



**Environmental Review Form for Argonne
National Laboratory**

Form:	ANL-985
Version:	5
Your Form ID:	ANL-985-1108
Form Status:	Approved
Date:	4/25/2018 2:24:19 PM
Created By:	Cisek, Jonathan E.

Creator

Badge:	212942	Name:	Cisek, Jonathan E.
Cost Center:	208	Division:	PMO
Job Title:	Project Coordinator - Infrastructure	Employee Type:	Regular Full-Time Exempt
Building:	202	Lab Extension:	2-6391

General Information

Project/Activity Title: Electrical Capacity & Distribution Capability (ECDC) Project	
ASO NEPA Tracking No.: 2845	Type of Funding:
B & R Code:	Identifying Number: 01717
SPP Proposal Number:	CRADA Proposal Number:
Work Project Number:	ANL Accounting Number: (Item 3a in Field Work Proposal)
Other (explain):	
List appropriate NEPA Owners:	
Division: IS	NEPA Owner:

Financial Plans

To select a Financial Plan, click the magnifying glass icon to open a search window.

Cost Center: Project: Phase: Task:

Description of Proposed Action

Argonne's scientific advancements require a strong foundation that supports reliable, redundant, maintainable, and flexible utility systems. A key component of ANL's utility system portfolio is the high voltage electrical distribution system. Without this critical system, science at ANL cannot exist. The high voltage electrical distribution system at Argonne consists of substations, transformers, high voltage electrical supply, and distribution cabling. All high voltage power is supplied to the laboratory via a single off site ComEd managed substation facility and limited to a peak power draw of 87 MVA. Once on site, electricity is distributed through laboratory managed substations, transformers, and facilities. The condition of these components of the electrical system limit the ability for the Laboratory to support the forecasted electrical demand growth and operational requirements. Electrical reliability is critical to achieving user facility operational goals. Examples of these goals include the Basic Energy Science (BES) program's 2017 target for Advanced Photon Source (APS) 90% schedule availability and the Advanced Scientific Computing Research (ASCR) program's 95% scheduled availability. BASE SCOPE: The project objective is to install two 138kV transmission lines connecting Argonne's 551 substation with a new ComEd substation south of the Argonne site. ComEd would design and build this new substation in tandem with the ECDC project and it would be built adjacent to ComEd's existing substation J310. The new ComEd substation and a portion of the anticipated route traverses some forested areas, so tree-clearing and grubbing would be required. There are two conceptual routes for the transmission lines which can be found in attachments SK-1 and SK-2. In both cases, a portion of the route runs through Waterfall Glen, land currently owned by the Forest Preserve District of DuPage County (FPDDC). Prior to construction, Argonne/DOE would obtain easement rights for the land area outside of laboratory property for the route of the transmission lines and for the new ComEd substation. This means that at the time of construction, all base scope work would be completed on DOE property. There are numerous other smaller electrical projects planned as construction contract options on the base contract. Due to funding constraints, these may be added to base scope as contingency spend down items. See attached document, ECDC ERF Rev0c for additional description of the project's Long Lead Scope and Construction Contract Options.

Description of Affected Environment

Argonne National Laboratory is located near Lemont, IL, approximately 25 miles southwest of Chicago. See attachments SK-1 and SK-2 identifying two conceptual routes of the overhead transmission lines. Additionally, attachment SK-3 identifies a 'hatched' area between the two conceptual routes. This hatched area represents "wiggle room" for the route to move during design development.

Both proposed routes would begin south of the Argonne site, on the southern edge of Waterfall Glen near existing ComEd substation J310. This is the location that the new ComEd substation would be installed. The routes progress north through the forest preserve, along Railroad Drive. When the routes reach Argonne property, this is where they deviate. The route in SK-1 turns to head northeast toward the eastern Argonne fence line. The SK-1 route follows the Argonne fence line all the way north to the edge of Argonne property where it turns west. The route in SK-2 generally heads directly north on Argonne property, parallel with Railroad Drive. The SK-2 route continues north until it crosses 94th St., where it turns west and heads south of the 100 area. Once both routes are west of the 100 area, they continue west and would cross Outer Circle Rd and tie into Argonne's Substation 551. For both of these routes, the area south of Argonne property along Railroad Dr. has generally already been cleared of trees and vegetation, although some additional clearing may be necessary at the location around ComEd's new substation. The route inside the Argonne fence is a mix of previously disturbed and undisturbed areas. See attached ecosystem classification map for Waterfall Glen, attachment SK-17. Locations for the Long Lead scope and Construction Contract Options can be found in the attached graphics, SK-4 through SK-14. All locations are in previously disturbed areas, including: Substation 551, Substation 549A, existing duct bank under 94th St., existing right-of-way between ComEd's J310 and Argonne's substation 549A, the Bldg. 202 east parking lot, existing duct bank loop in the 200 area, existing power poles scattered throughout the 300 area, and Bldg. 364.

Potential Environmental Effects

- Attach explanation for each "yes" response near bottom of form.
- **See Instructions for Completing Environmental Review Form.**

Section A (Complete For All Projects)		Yes	No	Explanation
1.	Project evaluated for Pollution Prevention and Waste Minimization opportunities and details provided under items 2, 4, 6, 7, 8, 16, and 20 below, as applicable	<input checked="" type="radio"/>	<input type="radio"/>	Yes, measures to reduce waste and pollution would be evaluated as an ongoing process throughout construction.
2.	Air Pollutant Emissions	<input checked="" type="radio"/>	<input type="radio"/>	Yes, emissions from cars and construction equipment would occur. Equipment at jobsite would be running during typical daily working hours.
3.	Noise	<input checked="" type="radio"/>	<input type="radio"/>	General construction noises are expected. Any noises above the OSHA standards would require workers to wear the appropriate personal protective equipment. Standard operation of construction equipment would not impact the activities of adjacent buildings. The project team would work with FPDDC personnel and community leaders to mitigate the construction noise to the general public and any nearby property owners.
4.	Chemical/Oil Storage/Use	<input checked="" type="radio"/>	<input type="radio"/>	Typical construction chemicals such as adhesives and gasoline would be used. The material would be stored in proper containers and protected from spillage per the erosion control plan. SDS would be available for chemicals on the construction site.
5.	Pesticide Use	<input type="radio"/>	<input checked="" type="radio"/>	
6.	Toxic Substances Control Act (TSCA) Substances			
6a.	Polychlorinated Biphenyls (PCBs)	<input type="radio"/>	<input checked="" type="radio"/>	No. There are no PCBs that would be installed as part of this project. Demolished old equipment or transformers are not expected to contain PCBs. Standard Argonne procedures would be followed if PCBs are encountered.
6b.	Asbestos or Asbestos Containing Materials	<input type="radio"/>	<input checked="" type="radio"/>	
6c.	Other TSCA Regulated Substances	<input type="radio"/>	<input checked="" type="radio"/>	
6d.	Import or Export of Chemical Substances	<input type="radio"/>	<input checked="" type="radio"/>	

7.	Biohazards	<input type="radio"/>	<input checked="" type="radio"/>	
8.	Effluent/Wastewater (If yes, see question #12 and contact Peter Lynch (HSE) at 2-4582 or lynch@anl.gov)	<input checked="" type="radio"/>	<input type="radio"/>	The results of construction activities would generate some storm water effluent. This is mostly a concern during civil site prep for the new substation and for Construction Contract Option 5 which includes excavation at the Bldg. 202 parking lot (previously disturbed). Construction runoff would be minimal for base scope, the installation of the overhead transmission lines. Any storm water discharges during construction would be filtered prior to discharge. Silt fencing would control the excess storm water runoff from outside the site from entering the site and would filter runoff from the site. These activities, including inspections, frequency, and qualifications of stormwater inspectors in accordance with IEPA requirements, would be documented in more detail with a storm water pollution and prevention plan to be included in the project design and to be implemented by the construction contractor. Any storm sewer inlets and outfalls near the project would be protected.
9.	Waste Management			
9a.	Construction or Demolition Waste	<input checked="" type="radio"/>	<input type="radio"/>	Most of the demolition waste for the base scope would consist of trees, shrubs, and other organics to be cleared for the power line right-of-way (ROW). All material would be taken to a CCDD landfill. Some Long Lead Scope and Construction Contract Options would demolish existing electrical equipment and materials including: Conductors, transformers, switchgear, disconnects, and switches. All material would be taken to a CCDD landfill.
9b.	Hazardous Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9c.	Radioactive Mixed Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9d.	Radioactive Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9e.	Asbestos Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9f.	Biological Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9g.	No Path to Disposal Waste	<input type="radio"/>	<input checked="" type="radio"/>	
9h.	Nano-material Waste	<input type="radio"/>	<input checked="" type="radio"/>	
10.	Radiation	<input type="radio"/>	<input checked="" type="radio"/>	
11.	Threatened Violation of ES&H Regulations or Permit Requirement	<input type="radio"/>	<input checked="" type="radio"/>	
12.	New or Modified Federal or State Permits	<input type="radio"/>	<input checked="" type="radio"/>	The project would obtain a SWPPP permit from the state. The project would obtain any other required permits if needed as determined by design development. This includes but not limited to: Dupage County permits, USFWS permits, and permits with the Army Corps. Of Engineers.
13.	Siting, Construction, or Major Modification of Facility to Recover, Treat, Store, or Dispose of Waste	<input type="radio"/>	<input checked="" type="radio"/>	
14.	Public Controversy	<input checked="" type="radio"/>	<input type="radio"/>	The general public is an important stakeholder for base scope of the ECDC project. The nearby Waterfall Glen is an extremely popular recreational area and is extensively used by the general public for hiking, biking, walking etc. The project has identified ways in which the public can be informed & engaged about important project details. First, in partnership with the FPDDC, public meetings have been held at the office of the forest preserve for a planning session and commissioners vote. Anyone who was interested could attend these meetings and voice concerns about the project. The planning session occurred on 9/11/18 and the commissioners vote occurred on 9/18/18. The FPDDC Commissioners, who represent the public, unanimously voted to concur with the proposed ECDC route through the forest preserve. Additionally, the project sent representatives to established civic meetings to present important project details for interested parties. These meetings included the Timberlakes Civic Association (11/6/18) and

				the Community Leaders Roundtable (11/14/18). The project has briefed the FPDDC, Timberlakes Civic Association, and Community Leaders Roundtable and none of these stakeholders raised significant concern regarding the construction of ECDC.
15.	Historic Structures and Objects	<input type="radio"/>	<input checked="" type="radio"/>	No. Some work would take place near Bldg. 202 which is an eligible historical building. Bldg. 202 would not be impacted by this project. As appropriate, DOE and Argonne would coordinate with the State Historic Preservation Office (SHPO).
16.	Disturbance of Pre-existing Contamination	<input type="radio"/>	<input checked="" type="radio"/>	
17.	Energy Efficiency, Resource Conserving, and Sustainable Design Features	<input type="radio"/>	<input checked="" type="radio"/>	No. HPSB guidelines do not apply to this project. Sustainable acquisition would be preferred.
Section B (For Projects that Occur Outdoors)		Yes	No	
18.	Threatened or Endangered Species, Critical Habitats, and/or other Protected Species	<input type="radio"/>	<input checked="" type="radio"/>	The Hine's Emerald Dragonfly is an endangered species with a habitat located in the forest preserve. Argonne worked with the FPDDC to ensure that the selected route would not impact this endangered species. The habitat for this endangered species is located in the forest preserve south and west of the selected route. See attached map of the Hines Emerald Dragonfly critical habitat in the area, attachmetn SK-18. Depending on design development, ComEd may need to coordinate their construction of the new substation with the USFWS to asses impacts. Should Hines Emerald Dragonfly Habitat be encountered in the project area, DOE/Argonne would initiate consultation with the USFWS. Additional threatened & endanged species that may be found in the area include: northern long-eared bat, eastern massasauga snake, eastern prairie fringed orchid, leafy prairie clover, mead's milkweed, and prairie bush-clover. As appropriate, DOE/Argonne would consult with USFWS regarding these species.
19.	Wetlands	<input type="radio"/>	<input checked="" type="radio"/>	The ECDC project does not anticipate construction in any wetlands at this time, but would be working in proximity to wetlands. Depending on design development, some best practice design mitigations would include: 1. Adjust pole placements to span wetlands 2. Limit construction to winter months when soil and water are more likely to be frozen and vegetation is dormant 3. Use mats and wide track vehicles to spread the distribution of equipment weight when crossing wetlands. See attached wetland jurisdiction report which identifies the locations of wetlands on the Argonne Campus, SK-16. There are no identifiable wetlands in the forest preserve along the planned route. The route would span Sawmill Creek on Argonne property, so the Army Corp. would be engaged to obtain required permits.
20.	Floodplain	<input type="radio"/>	<input checked="" type="radio"/>	The ECDC project does not anticipate construction in any floodplains at this time, would span some 100 & 500 yr. floodplains. Depending on design development, some best practice design mitigations would include: 1. Adjust pole placements to span floodplains 2. Limit construction to winter months when soil and water are more likely to be frozen and vegetation is dormant 3. Use mats and wide track vehicles to spread the distribution of equipment weight when crossing floodplains.
21.	Landscaping	<input type="radio"/>	<input checked="" type="radio"/>	The DOE has indicated that it would allow the project to plant trees at a different location to help offset the trees demolished by this project. A tree survey would be performed in the area to be cleared. Disturbed areas would be restored to re-stabilize the soil.
22.	Navigable Air Space	<input type="radio"/>	<input checked="" type="radio"/>	No. Pole heights anticipated to be below 150 feet above ground level. If a mobile crane used during construction is over 150 feet, then FAA notification would be completed, as appropriate.
23.	Clearing or Excavation	<input checked="" type="radio"/>	<input type="radio"/>	Building a transmission line through woodlands requires that all trees and brush be cleared from the right-of-way (ROW). Clearing of mature trees would be minimized. Excavations would be required to install poles and their foundations. Some additional excavation may be required near substation 551, as a portion of the route may be moved underground during design to help avoid utility conflicts. The ECDC project would mitigate impacts to woodland areas in the following ways: 1. Avoiding routes that fragment major forest blocks 2. Adjusting pole placement and span length to minimize the need for tree removal and trimming along forest edges 3. Allowing some tree and shrub species that reach heights of 12 to 15 feet to grow within sections of the ROW. Certain Construction Contract Options would also require some minor excavation and grading (duct bank, civil prep for foundations, etc.). The project would employ a SWPPP per above to mitigate environmental impacts of excavation. For excavations taking place outside of the laboratory fence, JULIE would be notified prior to excavation to ensure any public utilities are flagged and painted. For excavations inside the fence on Argonne property, normal Argonne dig permitting procedures would be followed. Lastly, the DOE has indicated that it

				would allow the project to plant trees at a different location to help offset the trees demolished by this project. Excavated soils would be used as backfill in some areas where regrading is necessary. Leftover spoils would be hauled offsite. Estimated excavation for substation and pole foundations is < 300cy.
24.	Archaeological Resources	<input checked="" type="radio"/>	<input type="radio"/>	Archeological and historical sites are protected resources. They are important and increasingly rare tools for learning about the past. They may also have religious significance. Transmission line construction and maintenance can damage sites by digging, crushing artifacts with heavy equipment, uprooting trees, exposing sites to erosion or the elements, or by making the sites more accessible to vandals. Impacts can occur wherever soils would be disturbed, at pole locations, or where heavy equipment is used. Archeological surveys may be required in some areas of the route. If any archeological resources are identified, the project can employ judicious pole placement to span resources and avoid impact to the sites. If during construction an archeological site is encountered, construction at the site is stopped and DOE would be notified. See attached map of archeological surveyed areas, attachment SK-15.
25.	Underground Injection	<input type="radio"/>	<input checked="" type="radio"/>	
26.	Underground Storage Tanks	<input type="radio"/>	<input checked="" type="radio"/>	
27.	Public Utilities or Services	<input checked="" type="radio"/>	<input type="radio"/>	The public electrical utility, ComEd, would design and build a new substation for this project. The new transmission lines may cross public gas utility lines but would not impact them. Utilities would be located before any excavations through JULIE.
28.	Depletion of a Non-Renewable Resource	<input type="radio"/>	<input checked="" type="radio"/>	
Section C (For Projects Outside of ANL)		Yes	No	
29.	Prime, Unique, or Locally Important Farmland	<input type="radio"/>	<input checked="" type="radio"/>	No. Waterfall Glen does not contain farmland.
30.	Special Sources of Groundwater (such as sole source aquifer)	<input type="radio"/>	<input checked="" type="radio"/>	
31.	Coastal Zones	<input type="radio"/>	<input checked="" type="radio"/>	
32.	Areas with Special National Designations (such as National Forests, Parks, or Trails)	<input type="radio"/>	<input checked="" type="radio"/>	
33.	Action of a State Agency in a State with NEPA-type Law	<input type="radio"/>	<input checked="" type="radio"/>	
34.	Class I Air Quality Control Region	<input type="radio"/>	<input checked="" type="radio"/>	

Categorical Exclusion

Other (Use field below to enter other categorical exclusion)

A project-specific CX should be developed for this project.

ANL NEPA Reviewer Use Only

My approval is the final approval necessary

This form requires additional approval from DOE

To be Completed by DOE/ASO

Section D		Yes	No
Are there any extraordinary circumstances related to the proposal that may affect the significance of			

the environmental effects of the proposal?	<input type="radio"/>	<input checked="" type="radio"/>
Is the project connected to other actions with potentially significant impacts or related to other proposed action with cumulatively significant impacts?	<input type="radio"/>	<input checked="" type="radio"/>
If yes, is a categorical exclusion determination precluded by 40 CFR 1506.1 or 10 CFR 1021.211?	<input type="radio"/>	<input type="radio"/>
Can the project or activity be categorically excluded from preparation of an Environment Assessment or Environmental Impact Statement under Subpart D of the DOE NEPA Regulations?	<input checked="" type="radio"/>	<input type="radio"/>
If yes, indicate the class or classes of action from Appendix A or B of Subpart D under which the project may be excluded: Part 1021, Subpart D, Appendix B, excluded under the Categories of: B4.12 Construction of Power lines, and B4. 6 Additions and Modifications to Transmission Facilities		
If no, indicate the NEPA recommendation and class(es) of action from Appendix C or D to Subpart D to Part 1021 of 10 CFR.		

Attachments

File Description: ERF [View Attachment](#)

File Description: Attachments [View Attachment](#)

Comments

The full description of the proposed action will not fit in the box in XINK (character limit). Therefore a PDF version of the ERF with the full description is attached.

Add Approver

Approver Name	Approver Badge	Reason	Delete

Notifications

The approval notification email will be copied to the people listed below.

Badge	Name	Division	Delete

ASO-CX Number

ASO-CX- 357

Comments:

This determination covers only the Railroad Drive Option. It is contingent upon compliance with all applicable statutory, regulatory, and DOE requirements and upon all necessary regulatory consultations having occurred and being resolved.

Approval

Approver	Action	Date Routed	Action Date	Approval Reason / Comments	Approval Type
Cisek, Jonathan E.	APPROVED	2018-10-19	2018-10-19 15:57:04.0	Creator :	PRIMARY
Cisek, Jonathan E.	APPROVED	2018-10-19	2018-10-19 15:57:04.0	Project Manager :	PRIMARY
Matton, Philip B.	APPROVED	2018-10-19	2018-10-26 08:02:13.0	NEPA Owner Approval for Argonne Environmental Review :	PRIMARY
Ptak, Jill S.	APPROVED	2018-10-26	2018-11-02 14:56:08.0	ANL NEPA Reviewer :	PRIMARY
Budd, Jason R. for Hellman, Karen B.	APPROVED	2018-11-02	2018-11-02 15:14:37.0	ANL-985 Review and Approval :	DELEGATE
Stine, Gail Y.	APPROVED	2018-11-02	2018-11-02 16:40:57.0	ANL-985 Review and Approval :	PRIMARY

Kearns, Paul K.	APPROVED	2018-11-02	2018-11-05 06:44:14.0	ANL-985 ANL COO Review and Approval :	PRIMARY
Joshi, Kaushik N.	APPROVED	2018-11-05	2018-12-03 16:16:43.0	ANL-985 DOE-ASO Review and Approval : This DOE's NEPA CX approval is tracked as ASO-CX-357.	PRIMARY
Siebach, Peter Rudolf	APPROVED	2018-12-03	2018-12-03 17:13:10.0	ANL-985 DOE NEPA Compliance Officer Review and Approval : Argonne must notify the DOE Federal Project Director of any change in project scope to determine whether it is outside the approved NEPA envelope and whether a new NEPA review is needed.	PRIMARY

Argonne National Laboratory
Electrical Capacity & Distribution Capability (ECDC) Project
Environmental Review Form – Description of Proposed Action

Argonne's scientific advancements require a strong foundation that supports reliable, redundant, maintainable, and flexible utility systems. A key component of ANL's utility system portfolio is the high voltage electrical distribution system. Without this critical system, science at ANL cannot exist. The high voltage electrical distribution system at Argonne consists of substations, transformers, high voltage electrical supply, and distribution cabling. All high voltage power is supplied to the laboratory via a single off site ComEd managed substation facility and limited to a peak power draw of 87 MVA. Once on site, electricity is distributed through laboratory managed substations, transformers, and facilities. The condition of these components of the electrical system limit the ability for the Laboratory to support the forecasted electrical demand growth and operational requirements. Electrical reliability is critical to achieving user facility operational goals. Examples of these goals include the Basic Energy Science (BES) program's 2017 target for Advanced Photon Source (APS) 90% schedule availability and the Advanced Scientific Computing Research (ASCR) program's 95% scheduled availability.

BASE SCOPE: The project objective is to install two 138kV transmission lines connecting Argonne's 551 substation with a new ComEd substation south of the Argonne site. ComEd would design and build this new substation in tandem with the ECDC project and it would be built adjacent to ComEd's existing substation J310. The new ComEd substation and a portion of the anticipated route traverses some forested areas, so tree-clearing and grubbing would be required. There are two conceptual routes for the transmission lines which can be found in attachments SK-1 and SK-2. In both cases, a portion of the route runs through Waterfall Glen, land currently owned by the Forest Preserve District of DuPage County (FPDDC). Prior to construction, Argonne/DOE would obtain easement rights for the land area outside of laboratory property for the route of the transmission lines and for the new ComEd substation. This means that at the time of construction, all base scope work would be completed on DOE property. There are numerous other smaller electrical projects planned as construction contract options on the base contract. Due to funding constraints, these may be added to base scope as contingency spend down items.

LONG LEAD SCOPE: In addition to the base scope above, a few small projects are planned as "Long Lead" scopes to be completed in advance of the base scope. This Long Lead scope was also submitted under a separate ERF (Identifying Number 01712). It is part of the ECDC project, and is now considered again with the rest of the project scope.

SOW#1: The SOW consists of purchase and installation of a new 45MVA transformer (Transformer 12) at substation 551. The project also includes the purchase and installation of transformer foundations, disconnects, OH aluminum bus work, cable/wiring connections, and associated equipment accessories. Additionally, the project would design and install SCADA software/hardware to accept new connections. See attachment SK-4.

SOW#2: In the 94th St. UG duct bank between substation 551 and the new TCS expansion, existing cables would be upgraded to support a higher load. This scope solely consists of cable pulling, terminations, and testing. Some modification may be required to the switchgear building at substation 551 to accept these larger cables. See attachment SK-5.

SOW#3: At substation 549A, upgrade existing original 4/0 copper cables with new conductors that can support projected laboratory load growth. Some old disconnects would also be replaced with newer disconnects. This option solely consists of conductor, insulator, and disconnect upgrades at substation 549A. See attachment SK-6.

Argonne National Laboratory
Electrical Capacity & Distribution Capability (ECDC) Project
Environmental Review Form – Description of Proposed Action

CONSTRUCTION CONTRACT OPTIONS: There are numerous other smaller electrical projects planned as construction contract options on the base contract. Due to funding constraints, these may be added to base scope as contingency spend down items. These options are generally maintenance activities at existing distribution locations onsite. These options include, but are not limited to:

Option 1: Transformer 14 Installation and Substation 551 Expansion. The SOW consists of purchase and installation of a new 45MVA transformer (Transformer 14) at substation 551 and associated switchgear building. The project would expand substation 551 further west, in the location of Bldg. 202 XY Building. The 202 XY Building would be demolished in advance by a separate project. See attachment SK-7.

Option 2: 138kV Z Line OH Replacement. The SOW consists of demolishing the existing OH lines and wood poles that run between substation J310 (in FPDDC) and Substation 549A (on Argonne property). New steel poles and upgraded conductors would be installed in the existing right-of-way. This scope is partially outside of the Argonne fence, but on existing easement. See attachment SK-8.

Option 3: Transformer 6 Replacement. Transformer 6 at substation 549A is past its useful life. This project would replace in kind the transformer and associated relaying & controls. See attachment SK-9.

Option 4: Transformer 5 Replacement. Transformer 5 at substation 549A is past its useful life. This project would replace in kind the transformer and associated relaying & controls. See attachment SK-10.

Option 5: 200 Area Reliability. This SOW is to install a new UG duct bank connecting the vista switches outside of Bldg. 202 and Substation 551. The Bldg. 202 vista switches would be replaced with new. See attachment SK-11.

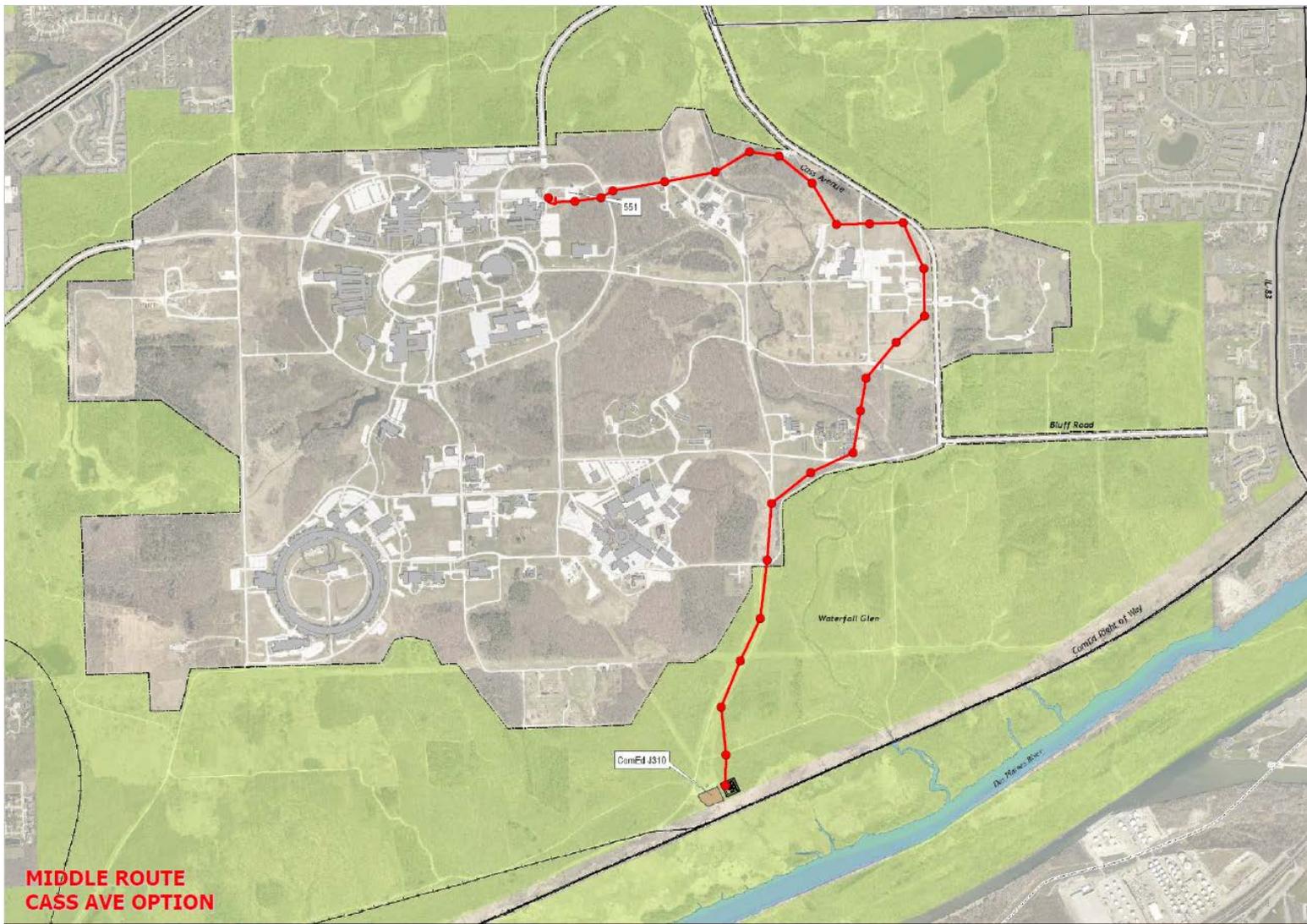
Option 6: Underground 13.2 kV Reliability. This project would improve UG and pad mounted distribution automation with a SCADA upgrade. Specifically it would involve upgrade of an underground fiber optic cable in existing duct bank in the 200 area. See attachment SK-12.

Option 7: OH 13.2 kV Reliability. Upgrade manual switches on existing poles all over the site with new intelligent smart grid switches. See attachment SK-13.

Option 8: Switchgear 12A/12B Replacement. Switchgear 12A/12B in Bldg. 364 is past its useful life. This project would replace the equipment in kind with new. See attachment SK-14.

CONCEPTUAL DESIGN

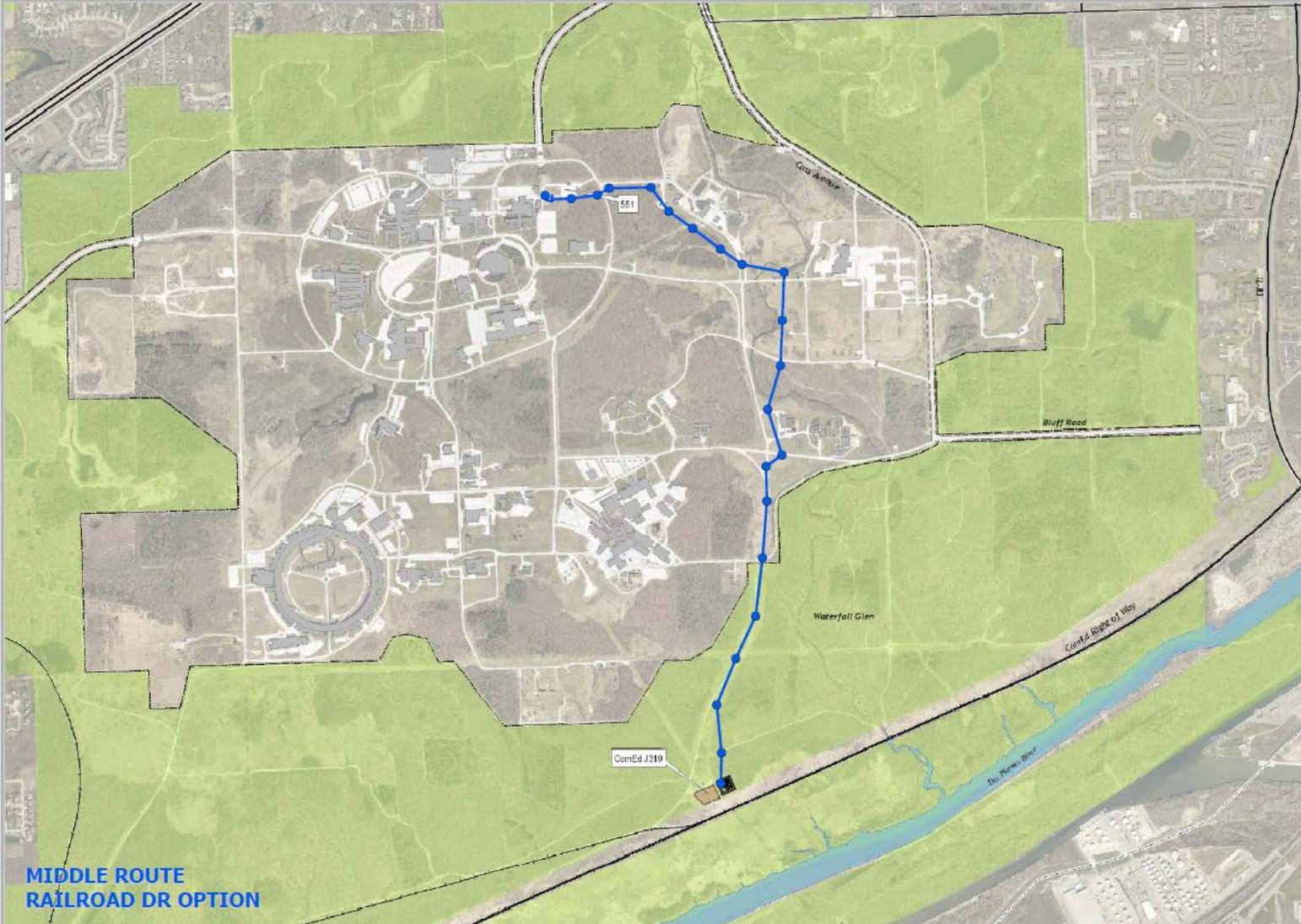
CASS AVENUE OPTION



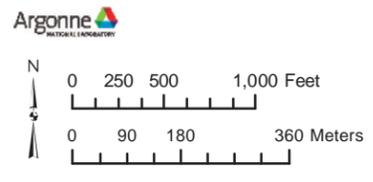
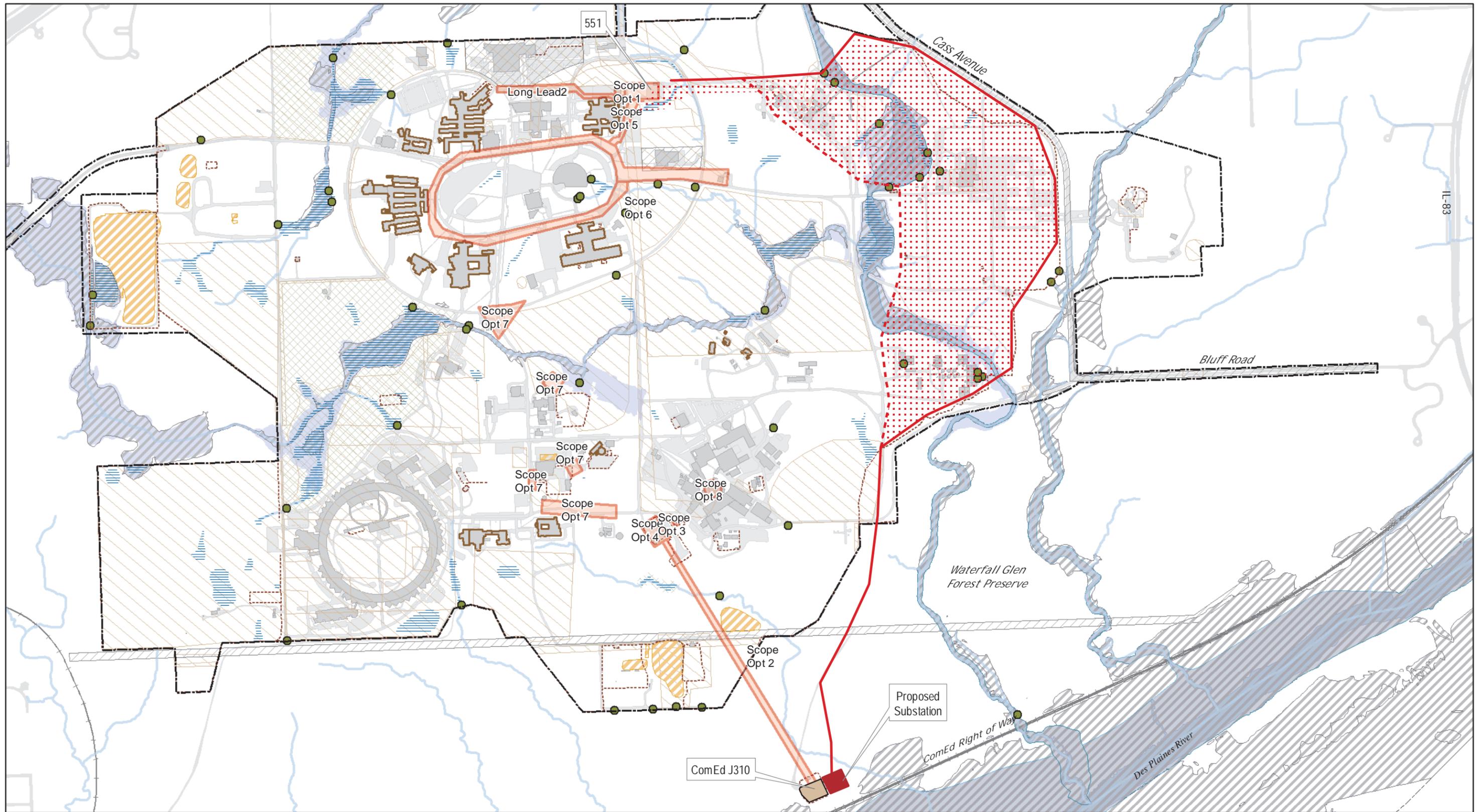
**MIDDLE ROUTE
CASS AVE OPTION**

CONCEPTUAL DESIGN

RAILROAD DRIVE OPTION



MIDDLE ROUTE
RAILROAD DR OPTION



- | | | | |
|---------------------|--------------------------------------|------------------------------|---------------------|
| ECDC Route Opt 1 | Base Flood Floodway | Exist. Easement, 3rd party | Perimeter Fence |
| ECDC Route Opt 2 | Base Flood 100 Year Flood Zone | Archaeology Survey on Record | Argonne Boundary |
| ECDC Optional Scope | FIRM Preliminary 100 Year Flood Zone | NRHP Eligible Building | Possible Route Area |
| NPDES Outfall | Endangered Species Location | Argonne Building | |
| Argonne Wetland | Contaminated Area | Road | |

**ECDC Project
Proposed Work Locations**

IS-PMO-SPPM
10/19/2018

Graphics are for illustrative purposes only

Long Lead SOW#1

Transformer 12 Installation at Substation 551

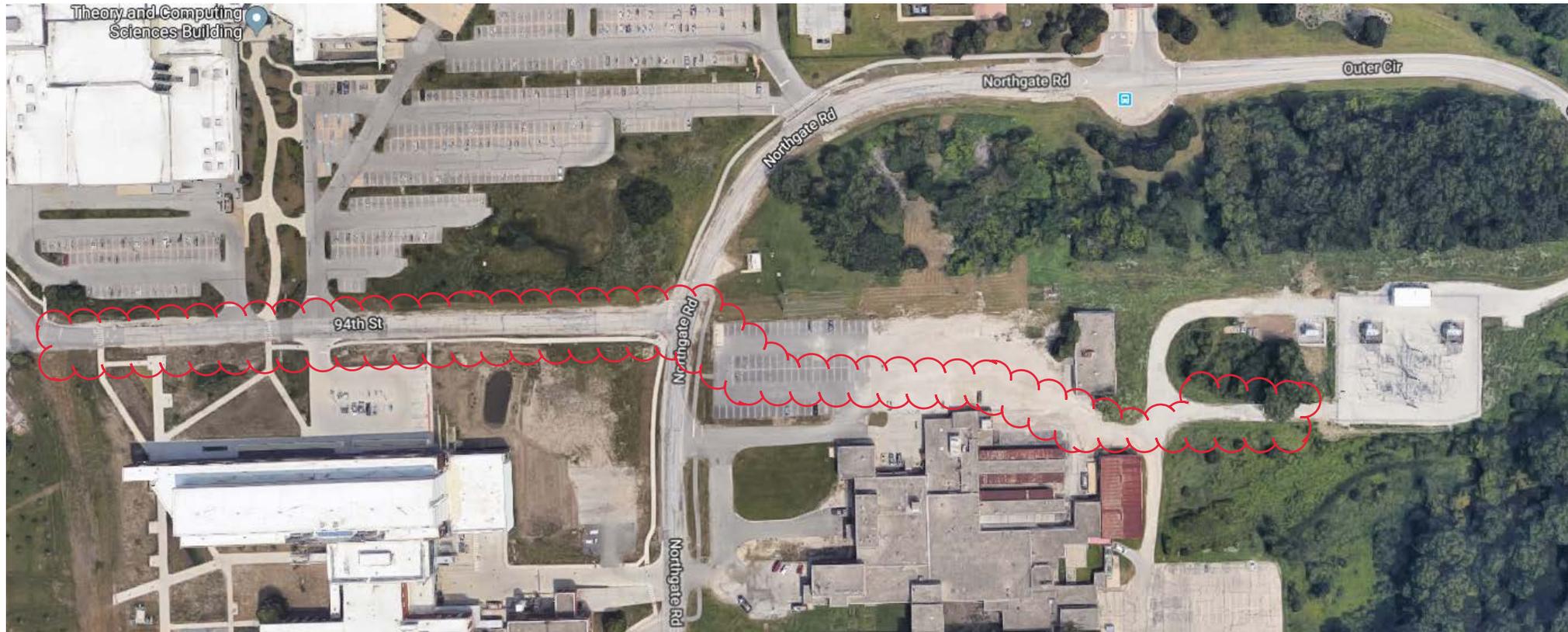
- All work will take place at Substation 551



Long Lead SOW#2

94th St. Duct Bank Cable Upgrades

- All work will take place in duct bank from 551 running under 94th St.



Long Lead SOW#3

549A Bus 1 & Bus 2 Upgrades

- All work will take place at Substation 549A



Construction Contract Option #1

Transformer 14 Installation and 551 Expansion

- All work will take place at Substation 551



Construction Contract Option #2

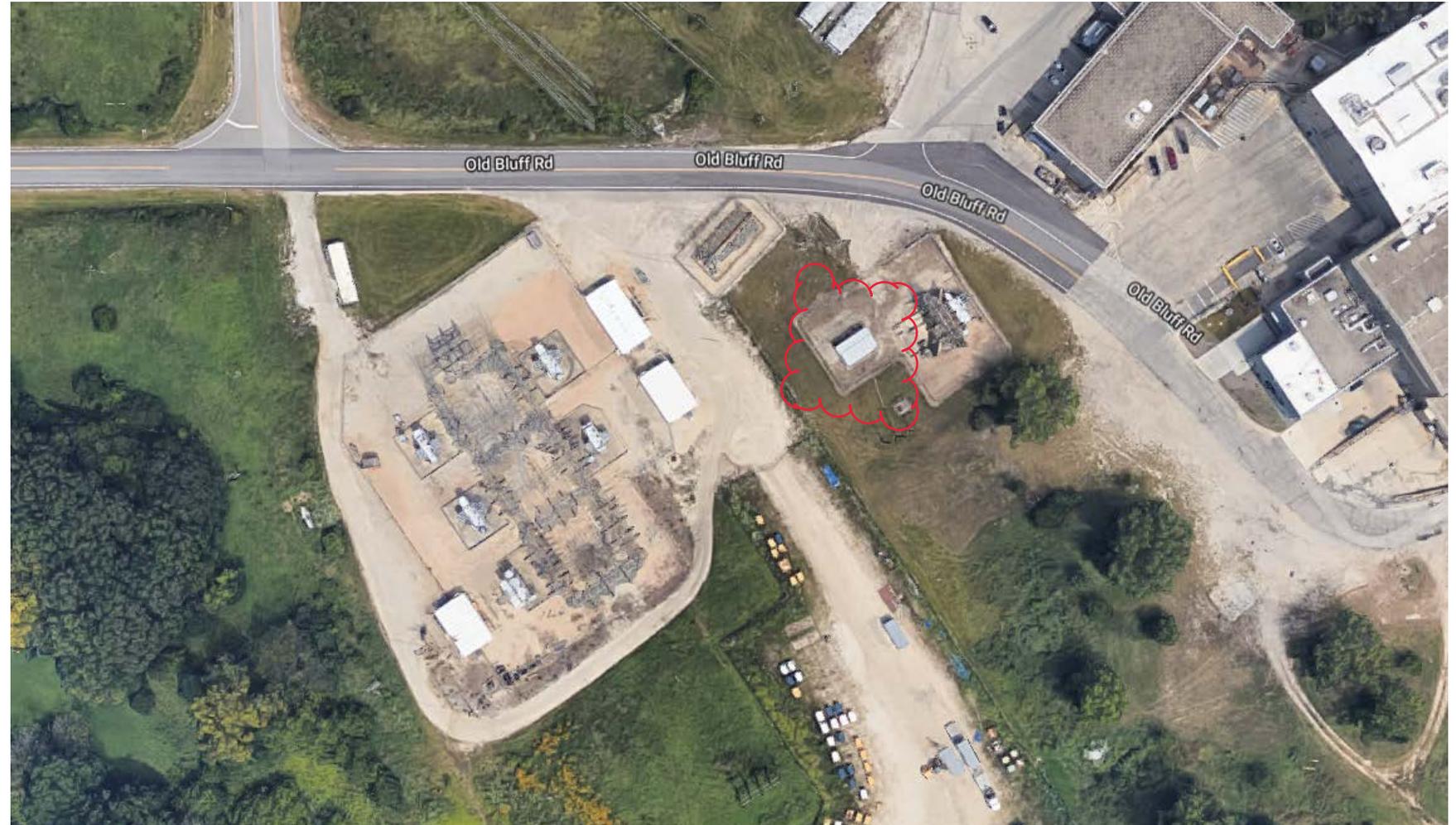
138kV OH Z Line Replacement



Construction Contract Option #3

Transformer 6 Replacement

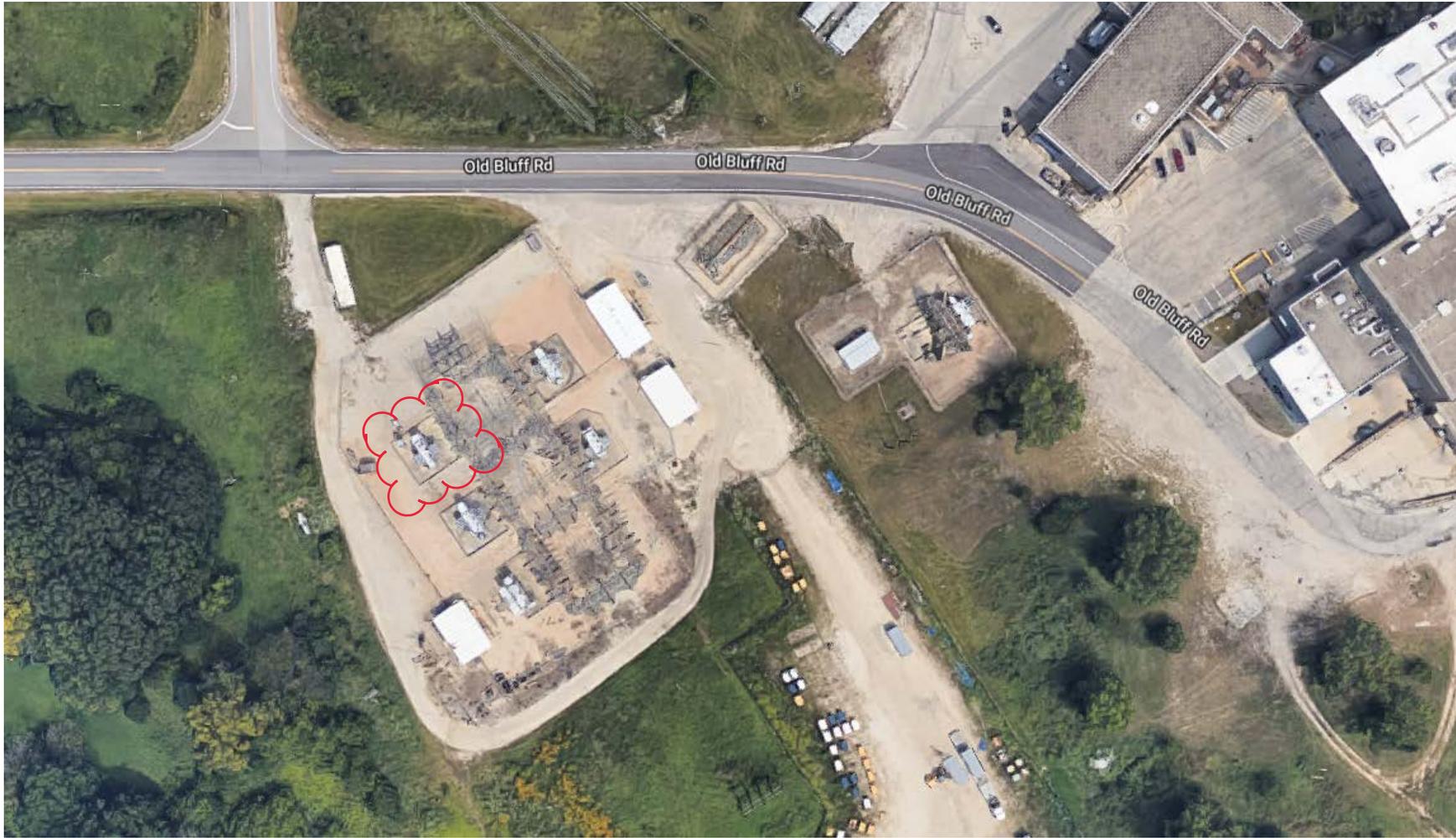
- All work will take place at Substation 549A



Construction Contract Option #4

Transformer 5 Replacement

- All work will take place at Substation 549A



Construction Contract Option #5

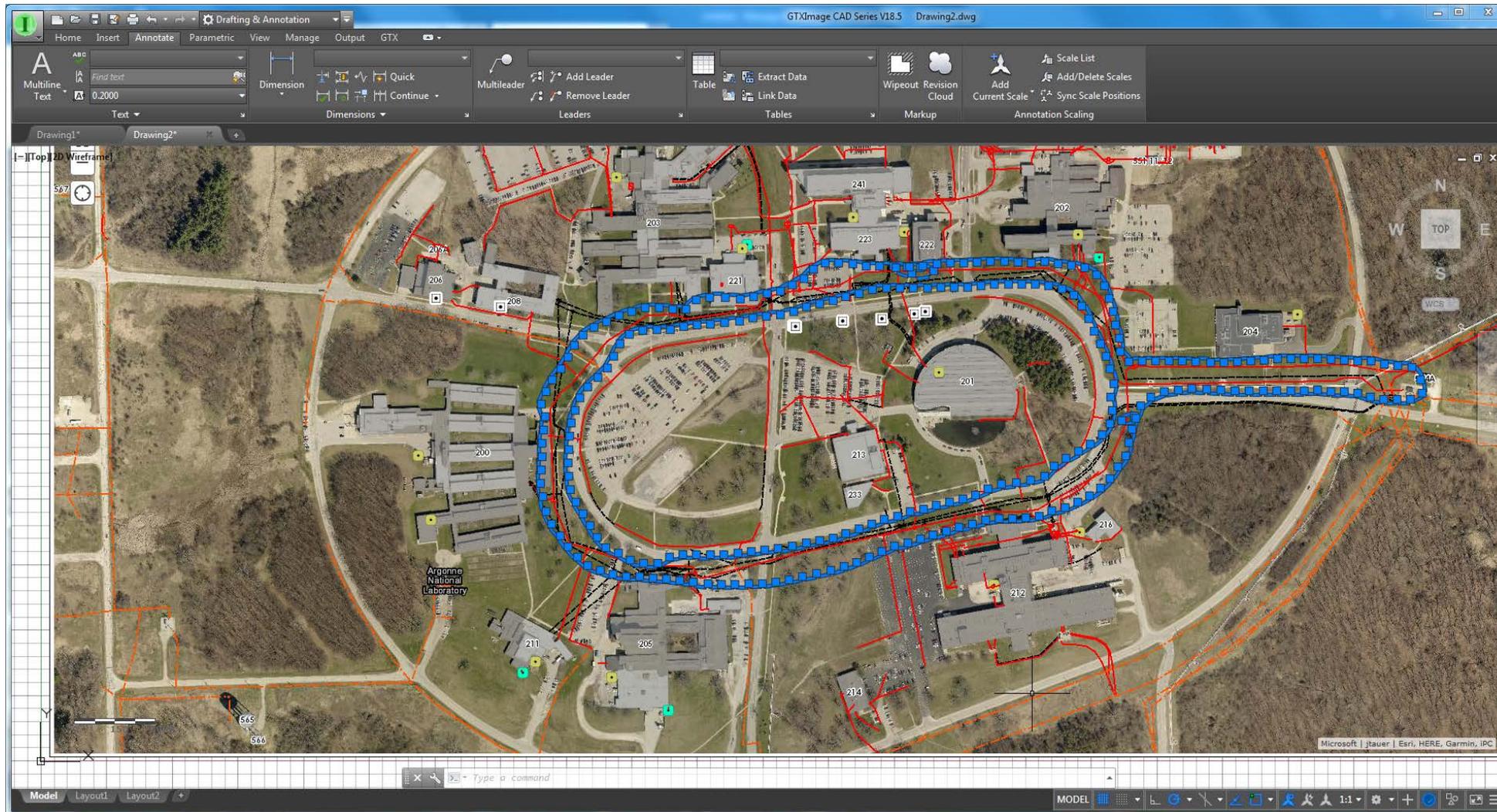
200 Area Reliability

- Exact route of ductbank to be determined during design



Construction Contract Option #6

Underground 13.2 Distribution Reliability



Construction Contract Option #7

OH 13.2 Distribution Reliability

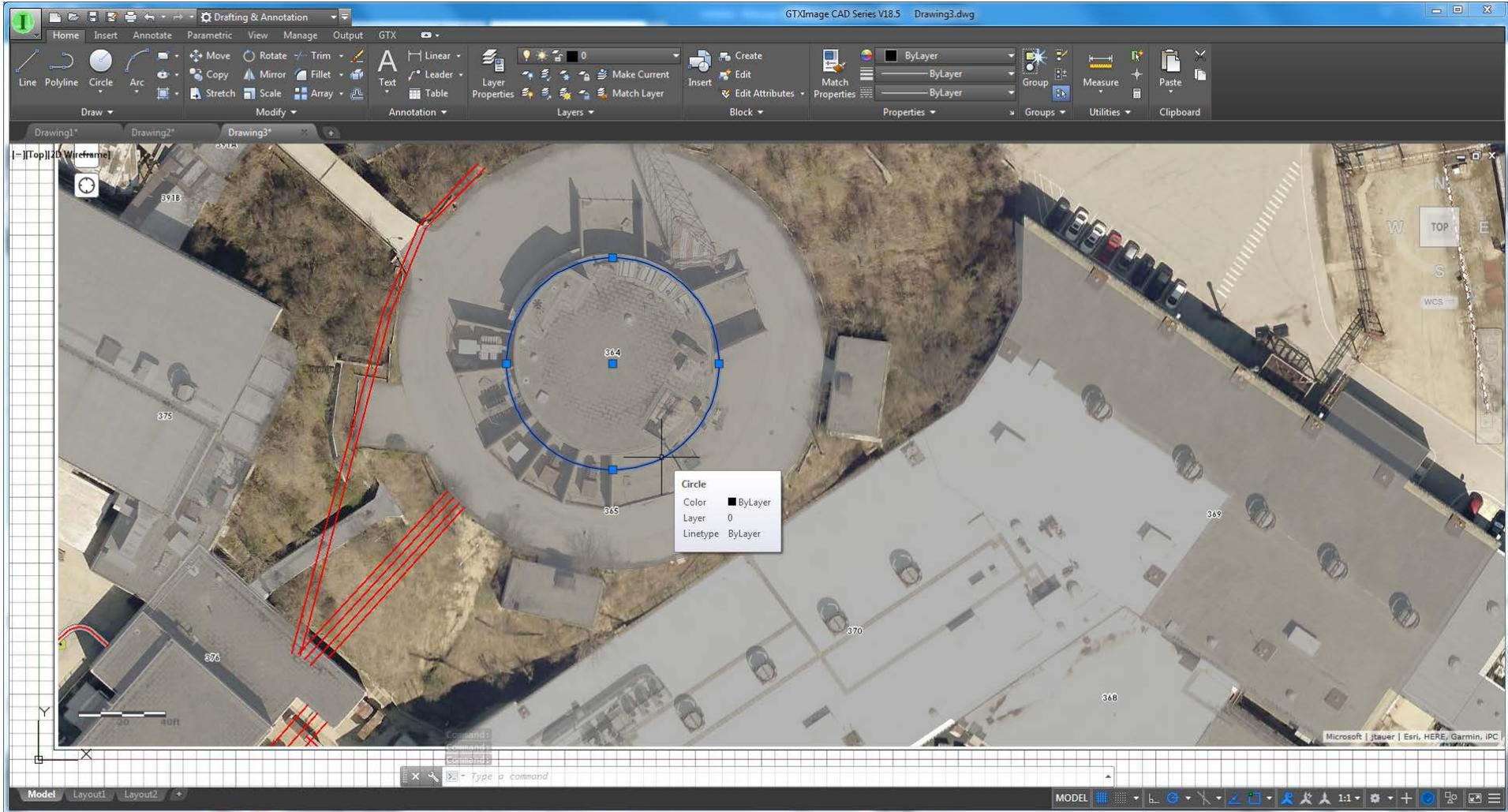
- All work will take place on existing power poles



Construction Contract Option #8

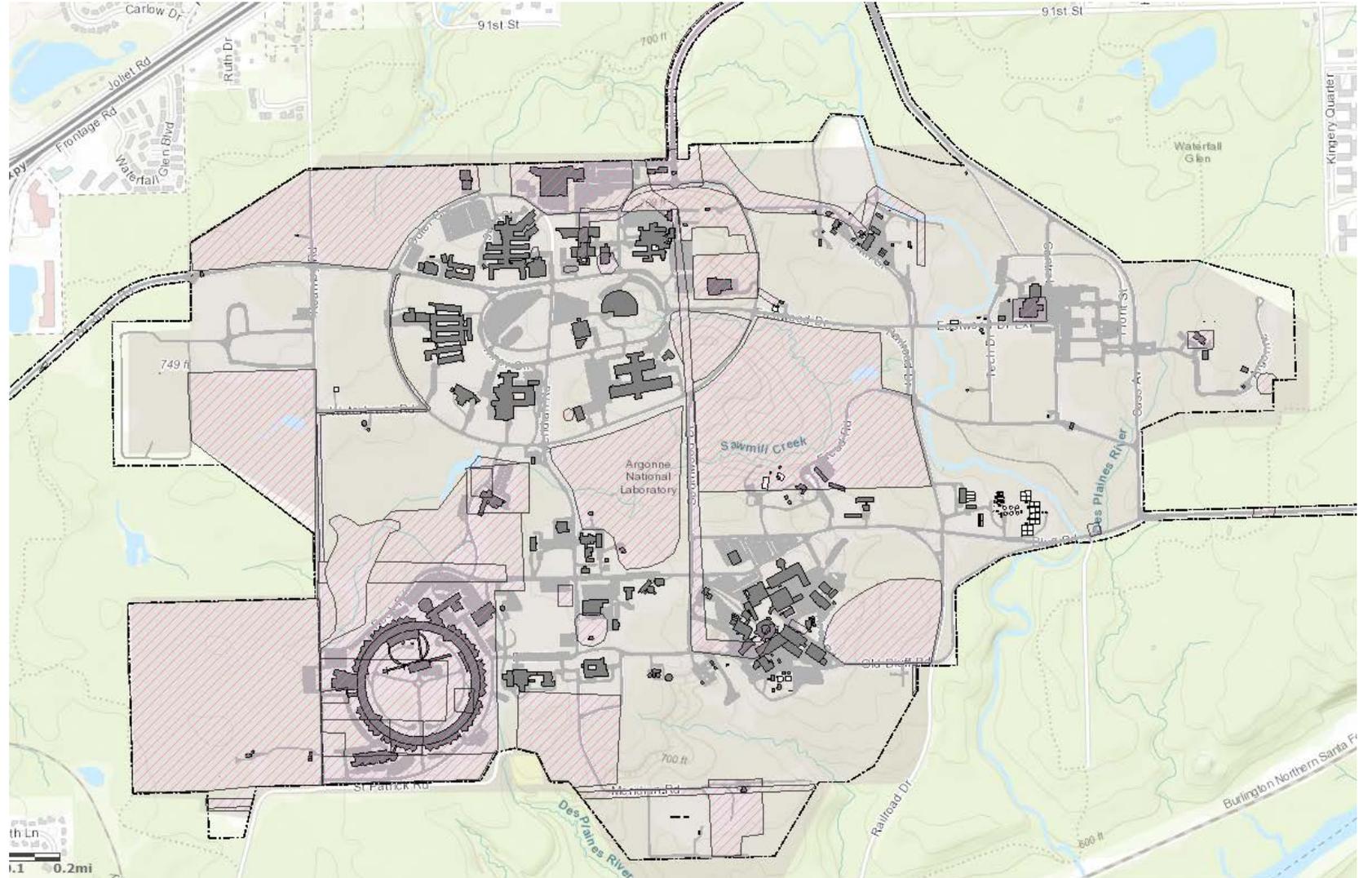
Switchgear 12A/12B Replacement

- All work will take place at Bldg. 364



Archeological Surveys on Record

- Hatched areas have archeological surveys on record.





Jurisdictional Status of Wetlands on the Argonne National Laboratory Site

Environmental Science Division

About Argonne National Laboratory

Argonne is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC under contract DE-AC02-06CH11357. The Laboratory's main facility is outside Chicago, at 9700 South Cass Avenue, Argonne, Illinois 60439. For information about Argonne and its pioneering science and technology programs, see www.anl.gov.

Disclaimer

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor UChicago Argonne, LLC, nor any of their employees or officers, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of document authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof, Argonne National Laboratory, or UChicago Argonne, LLC.

Jurisdictional Status of Wetlands on the Argonne National Laboratory Site

prepared by
R. Van Lonkhuyzen
Environmental Science Division, Argonne National Laboratory

May 2015

Jurisdictional Status of Wetlands on the Argonne National Laboratory Site

R. Van Lonkhuyzen

A jurisdictional determination is a decision by the Army Corps of Engineers (ACOE) as to whether an area or site is regulated under Section 404 of the Clean Water Act. Such a regulated wetland, lake, pond, or stream is called a "waters of the U.S." To request an official jurisdictional determination, a Request for A Jurisdictional Determination Form must be filled out and submitted to the appropriate ACOE District office.

To assist Argonne infrastructure and facility project planning, this preliminary and unofficial jurisdictional status report was prepared to evaluate and determine whether wetlands on the Argonne site may be either ACOE/Section 404 regulated "waters of the U.S." or wetlands regulated under DOE policy as defined in Executive Order 11990, *Protection of Wetlands*, (May 24, 1977) and 10 CFR 1022, *Compliance with Floodplain and Wetland Environmental Review Requirements* (August 27, 2003). In either case, Argonne wetlands that could be impacted by projects that are funded, wholly or in part, by Illinois state funds would also be regulated by the Illinois Department of Natural Resources under Illinois wetland law "Interagency Wetland Policy Act of 1989" (August 12, 1989). This legislation directs state agencies to avoid adverse impacts to wetlands from state activities including state funded construction activities. It is a goal of the state of Illinois that there be no overall net loss of wetlands or wetland functional values due to state supported activities

Currently mapped streams and wetlands at Argonne are shown in Figure 1. Sources that are used in the characterization of stream flows include EVS (2010), FMS (2009), USGS (1978), and personal observation.

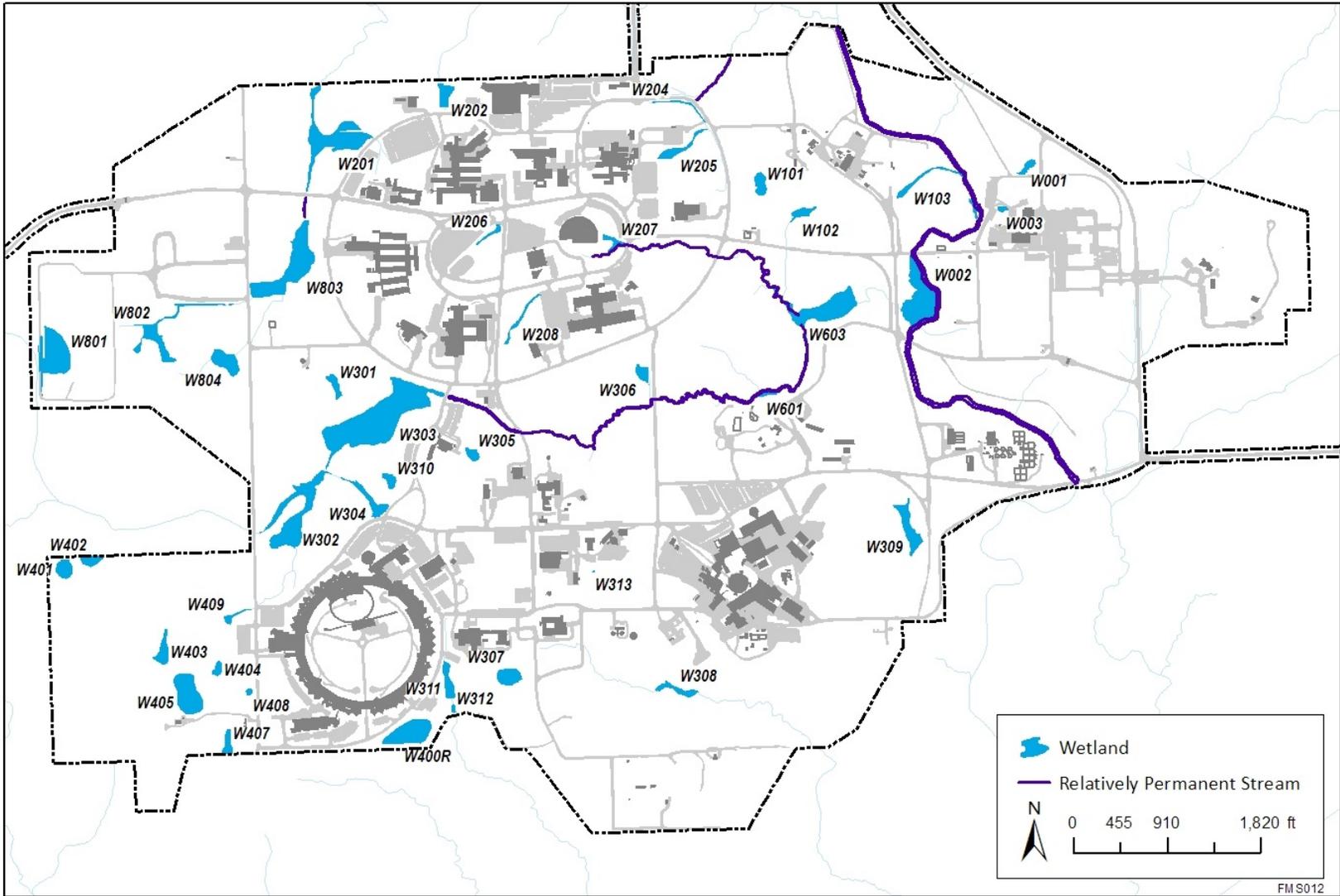


Figure 1. Wetlands and streams on the Argonne National Laboratory Site.

The following preliminary and unofficial jurisdictional status of Argonne wetlands is based on current guidance of the ACOE. The basis for jurisdiction is summarized below (excerpted from ACOE and USEPA 2008):

1. Jurisdiction will be asserted over the following waters :
 - a. Traditional navigable waters,
 - b. Wetlands adjacent to traditional navigable waters,
 - c. Non-navigable tributaries of traditional navigable waters that are relatively permanent where the tributaries typically flow year-round or have continuous flow at least seasonally (e.g ., typically three months), and
 - d. Wetlands that directly abut such tributaries.
2. Jurisdiction over the following waters will be based on a fact-specific analysis to determine whether they have a significant nexus with a traditional navigable water:
 - a. Non-navigable tributaries that are not relatively permanent,
 - b. Wetlands adjacent to non-navigable tributaries that are not relatively permanent, and
 - c. Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary (e. a., separated from it by uplands, a berm, dike or similar feature).
3. The ACOE and USEPA generally will not assert jurisdiction over the following features :
 - Swales or erosional features (e .g., gullies, small washes characterized by low volume, infrequent, or short duration flow), or
 - Ditches (including roadside ditches) excavated wholly in and draining only uplands and that do not carry a relatively permanent flow of water.
4. The ACOE and USEPA will apply the significant nexus standard as follows:
 - A significant nexus analysis will assess the flow characteristics and functions of the tributary itself and the functions performed by all wetlands adjacent to the tributary to determine if they significantly affect the chemical, physical and biological integrity of downstream traditional navigable waters.
 - Significant nexus includes consideration of hydrologic and ecologic factors.

The nearest traditional navigable water relevant to the Argonne site jurisdictional determinations is the Des Plaines River, as determined by the Chicago District, ACOE (2014)¹. The Argonne site does not contain any portion of the Des Plaines River or its adjacent wetlands, but it does contain non-navigable tributaries to the Des Plaines River.

¹ ACOE guidance states that “when determining whether a water body qualifies as a “traditional navigable water” (i.e., an (a)(1) water), relevant considerations include whether a Corps District has determined that the water body is a navigable water of the United States pursuant to 33 C.F.R § 329.14” (ACOE 2007).

Argonne's non-navigable tributaries of the Des Plaines River that are relatively permanent (i.e., have continuous flow at least seasonally) include Sawmill Creek, which typically flows year-round, and several tributaries which flow continuously for at least three months: Freund Brook, both North and South Branches; the tributary just east of North Gate; and the tributary west of Building 200 (Figure 1).

Wetlands that are adjacent to (i.e., abut) these tributaries are jurisdictional wetlands under criterion 1d. Adjacency requires "a continuous surface connection to such tributaries (e.g., they are not separated by uplands, a berm, dike, or similar feature.)" (ACOE and USEPA 2008). Wetlands on the Argonne site that are believed to be ACOE/Section 404 jurisdictional under this criterion are shown in Figure 2 (shown as JD1). Table 1 provides the provisional jurisdictional determination of Argonne wetlands. Lack of hydrologic data for streams on the Argonne site makes it difficult to designate a stream as "relatively permanent", ephemeral (which flow only in response to precipitation), or intermittent (which do not typically flow year-round or have continuous flow at least seasonally). Hydrologic studies of the streams on the Argonne site would assist in the designation of any other streams (in addition to those listed above) as "relatively permanent".

Wetlands at Argonne that are believed to have a significant nexus to the Des Plaines River (criteria 2b and 2c) and therefore may be considered ACOE/Section 404 jurisdictional include two wetlands in the 200 Area that are located on (i.e., abut) tributaries to the North Branch of Freund Brook, three wetlands in the south portion of the site that are located on streams that flow directly into the Des Plaines River, and two wetlands near Sawmill Creek in the Building 46 area (see wetlands shown as JD2 in Figure 2). Depending on the flow characteristics of their tributary streams, one or more of these wetlands may qualify as jurisdictional under criterion 1d. Significant nexus requires that "the tributary and its adjacent wetlands, when considered together, have a more than speculative or insubstantial effect on the chemical, physical, and biological integrity of a traditional navigable water" (ACOE and USEPA 2008).

The determination of a significant nexus considers "the flow characteristics and functions performed by the tributary to which the wetland is adjacent along with the functions performed by the wetland and all other wetlands adjacent to that tributary" (ACOE and USEPA 2008). Consideration is given to:

1. "the extent to which the tributary and adjacent wetlands have the capacity to carry pollutants (e.g., petroleum wastes, toxic wastes, sediment),
2. the reduction of the amount of pollutants or flood waters that would otherwise enter traditional navigable waters,
3. the capacity to transfer nutrients and organic carbon vital to support downstream foodwebs, and

4. functions related to maintenance of downstream water quality such as sediment trapping.”

Thus the five wetlands identified above, along with their associated tributaries, are considered to have the potential for an effect that is more than speculative or insubstantial.

Wetlands at Argonne that are not ACOE/Section 404 jurisdictional and therefore regulated by DOE policy fall into two categories: those whose effects on Des Plaines River water quality are considered speculative or insubstantial (shown as JD3 in figure 2), and those with no surface water connection to the Des Plaines River or its tributaries (shown as JD4 in figure 2).

Several wetlands in the western portion of the site have a surface water connection to the South Branch of Freund Brook. These wetlands do not abut the stream but are connected to it by channels that are not “relatively permanent”. Thus they would require a significant nexus to be considered jurisdictional. Because of the long distances pollutants would be required to travel to reach the Des Plaines River, and the presence of intervening wetlands along the flow path, these wetlands are not expected to have more than a speculative or insubstantial effect on the chemical, physical, and biological integrity of the Des Plaines River. Two wetlands in the 800 Area are similarly connected to the tributary west of Building 200, which meets Sawmill Creek north of the Argonne site. There is also a wetland west of Building 240 that discharges to a large marsh (Tearthumb Marsh) north of the site. Both the inlet flow and outlet from Tearthumb Marsh appear to be less continuous than seasonal flow. None of these three wetlands are expected to have more than a speculative or insubstantial effect on the chemical, physical, and biological integrity of the Des Plaines River.

The remaining wetlands in Figure 2 have no surface water connection to the Des Plaines River. While several of these wetlands have no discernable surface outflow., many do have small outlet flows which dissipate in an upland area. These flows do not reach the Des Plaines River. Therefore, none of these wetlands have a significant nexus with the Des Plaines River.

Additional wetlands that occur on the Argonne site have not been mapped or numbered, generally due to their small size, and thus are not included in Figure 1. Some of these wetlands could be jurisdictional, and would require further evaluation before a separate determination can be made regarding their jurisdiction.

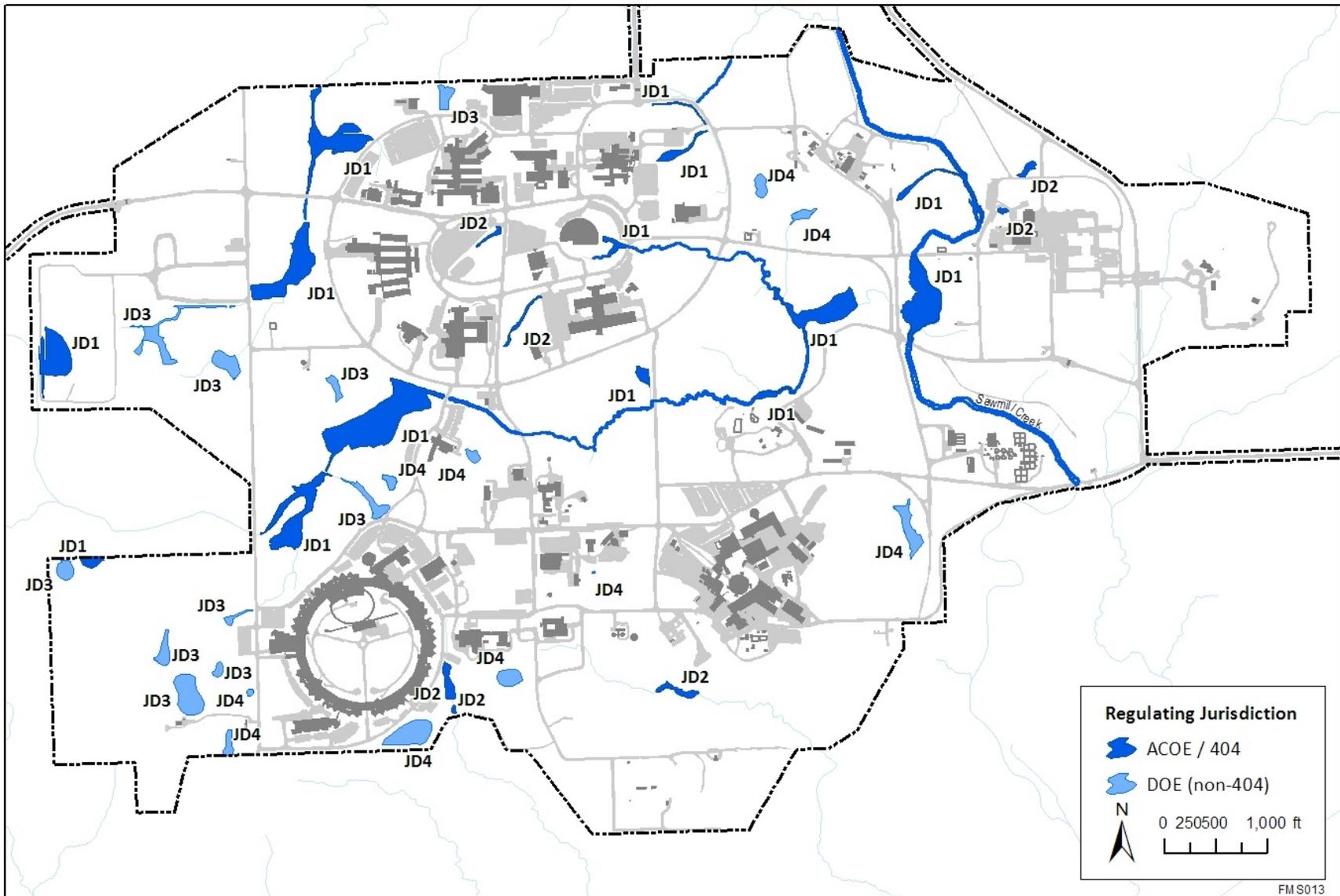


Figure 2. Provisional Jurisdictional Determinations of Argonne Wetlands.

Table 1. Provisional Jurisdiction of Argonne Wetlands

Wetland Number	Jurisdiction	Jurisdictional Criteria ^a				
		1d ^b	2b ^b	2c ^b	Spec. ^b	Isol. ^b
W001	ACOE		X			
W002	ACOE	X				
W003	ACOE			X		
W101	DOE					X
W102	DOE					X
W103	ACOE	X				
W201	ACOE	X				
W202	DOE				X	
W203 Filled during construction of Building 240.						
W204	ACOE	X				
W205	ACOE	X				
W206	ACOE		X			
W207	ACOE	X				
W208	ACOE		X			
W301	DOE				X	
W302	ACOE	X				
W303	ACOE	X				
W304	DOE				X	
W305	DOE					X
W306	ACOE	X				
W307	DOE					X
W308	ACOE		X			
W309	DOE					X
W310	DOE					X
W311	ACOE		X			
W312	ACOE		X			
W313	DOE					X
W401	DOE				X	
W402	ACOE	X				
W403	DOE				X	
W404	DOE				X	
W405	DOE				X	
W406 Drained during construction of the Advanced Photon Source; mitigated by expansion of W302.						
W407	DOE					X
W408	DOE					X
W409	DOE				X	
W400R ^c	DOE					X
W601	ACOE	X				
W602 Drained by failure of dam in 1996.						
W603	ACOE	X				

Table 1 (Continued)

Wetland Number	Jurisdiction	Jurisdictional Criteria ^a				
		1d ^b	2b ^b	2c ^b	Spec. ^b	Isol. ^b
W801	ACOE	X				
W802	DOE				X	
W803	ACOE	X				
W804	DOE				X	

^a Determinations based on ACOE and USEPA guidance (ACOE and USEPA 2008).
^b Criterion 1d: Wetlands that directly abut relatively permanent non-navigable tributaries of traditional navigable waters are jurisdictional.
Criterion 2b: Wetlands adjacent to non-navigable tributaries that are not relatively permanent are jurisdictional if they have a significant nexus with a traditional navigable water.
Criterion 2c: Wetlands adjacent to but that do not directly abut a relatively permanent non-navigable tributary are jurisdictional if they have a significant nexus with a traditional navigable water.
Spec.: Speculative or insubstantial effects on Des Plaines River.
Isol.: Isolated wetland- no surface water connection to Des Plaines River.
^c Created under ACOE permit to mitigate impacts of APS construction.

References

10 CFR 1022, *Compliance with Floodplain and Wetland Environmental Review Requirements* (August 27, 2003)

ACOE, 2007, U.S. Army Corps of Engineers Jurisdictional Determination Form Instructional Guidebook, Appendix D, Legal Definition of “Traditional Navigable Water”, May 30. Available at <http://www.usace.army.mil/Missions/CivilWorks/RegulatoryProgramandPermits/RelatedResources/CWAGuidance.aspx>.

ACOE and USEPA, 2008, Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in *Rapanos v. United States & Carabell v. United States*. December 2.

ACOE, 2014, Navigable Waters of the United States, Chicago District, U.S. Army Corps of Engineers. Available at <http://www.lrc.usace.army.mil/Missions/Regulatory/NavigableWaters.aspx>.

EVS, 2010, Argonne Hydrographic Features, map, produced by the Environmental Science Division, Argonne National Laboratory, July.

Executive Order 11990, *Protection of Wetlands*, (May 24, 1977)

FMS, 2009, Site Development Planning, produced by the Facilities Management and Services Division, Argonne National Laboratory, October 13, 2009 update.

Interagency Wetland Policy Act of 1989, Public Act 86-157, effective Aug. 12, 1989 (Formerly Ill.Rev.Stat.1991, ch. 96), Current through Public Act 90-25, apv. 6/23/97.

USGS, 1978, Sag Bridge Quadrangle, Illinois, 7.5 Minute Series (Topographic), U.S. Department of the Interior, Geologic Survey. 1963 map, photorevised 1973, photoinspected 1978.



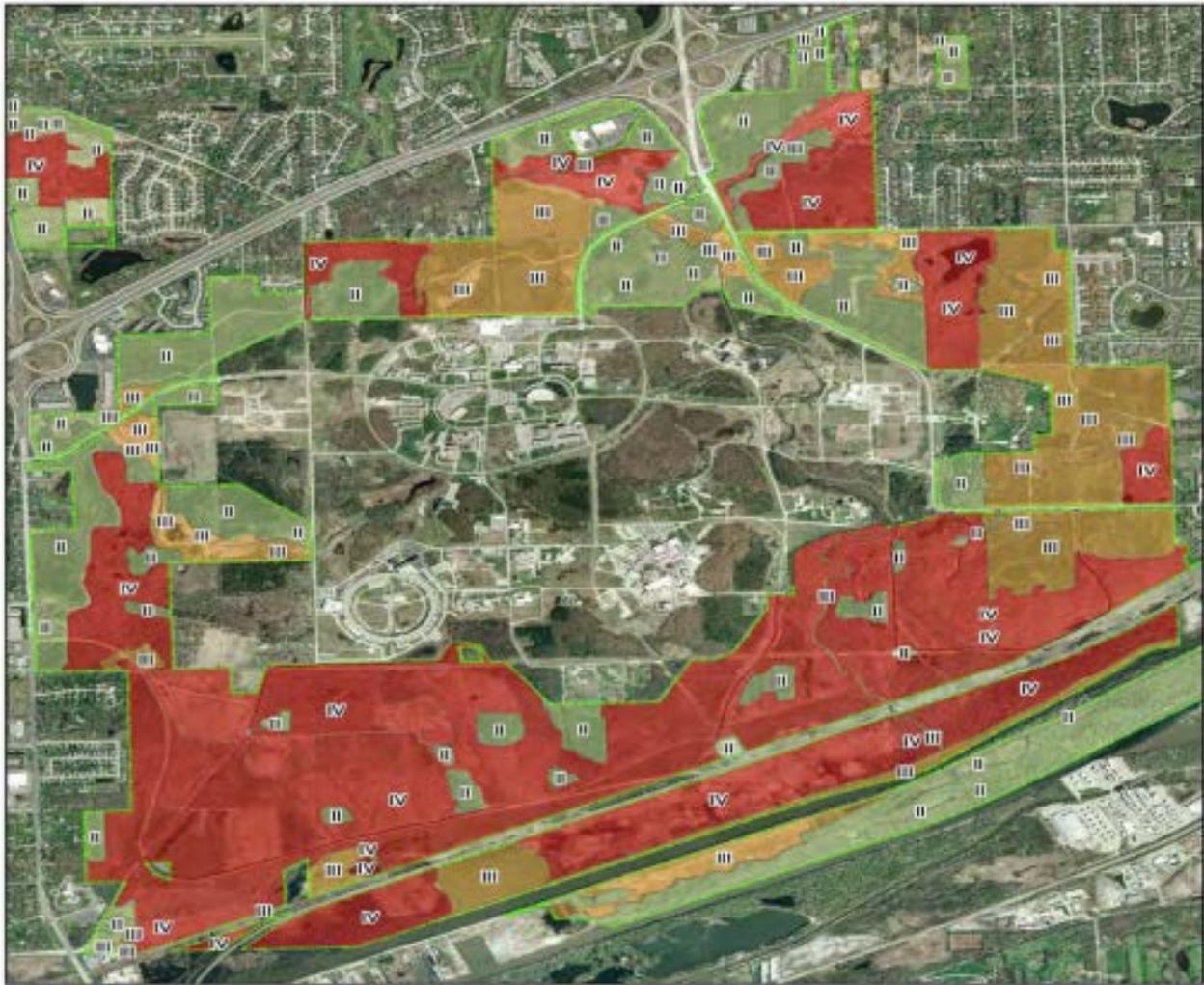
Environmental Science Division

Argonne National Laboratory
9700 South Cass Avenue, Bldg. 240
Argonne, IL 60439

www.anl.gov



Argonne National Laboratory is a U.S. Department of Energy
laboratory managed by UChicago Argonne, LLC



Waterfall Glen Forest Preserve
Ecosystem Classification Map July 2015

Legend

- Forest Preserve Boundary
- Ecosystem Classification**
- I
- II
- III
- IV



