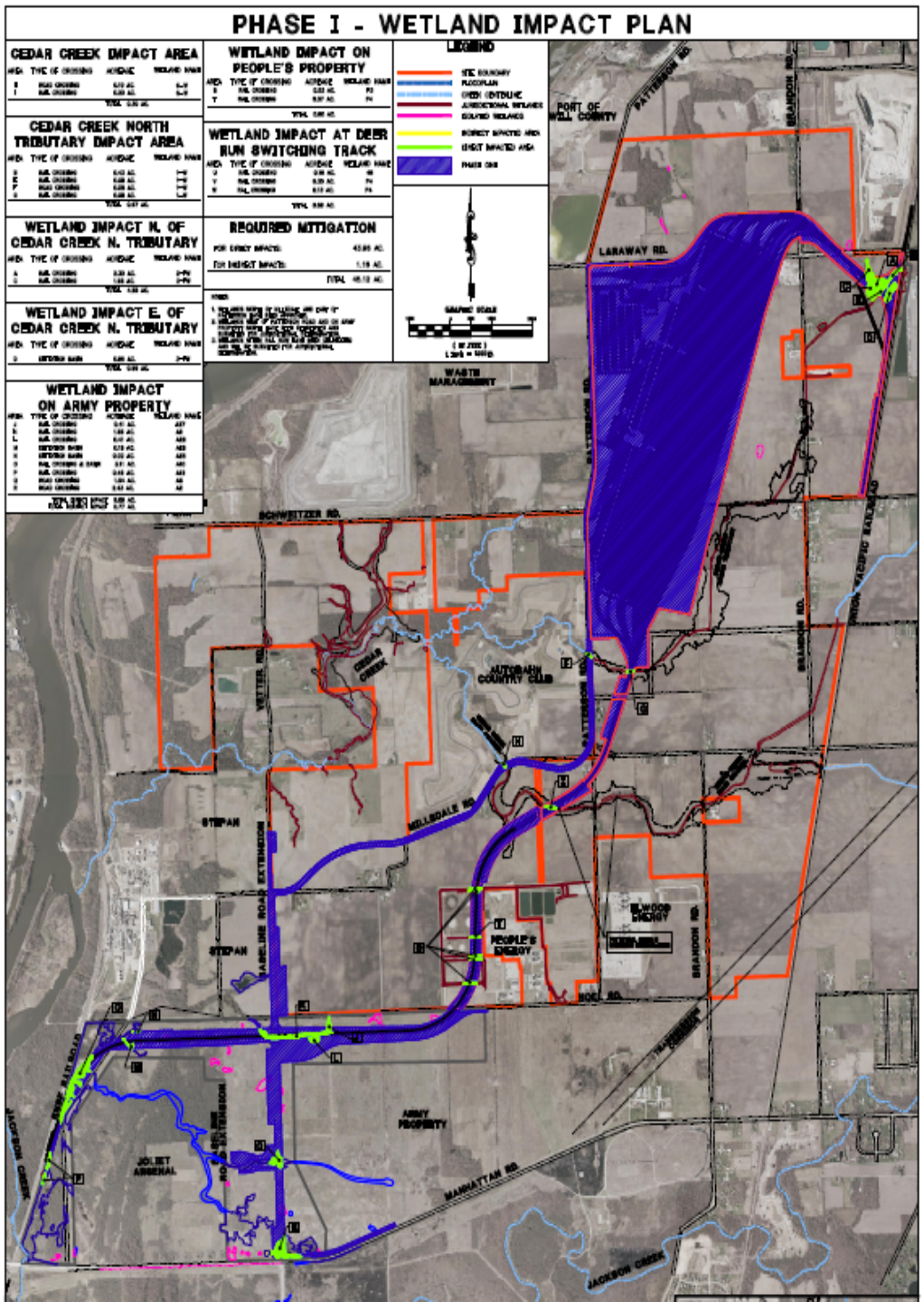
Wetland Impacts

- High Quality Jurisdictional Wetlands (FQI 20+, Native Mean C 3.5+)
  - **Total Acreage – 6.90 ac**
- Low Quality and Indirect Wetland Impacts
  - **Total Acreage – 10.72 ac**
- **Total Wetland/Waters Impacts: 17.62 ac**
- Total Mitigation Required: 43.68 acres



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Wetland Mitigation Engagement

- USACE and IEPA (the regulators)
- Federal, state, and local resource agencies
  - USFWS
  - USEPA
  - IDNR
  - US Forest Service – Midewin
- U.S. Army
- Non-governmental organizations (NGOs)
  - The Nature Conservancy (in cooperation w/Midewin)
  - Seven other conservation organizations that commented on Public Notice (mostly CW members)

Wetland Mitigation Issues

- Where to mitigate?
  - Could purchase wetland restoration credits at adjacent mitigation bank: **43.68 acres**

- Are unique circumstances and mitigation opportunities present?
  - Agency response: YES

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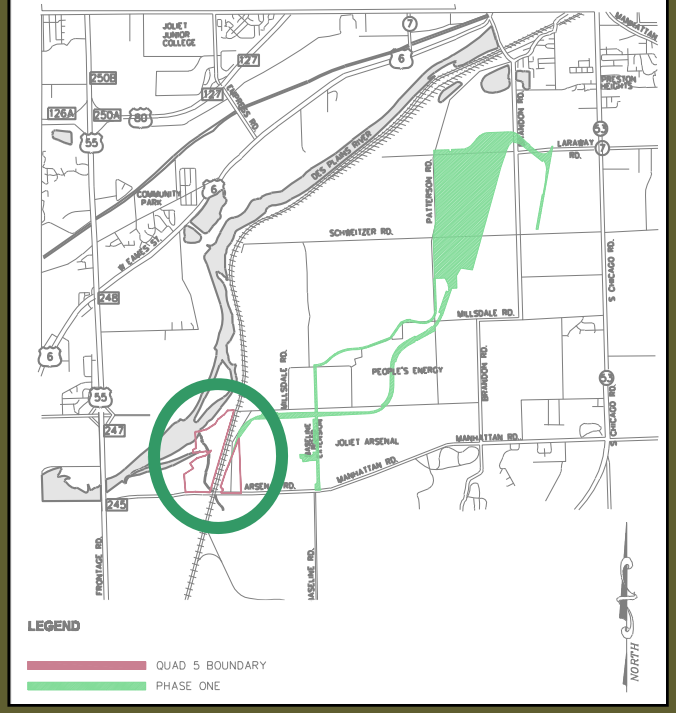
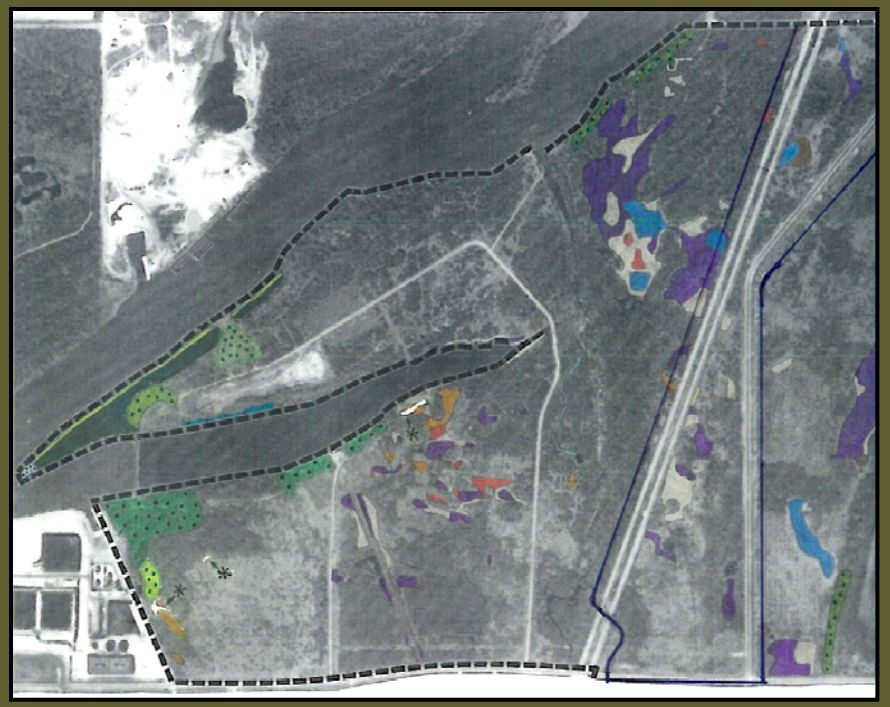
Recommended Mitigation Plan

- Perform “enhancement” of dolomite prairie on the adjacent Army JTA site
- Four acres of enhancement are needed for each acre of required mitigation
  - results in **175 acres** of required enhancement

Dolomite Prairie at Army JTA

- Habitat significance
  - "Imperiled Globally"
  - Chicago Wilderness "highest tier" conservation target
  - Less than 150 acres identified regionwide in INAI





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Mitigation Site Inventory Conducted

- Verified suitability for mitigation
- Quantified baseline conditions
- Refined the boundaries of the mitigation area for concurrence by the Agencies

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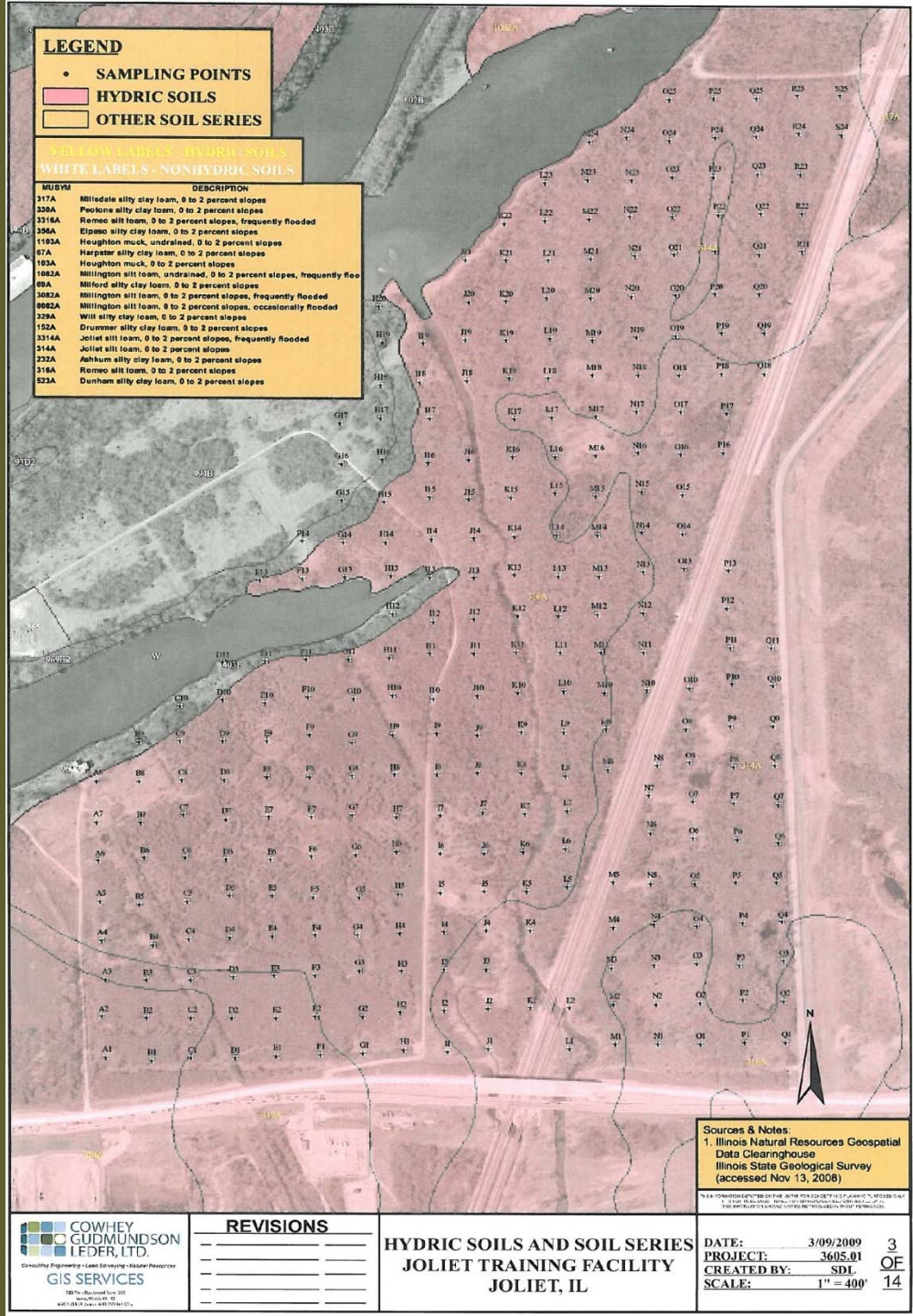
Hydric Soils

(surveyed 298 plots)



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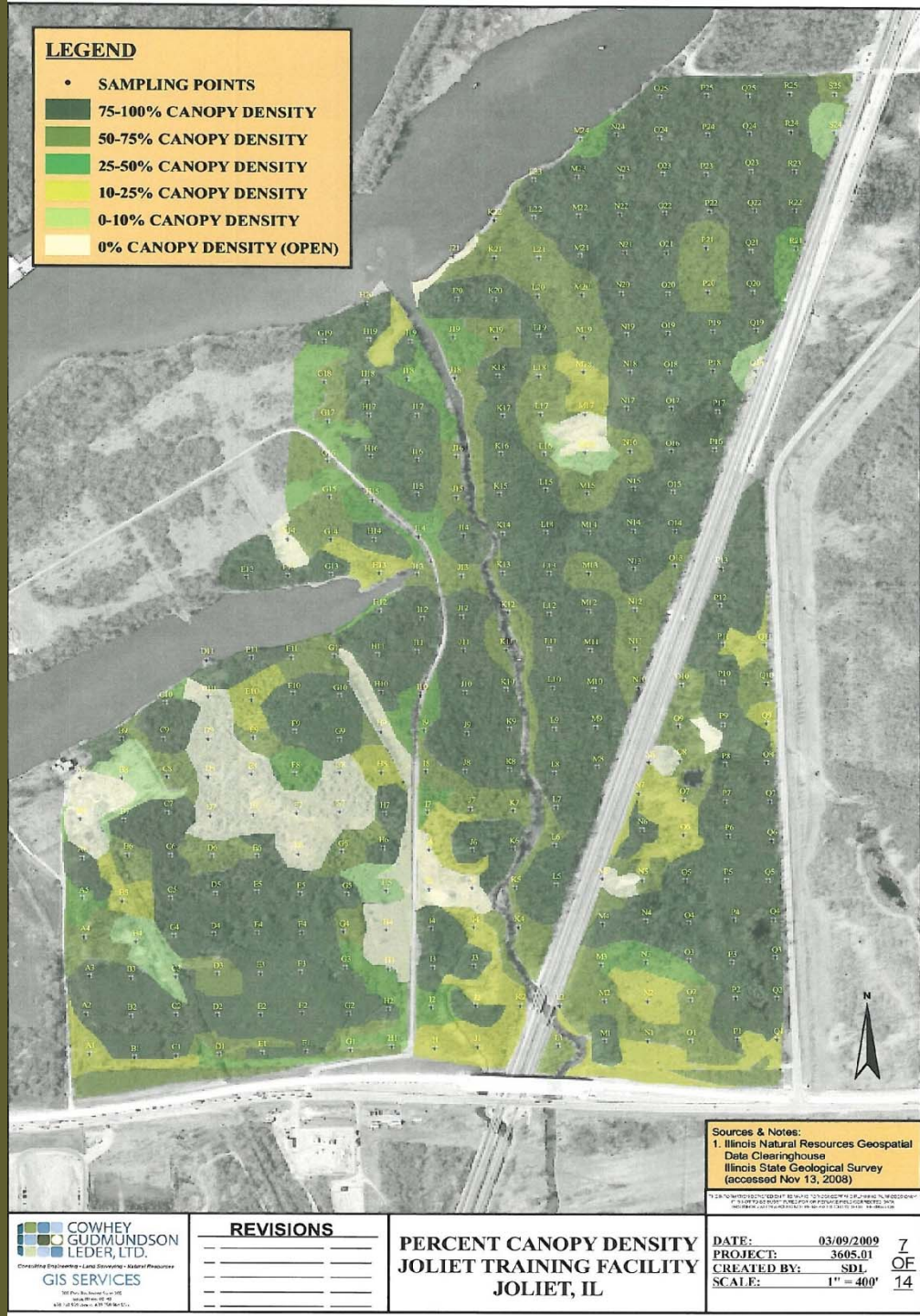
Percent Woody Canopy Density



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1939 Aerial

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Mitigation Performance Criteria

- Elimination of a minimum of 90% of tree and brush cover.
- Elimination of herbaceous invasives.
- Establishment of conditions that support an effective burn over the majority of the site within the 5-year monitoring period.

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Mitigation Concept Plan

Conclusions

- Compatibility between Joliet policies and the federal requirements:
  - Provided a comfort level to the state and federal regulatory agencies (e.g., BMP requirements stipulated in the Annexation Agreement)
  - Expedited the design and approval of required BMPs

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Conclusions

- Proactive (vs. reactive) engagement of resource agencies and conservation groups:
  - Allowed CenterPoint and consultants to anticipate concerns, and responses, in advance of permit submittal
  - Expedited the overall time of permit review and approval

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Conclusions

- Design and quantification of state-of-the-art BMPs:
  - Added *slightly* to the cost of design, modeling, and analysis.
- But:
  - Incorporation of holistic BMPs expedited permit approvals.
  - Implementation costs of BMPs were probably less than conventional designs.

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Conclusions

- Design of mitigation to achieve regionally significant biodiversity goals:
  - Improved the likelihood of permit approvals.
- The scale and the regional importance of the mitigation – e.g., dolomite prairie – could provide a models for future large development projects.

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