APPLICATION FOR:

NATIONWIDE PERMIT 29 & INDIVIDUAL SECTION 401 WATER QUALITY CERTIFICATION

RELOCATION OF
BEAVER DAM DITCH LATERAL NO. 6 REGULATED DRAIN
(REVISED 8/15/2023)

Prepared for:

BETTY LLC
219 NORTH MAIN STREET, UNIT C
CROWN POINT, INDIANA 46307

Prepared by:

Earth·Source Inc

14921 Hand Road, Ft. Wayne, IN 46818
PH: (260) 489-8511 • Fax: (260) 489-8607

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1.0 EXECUTIVE SUMMARY

Betty LLC is proposing the relocation of Beaver Dam Ditch Lateral No. 6 for the expansion of a residential subdivision. The project site is located in Crown Point in Section 18 of Center Township (Township 34 North, Range 8 West) in Lake County, Indiana (Latitude: 41.403024°, -87.378646°). The proposed relocation is prompted by the requirement to move the drainage easement north, so the easement does not restrict the development area of the residential lots. The applicant is applying for a Nationwide Permit 29 and Individual Section 401 Water Quality Certification for the proposed impacts to 361 linear feet of Beaver Dam Ditch Lateral No. 6 to relocate the drain north.

Table 1: Section 401 Nationwide Permit 29 Specific Conditions

SPECIFIC CONDITIONS		CONDITION MET
(1)	The permittee must submit a complete Notification Form for any NWP that requires notification by this WQC	See Attached
(2)	The WQC does not authorize stream relocations associated with residential developments	NOT MET
(3)	This WQC does not authorize discharges for the construction of stormwater management facilities	Not Applicable
(4)	The installation of roads must comply with the Specific Conditions of NWP 14 of this WQC.	Not Applicable
(5)	The installation of utilities must comply with the Specific Conditions of NWP 12 of this WQC	Not Applicable
(6)	The activity must not permanently affect more than 0.25 of an acre of waters of the United States. See General Condition 13.	MET (0.05 acres)
(7)	The activity must not permanently affect more than 500 linear feet of streambank. See General Condition 14	MET (361 L.F.)
(8)	The placement of riprap or other bank stabilization material must be installed flush with the upstream and downstream bank and stream channel/lake bed elevations and grades	MET
(9)	The activity must not result in a permanent secondary effect to waters of the United States that, when combined with the primary effect, exceeds the area and length thresholds specified above	MET

Table 2: Section 401 Nationwide Permit General Conditions

GENERAL CONDITIONS		CONDITION MET
(13)	Activities that have a cumulative permanent impact to waters of the United States of more than 0.10 must comply with mitigation requirements.	No Mitigation Required
(14)	Activities that have a cumulative permanent impact to waters of the United States of more than 300 linear feet must comply with mitigation requirements.	No Mitigation Required

2.0 PROJECT INFORMATION

2.1 APPLICANT INFORMATION

Applicant

Mr. Thomas Fleming
Betty LLC
219 North Main Street, Unit C
Crown Point, Indiana 46307

voice (219) 663-0167

Agent

Mr. Eric P. Ellingson
Earth Source Incorporated
14921 Hand Road
Fort Wayne, Indiana 46818

voice (260) 489-8511
facsimile (260) 489-8607

2.2 PROJECT SUMMARY

Betty LLC is proposing the relocation of Beaver Dam Ditch Lateral No. 6 for the expansion of a residential subdivision. The project site is located in Crown Point in Section 18 of Center Township (Township 34 North, Range 8 West) in Lake County, Indiana (Latitude: 41.403024°, -87.378646°). The proposed relocation is prompted by the requirement to move the drainage easement north, so the easement does not restrict the development area of the residential lots. The applicant is applying for a Nationwide Permit 29 and Individual Section 401 Water Quality Certification for the proposed impacts to 361 linear feet of Beaver Dam Ditch Lateral No. 6 to relocate the drain north.

2.3 AVOIDANCE, MINIMIZATION & MITIGATION

The original site plan for the development is the same as the current development plan, but without the relocation of the Beaver Dam Ditch. It was later determined that the Beaver Dam Ditch is a county legal drain with a 75' easement that restricts the development within the residential lots. The applicant went to the County Surveyor's Office with a proposal to reduce the legal drainage easement, which would allow for the development of the residential lots without the need to relocate the drain. However, the County Surveyor's Office denied this request and noted that permitting for a drain relocation with the Army Corps of Engineers and Indiana Department of Environmental Management should not be an issue.

No other configuration of the site development was evaluated as the current 75' drainage easement covers over half of the north three (3) lots (366, 367 & 368). Reduction in lot size would not allow for enough developable space for each residential lot and eliminating lots does not meet the investment back expectations of the developer and investors. Without the relocation of the drain, the development of the three lots would not be possible.

The relocated drain will be used as mitigation for the impacts to the existing drain. The Beaver Dam Ditch was an agricultural drain used to drain a pond/wetland complex prior to the development of the surrounding residential communities. The drain is characterized by steep 2:1 side slopes. The north bank consists of mown lawn with a forested buffer and the south bank is a scrub-shrub/old-field slope and earthen berm. The relocated drain will be equal in length to the impacted drain. The width of the drain was widened to reduce erosion and sluffing within the channel. The side slopes will be stabilized with a native short grass prairie erosion control see mix (SHT 5 of 13; Table 3).

2.4 REGULATED IMPACT SUMMARY

Drain 1 – Beaver Dam Ditch Lateral No. 6 (reference attachments SHT 4 of 13)

Type of development:	Residential
Total length of drain on-site:	361 linear feet
Total length of regulated impact:	361 linear feet
Total proposed fill:	335 cubic yards

The existing 361 linear feet (2,274 square feet; 0.05 acres) of the ditch will be filled with clean dirt material. The new channel will be cut north of the existing channel and connect the existing channel to the pond. The side slopes will be excavated at a 2:1 slope and will be stabilized with erosional control blanket and seeded with an erosion control seed mix (Table 3). Due to the lack of vegetation within the channel, a 25' L x 12' W (0.007 acres) sediment trap will be installed 2 feet below the normal flow line upstream of the pond (10+50) to filter sediment prior to entering the pond.

Table 3. Erosion Control Seed Mix

Short Grass Prairie Erosion Control Mix (DP4) Approximate mix weight/acre 102.1250 LBS			
Scientific Name	**Common Name**	**% Seed**	**Indicator Status**
Temporary Cover Grasses			
Avena sativa	Seed Oat	27.37%	UPL
Lolium multiflorum	Annual Rye	72.63%	N/A
		100%	
Graminoids			
Bouteloua curtipendula	Side-Oats Grama	20.67%	FACU
Elymus virginicus	Virginia Wild Rye	2.55%	FACW
Schizachyrium scoparium	Little Bluestem	76.79%	FACU
		100%	
Forbs			
Asclepias syriaca	Common Milkweed	1.97%	UPL
Coreopsis lanceolata	Sand Coreopsis	14.81%	FACU
Echinacea purpurea	Purple Coneflower	4.48%	UPL
Oligoneuron rigidum	Stiff Goldenrod	11.52%	FACU
Penstemon digitalis	Foxglove Beardtongue	14.96%	FAC
Rudbeckia hirta	Black-Eyed Susan	41.68%	FACU
Verbena stricta	Hoary Vervain	7.85%	FACU
Zizia aurea	Golden Alexander	2.73%	FAC
		100%	

2.5 STATE ENDANGERED AND THEATENED SPECIES

According to correspondence with Taylor Davis Astle from the Indiana Natural Heritage Data Center on August 11, 2022, one (1) state threatened insect, Comet Darner (*Anax longipes*), was documented within 0.5 mile of the project site at Fancher Lake. It is recommended that work not be completed during peak nesting season, May, June, July, to avoid impact to the species (Appendix B).

3.0 MITIGATION PLAN

3.1 OBJECTIVES

The applicant is proposing to relocate 361 linear feet of the Beaver Dam Ditch north, so the 75' legal drainage easement of the drain will not impede the development of the proposed residential lots of the residential subdivision. The Beaver Dam Ditch is an excavated intermittent drain with steep side slopes constructed to drain an upstream wetland and pond and discharges west into a residential detention pond.

The drain will be relocated north of the existing drain and the relocated drain will be used as mitigation for the impacts to the existing drain. The width of the bottom of the drain was widened to 6 feet to allow for more gradual side slopes and to reduce erosion within the channel. The side slopes will be stabilized with a native short grass prairie erosion control seed mix. The wider channel will also allow for a greater potential for instream aquatic community. As the bottom of the channel is currently not vegetated and will not be vegetation, a sediment trap will be excavated near the outlet to prevent sediment entering the detention pond.

3.2 SITE SELECTION

On-site relocation is the only feasible option as compensatory stream mitigation at a mitigation bank is not available in the Kankakee Watershed and mitigation is not economically feasible through the Indiana Stream and Wetland Mitigation Program. Off-site permittee-responsible mitigation through creation of a stream mitigation area is not a viable option as the applicant does not own land elsewhere within the watershed to create or restore or enhance a stream.

The stream can only be relocated north on-site as this is within the common area of the residential subdivision and the drainage easement will not affect the residential developments. There is area available to maintain the same length of the drain and maintain connection with the detention pond. As the relocated stream is only a maximum of 30 feet north of the existing drain, the relocated drain will be located in the same soil type.

3.3 SITE PROTECTION INSTRUCTION

The drain is a county legal drain and will subject to regular maintenance deemed necessary by the County; therefore, no protection instrument will be placed on the drain by the applicant as there cannot be overlapping easements.

3.4 BASELINE INFORMATION

The existing stream is an intermittent linear channel excavated to drain an upstream wetland and discharges west to a detention pond. The channel has 2:1 side slopes and the channel averages 3 feet in width. The north bank consists of mown lawn with a forested buffer and the south bank is a scrub-shrub/old-field earthen berm. The relocated drain will be equal in length to the impacted drain.

The proposed stream relocation area is located just 30 feet north of the existing drain and is located in the same mapped soil unit, Pewamo Silty Clay Loam. The location of the relocated drain is currently a forested buffer side slope and upland old-field.

3.5 DETERMINATION OF CREDITS

The applicant proposes to construct the relocated channel at a 1:1 mitigation ratio. For the 361 linear feet of channel that will be backfilled, 361 linear feet of channel will be excavated for construction of the new channel. The channel side slopes will match the existing 2:1 ratio, but the channel bottom will be 6 feet wide rather than the average 3 feet wide to reduce bank erosion.

No additional mitigation is proposed.

3.6 MITIGATION WORK PLAN

For the relocation of the channel, the existing 361 linear feet of the ditch will be filled with clean dirt material. The new channel will be cut north of the existing channel and connect the existing channel to the pond. The side slopes will be at a 2:1 and will be stabilized with erosional control blanket and seeded with an erosion control seed mix. Due to the lack of vegetation within the channel, a 25’ L x 12’ W (0.007 acres) sediment trap will be installed 2 feet below the normal flow line upstream of the pond (10+50) to filter sediment prior to entering the pond.

3.6.1 SCHEDULE

The stream restoration area work shall begin following earthwork:

1. Layout staking
2. Clear construction access to work site, minimizing all disturbances
3. Excavate to proposed grades side slopes
4. Seeding of approved seed mix within and along on both sides of the drain
5. Implement invasive species treatment plan, if necessary

3.6.2 SITE PREPARATION

In preparation for seeding, the contractor will prepare the seedbed by discing and/or culti-mulching the restoration site. The seed will be applied following seedbed preparation in late spring or early summer, until June 30th. The methods of seed application may include (in order of preference) drilling with a Rangeland-type grass seed drill; broadcasting by hand or dropped from a dropseeder followed by incorporation by culti-packing; or

hydroseeding using a trace amount of fiber mulch in solution. Between July 1 and September 15, seed may be applied in the above manner provided that the site is irrigated by sprinkling to ensure proper germination and establishment. Between September 16 and freeze-up, seed may be applied as in the spring. After freeze-up, seed may only be applied by drilling with a Rangeland-type grass seed drill. Spring installation is preferred to avoid potential non-growing season flood events.

In the event that inclement weather or unsuitable soil conditions delay seeding (allowing the establishment of undesirable noxious species), a limited program of site-specific herbicide application using Round-up/Rodeo brand herbicide will be requested. The herbicide shall be spot or wick applied only to select, undesirable noxious species to allow the planting schedule to resume according to the construction plan. Fertilizers or amended fillers are not to be used. Any area needing temporary cover should be seeded with a temporary annual grass that does not interfere with the growth of permanent vegetation, or if exposed during the winter, the soil can be stabilized with erosion control blankets or with a bonded fiber matrix hydro-mulch until seeding occurs.

3.6.3 HERBACEOUS SEEDING

Following earthwork, the stream restoration side slopes will be seeded with an Erosion Control Seed Mix (Table 3).

Table 3. Erosion Control Seed Mix

Short Grass Prairie Erosion Control Mix (DP4) Approximate mix weight/acre 102.1250 LBS			
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Temporary Cover Grasses			
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		100%	
Graminoids			
Bouteloua curtipendula	Side-Oats Grama	20.67%	FACU
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Forbs			
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Rudbeckia hirta	Black-Eyed Susan	41.68%	FACU
Verbena stricta	Hoary Vervain	7.85%	FACU
Zizia aurea	Golden Alexander	2.73%	FAC
		100%	

3.6.4 IRRIGATION PLAN

No irrigation system is planned. However, should seeding occur during the summer seeding window, the contractor should irrigate the restoration area as needed to enhance

seed germination and establishment. The contractor may remove excess water from the restoration area, should conditions warrant, in order to provide acceptable working and/or growing conditions.

3.7 MAINTENANCE PLAN

Site maintenance will be performed as identified through the adaptive management process to ensure the success of the compensatory mitigation. Maintenance will begin following completion of the restoration plan and will continue throughout the monitoring period as needed.

3.9 PERFORMANCE STANDARDS

3.9.1 STREAM RESTORATION MINIMUM SUCCESS CRITERIA

To ensure successful achievement of the stated goals and objectives, the following performance standards are proposed for the stream restoration area.

1. Stream banks exhibit 90% vegetative cover
2. Ensure all stream banks are stable and show no signs of gully erosion from overland flow or excess bank scour from stream flows
3. The mean channel width, depth, channel slope, sinuosity, bankfull dimensions, and bank characteristics of the stream channel restoration areas shall match restoration design plans within the range of natural variability
4. The restoration area shall be free from *Elaeagnus umbellata* (autumn olive), *Elaeagnus angustifolia* (Russian olive), *Rosa multiflora* (multiflora rose), and *Lonicera maackii, L. morrowii, L. tatarica* (honeysuckle)
5. Native plant species excluding *Typha spp.* (cattail) must have an areal coverage of at least 70%
6. The combined surface areal coverage of *Phalaris arundinacaea* (reed canary grass), *Typha spp.* (cattail), and bare ground or a combination thereof shall not exceed 15%. Bare ground is defined as an area with less than 10% areal vegetative cover.

3.9.2 FINAL SUCCESS AND RELEASE CRITERIA.

These success criteria are expected to be achieved by the 3rd monitoring period. If the minimum success criteria are not being met after the 3rd monitoring period, a corrective action plan should be prepared to address deficiencies. A minimum of three (3) years of monitoring will be required by ACOE and IDEM. Upon achieving the above success criteria for two (2) consecutive monitoring periods, a delineation, including a survey of the boundary must be submitted for ACOE and IDEM approval. The delineation should be performed in compliance with the current version (Approved Regional Supplement) of the Army Corps of Engineers Wetland Delineation Manual (TRY-87-1).

3.10 MONITORING REQUIREMENTS

3.10.1 MONITORING PLAN

The monitoring plan outlines the proposed methods and rationale for collecting consistent and accurate data from the restoration area throughout the monitoring period. The monitoring plan establishes a process for gauging if and when the site has met the final success criteria established for the project. The execution of the monitoring plan also provides interim assessments of the restoration site and identifies the need to implement corrective measures when needed.

To track the progress of restoration success, an annual monitoring report will be prepared at the end of each growing season and submitted to ACOE and IDEM by December 31 of that year. The report will assess the progress of the restoration area toward achieving the established success criteria, document all management actions carried out, and recommend further management activities as needed.

3.10.2 TIMING

The monitoring period shall begin the growing season following completion of the planting plan. The restoration site shall be monitored annually, between April 15 and October 1. The purpose of the site visit is to: 1) record soil and hydrologic conditions; 2) identify any management requirements for the current growing season; 3) comprehensive vegetative sampling; 4) review of the functional status of the restoration area.

3.10.3 DURATION

The entire restoration site must be monitored at each field visit. The restoration will be monitored until the site meets the minimum success criteria for two (2) consecutive monitoring periods within a three (3) year period.

3.10.4 SAMPLING METHODS

Non-biased sampling methods will be implemented to quantify success in three strategic areas: vegetation development, hydrology establishment and site stabilization. Permanent straight-line sampling transects will be established across each proposed section. Transects will sufficiently represent all plant associations within the restoration area. The exact location of each transect will be indicated on a map of the restoration site provided with the monitoring report.

3.10.5 HYDROLOGY

Evidence of hydrology will be documented including inundation, saturation, and signs of inundation and saturation as defined in TRY-87-1 and approved Regional Supplement or by the development/presence of an Ordinary High Water Mark (OHWM) as defined in Regulatory Guidance Letter (RGL) 05-05.

3.10.6 VEGETATION

Monitoring will consist of visual and quantitative observations of herbaceous and woody vegetation. Quantitative herbaceous sampling will be performed along permanent transects. Sampling along each transect will consist of randomly spaced ¼ square meter

quadrats. In addition, data collected by line-intercept along each transect will be used to compile a species inventory.

Sampling of woody vegetation, if present, will consist of stem density measurements within permanently established sample plots. The sample plots will typically consist of a 30- foot radius circle. In areas where the restoration site size does not allow a 30 feet radius circle, a modified sample plot of quantifiable size shall be substituted.

3.10.7 DATA ANALYSIS

Data collected from the herbaceous transect sampling will be evaluated to obtain relative frequency, relative cover, importance value and species wetness along each transect. Species inventory data will be evaluated using the Indiana Floristic Quality Assessment to show overall site diversity. Woody species, if present, will be evaluated to identify the presence of planted species and a total stem count to evaluate total percent survival.

3.10.8 PHOTOGRAPHS

Photographs will be taken along each transect from the same location annually. The location of these photographs will be indicated on a map of the restoration site.

3.10.9 ANNUAL REPORTS

Monitoring reports will be submitted to ACOE and IDEM no later than December 31 of each year. In compliance with Regulatory Guidance Letter (RGL) 08-03, the annual monitoring report submittal will not exceed 10 pages in length. The format for submitting annual monitoring reports as required by RGL 08-03 is provided below:

3.10.10 PROJECT OVERVIEW

1) ACOE and IDEM Permit Numbers
2) Name of party responsible for conducting the monitoring and the date(s) the inspection was conducted.
3) A brief paragraph describing the purpose of the approved project, acreage and type of aquatic resources impacted, and restoration acreage and type of aquatic resources authorized to compensate for the aquatic impact.
4) Written description of the location, any identifiable landmarks of the restoration project including information to locate the site perimeter(s) and coordinates of the restoration site (expressed as latitude, longitudes, UTMs, state plan coordinate system, etc.).
5) Dates the restoration project commenced and/or was completed.
6) Short statement on whether the performance standards are being met.
7) Dates of any recent corrective or maintenance activities conducted since the previous report submission.
8) Specific recommendations for any additional corrective or remedial actions.

14921 Hand Road, Fort Wayne, IN 46818 PH: (260) 489-8511 FAX: (260) 489-8607

3.10.11 REQUIREMENTS

A list of the monitoring requirements and performance standards, as specified in the approved restoration plan and special conditions of the permit will be included. A table shall be used to compare the performance standards to the conditions and status of the developing restoration site to evaluate whether the restoration project is trending towards success or has successfully achieved the established performance standards.

3.10.12 SUMMARY DATA

Summary data will be provided to substantiate the success and/or potential challenges associated with the restoration project. Photo documentation may be provided to support the findings and recommendations referenced in the monitoring report and to assist ACOE and IDEM in assessing whether the restoration project is successful for the monitoring period. Submitted photos will fit on a standard 8 ½ X11" piece of paper, be dated, and be labeled with the direction from which the photo was taken. The photograph sites will be identified on the appropriate maps. Maps will be provided to show the location of the restoration site relative to other landscape features. The locations of photographic reference points, transects, sampling data points, and/or other features pertinent to the mitigation plan, including observed habitat types will be indicated. In addition, the submitted maps will clearly demarcate the restoration site perimeter, which will assist IDEM in locating the restoration area during subsequent site inspections. Each map or diagram will fit on a standard 8½ X11" piece of paper and include a legend.

3.10.13 CONCLUSION

A general statement will be included describing the conditions of the restoration project site. If performance standards are not being met, a brief explanation of the difficulties and potential remedial actions proposed by the permittee, including a timetable will be provided. The ACOE and IDEM will ultimately determine if the restoration site is successful for a given monitoring period.

3.10.14 COMPLETION OF RESTORATION

When the required monitoring period has been fulfilled and the applicant believes that all of the restoration goals and performance standards have been met, the applicant may submit a proposed final monitoring report to ACOE and IDEM. To be released from monitoring, the applicant must demonstrate to ACOE and IDEM that the success criteria specified in the Project Specific Conditions have been met for two (2) consecutive monitoring periods within a three (3) year period, as supported by the annual monitoring reports. The final monitoring report will include a delineation of the restoration site. The delineation report shall include data sheets, a survey, and a map illustrating the area (in acres) of all restoration boundaries. If the ACOE and IDEM determine that the success criteria have not been met, then the applicant shall resume monitoring. If ACOE and IDEM confirm that the success criteria have been met, then the applicant may permanently discontinue monitoring after it receives written notification of this determination from ACOE and IDEM.

3.11 LONG-TERM MANAGEMENT PLAN

The Beaver Dam Ditch is a county regulated legal drain. After the release of the relocated drain, long-term maintenance will be the responsibility of the County.

3.12 ADAPTIVE MANAGEMENT PLAN

To best achieve the established success criteria for the mitigation area, the need for management activities will be evaluated on an ongoing basis based on observations and data gathered by the monitoring contractor during site monitoring visits. The monitoring contractor will be responsible for evaluating management needs, recommending corrective measures to the applicant, and documenting all such activities in the annual monitoring reports. The applicant will be responsible for arranging and financing the necessary management activities.

For the restoration to achieve the established success criteria, the necessary management activities may include, but are not limited to the ongoing eradication of invasive species (hand pulling, cutting or selective herbicide treatments); prescribed burning; modification of hydrology by altering grades; and the reseeding and/or replanting of vegetation.

3.13 FINANCIAL ASSURANCE

Ownership of Project Site.
Betty, LLC
219 N Main Street, Suite C
Crown Point, Indiana 46307

Responsible parties. Betty, LLC 219 N Main Street, Suite C, Crown Point, Indiana 46307 shall be responsible for contracting with the appropriate earthwork and landscape restoration contractors to ensure the success of the restoration project. Betty, LLC will be responsible for all financial and management aspects of the restoration project.

Financial Assurances. Betty, LLC 219 N Main Street, Suite C, Crown Point, Indiana 46307 has a contractual agreement with Austgen Equipment for the construction and completion of the restoration project.

3.14 OTHER INFORMATION

No other information has been determined necessary to provide.

4.0 SUMMARY OF ACRONYMS AND REFERENCES

Indicator Status Acronyms:

OBL (Obligate Wetland). Occur almost always in wetlands.
FACW (Facultative Wetland). Usually occur in wetlands.
FAC (Facultative). Likely to occur in wetlands or uplands.
FACU (Facultative Upland). Usually occur in uplands.
UPL (Obligate Upland). Occur almost always in uplands.
N/I (No Indicator). Indicator status unavailable.

References

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APPENDIX A

IDNR – NATURAL HERITAGE DATA

Division of Nature Preserves
402 W. Washington St., Rm W267
Indianapolis, IN 46204-2739

August 11, 2022

Ashlee Nichter
Earth Source, Inc.
14921 Hand Road
Fort Wayne, IN 46818

Dear Ashlee Nichter:

I am responding to your request for information on the threatened or endangered (T&E) species, high quality natural communities, and natural areas for the Beaver Dam Ditch Relocation Project located within Lake County, Indiana. The Indiana Natural Heritage Data Center has been checked and included you will find a datasheet with information on the T&E species documented within 0.5 mile of the project area.

The rare invertebrate occurrence does not occur precisely within the project site but has been observed within 0.5 mile of the proposed project area. It is expected that all precautions are taken to not to negatively impact the systems and features containing appropriate habitat outside of the project site. It is preferred that project work occur outside of peak wildlife nesting season: May, June, and July, and/or that proper BMPs are utilized to reduce impact to the rare invertebrate species.

If you need a review of the impacts to the animal species mentioned or a general environmental review, you can submit the project information to Christie Stanifer, DNR Environmental Coordinator, at environmentalreview@dnr.in.gov (preferred), or send to the street address below. For more help or guidance contact Christie Stanifer at cstanifer@dnr.in.gov.

Department of Natural Resources
Environmental Review
Division of Fish and Wildlife
402 W. Washington Street, Room W273
Indianapolis, IN 46204

The information I am providing does not preclude the requirement for further consultation with the U.S. Fish and Wildlife Service as required under Section 7 of the Endangered Species Act of 1973. If you have concerns about potential Endangered Species Act issues you should contact the Service at their Bloomington, Indiana office.

U.S. Fish and Wildlife Service
620 South Walker St.
Bloomington, Indiana 47403-2121
(812)334-4261

Please note that the Indiana Natural Heritage Data Center relies on the observations of many individuals for our data. In most cases, the information is not the result of comprehensive field surveys conducted at particular sites. Therefore, our statement that there are no documented significant natural features at a site should not be interpreted to mean that the site does not support special plants or animals.

Due to the dynamic nature and sensitivity of the data, this information should not be used for any project other than that for which it was originally intended. It may be necessary for you to request updated material from us in order to base your planning decisions on the most current information.

Thank you for contacting the Indiana Natural Heritage Data Center. You may reach me at (317)233-2558 if you have any questions or need additional information.

Sincerely,

Taylor Davis

Taylor Davis
Indiana Natural Heritage Data Center

Enclosure: invoice
datasheet

August 11, 2022

INDIANA HERITAGE DATA WITHIN 0.5 MILE OF:

Beaver Dam Ditch Relocation, Lake County

Sci. Name	Com. Name	State	Fed.	Date	Site
Insect Odonata					
Anax longipes	Comet Darner	ST		2017	FANCHER LAKE

Fed: E = Federal endangered; T = Federal threatened; C = Federal candidate species

State: SE = State endangered; ST= State threatened; SR = State rare; SSC = State species of special concern; SG = State significant; WL = watch list; no rank - not ranked but tracked to monitor status

APPENDIX B

SITE PHOTOGRAPHS

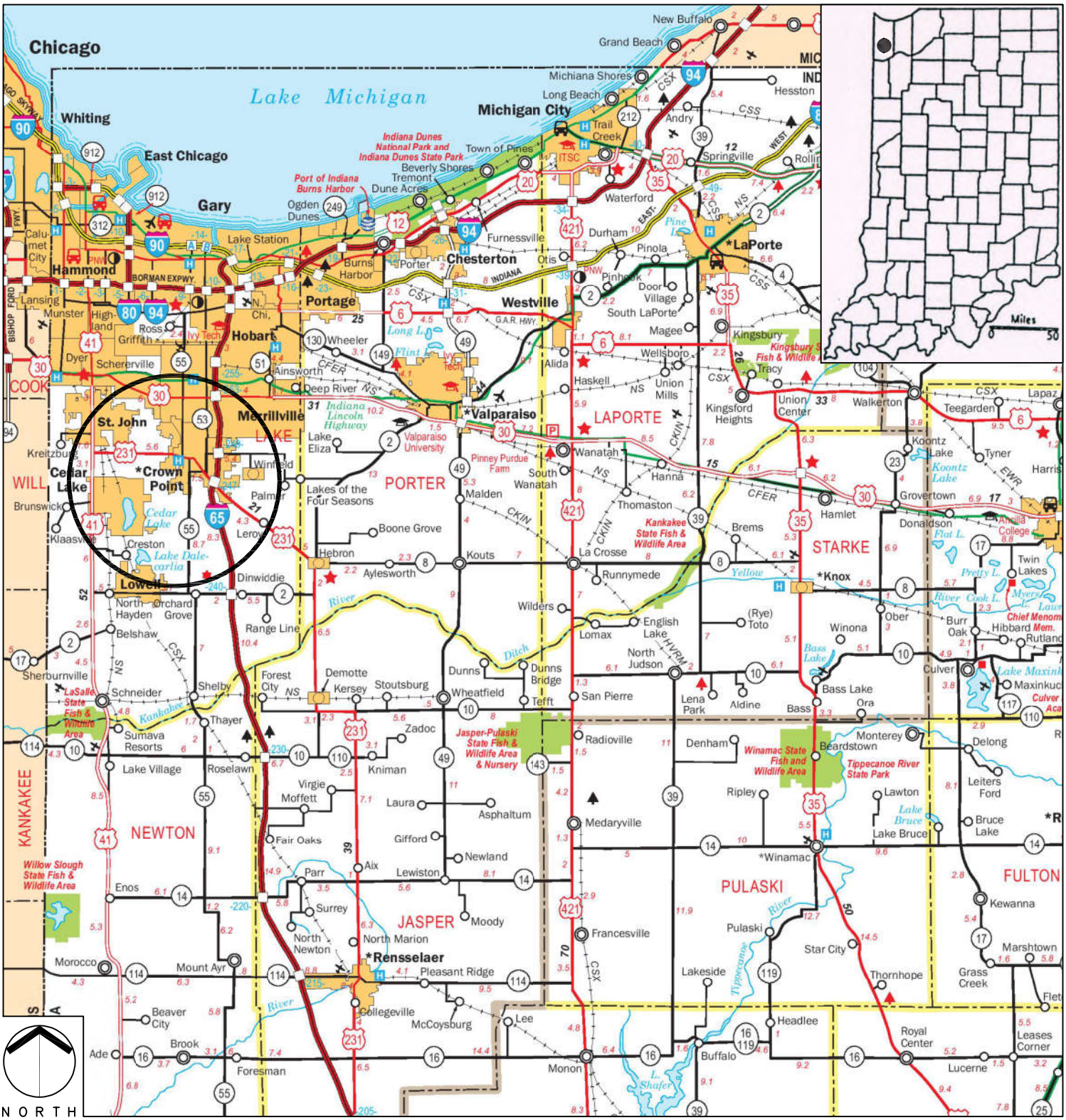
1. View south of the pond towards the drain outlet. 7/7/2022.

3. View east of residential lawn to Drain 1 at data point T2P2. 7/7/2022.

2. View east of Drain 1 near outlet to the pond. 7/7/2022.

4. View of the OHWM further east of data point T2P2. 7/7/2022.

GRAPHICS



Project Name: RELOCATION OF BEAVER DAM DITCH LATERAL NO. 6 REGULATED DRAIN	
Agent:	

Earth·Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

REGIONAL LOCATION MAP

0 10 MI 20 MI

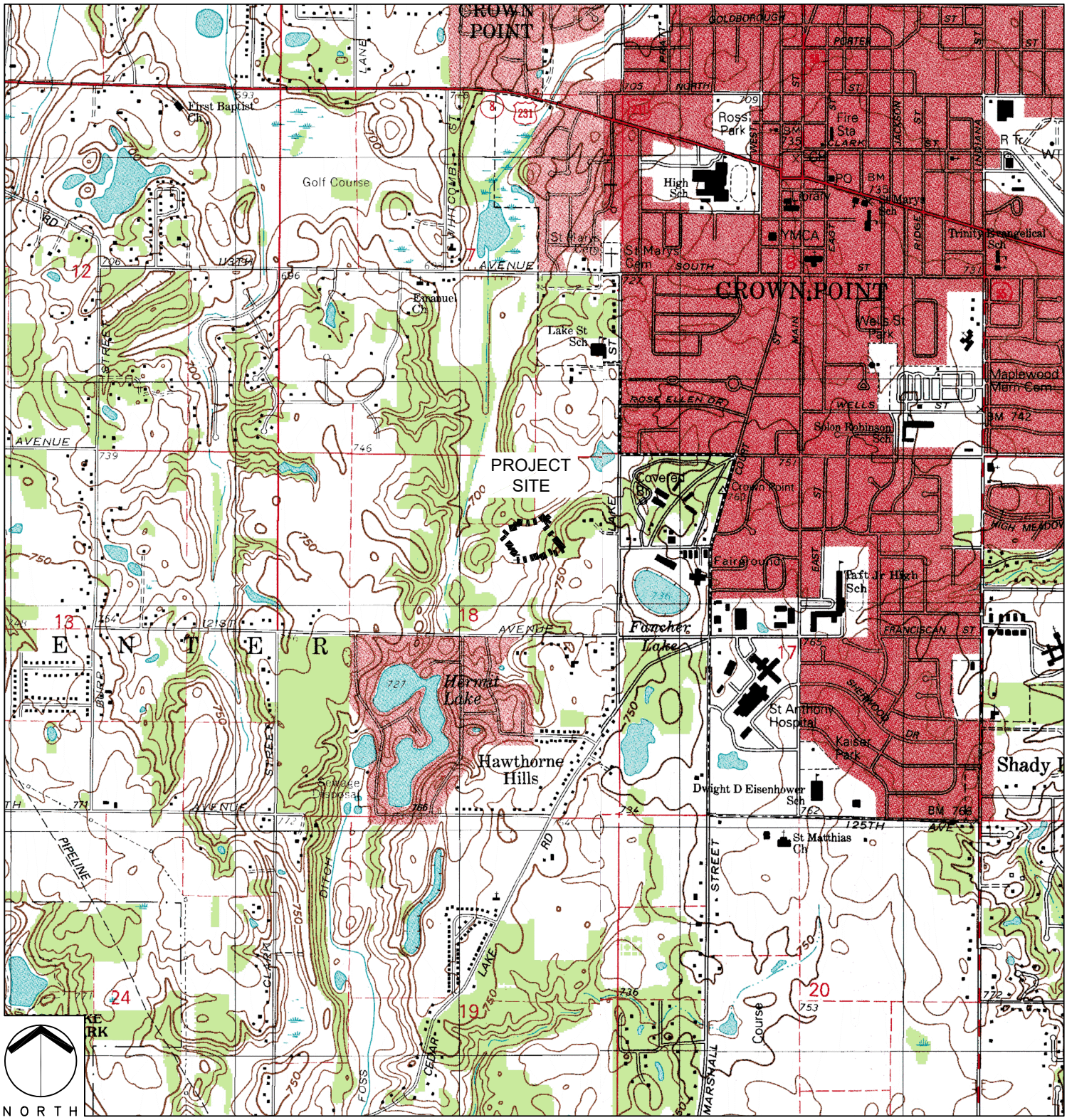
Scale 1 IN = 10 MI

Applicant:

BETTY LLC
219 N MAIN STREET, UNIT C
CROWN POINT, INDIANA 46307

State:	County:	
INDIANA	LAKE	
Township Name: CENTER		
Township:	Range:	Section:
T34N	R8W	SEC 18
Quadrangle: ST. JOHN (IN)		
Latitude/Longitude (WGS 84): 41.403024°, -87.378646°		
Date: 8-15-2023	Attachment: B1	

Basemap: Indiana Department of Transportation. Indiana Roadway Map 2021. Indianapolis, Indiana



Project Name: RELOCATION OF BEAVER DAM DITCH LATERAL NO. 6 REGULATED DRAIN	
Agent:	

Earth·Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

PROJECT LOCATION MAP

0 2,000 FT 4,000 FT

Scale 1 IN = 2,000 FT

Applicant:

BETTY LLC
219 N MAIN STREET, UNIT C
CROWN POINT, INDIANA 46307

State: INDIANA		County: LAKE
Township Name: CENTER		
Township: T34N	Range: R8W	Section: SEC 18
Quadrangle: ST. JOHN (IN)		
Latitude/Longitude (WGS 84): 41.403024°, -87.378646°		
Date: 8-15-2023		Attachment: B2

Basemap: U.S. Geological Survey. 1992. St. John Quadrangle. 1:24,000. Map. 7.5-Minute Series. U.S. Department of the Interior. Reston, VA.

N O R T H

Wetlands

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

Project Name:
RELOCATION OF BEAVER DAM DITCH
LATERAL NO. 6 REGULATED DRAIN

Agent:

Earth·Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

NATIONAL WETLANDS INVENTORY MAP

0 150 FT 300 FT

Scale 1 IN = 150 FT

Applicant:

BETTY LLC
219 N MAIN STREET, UNIT C
CROWN POINT, INDIANA 46307

State:	County:
INDIANA	LAKE

Township Name: CENTER

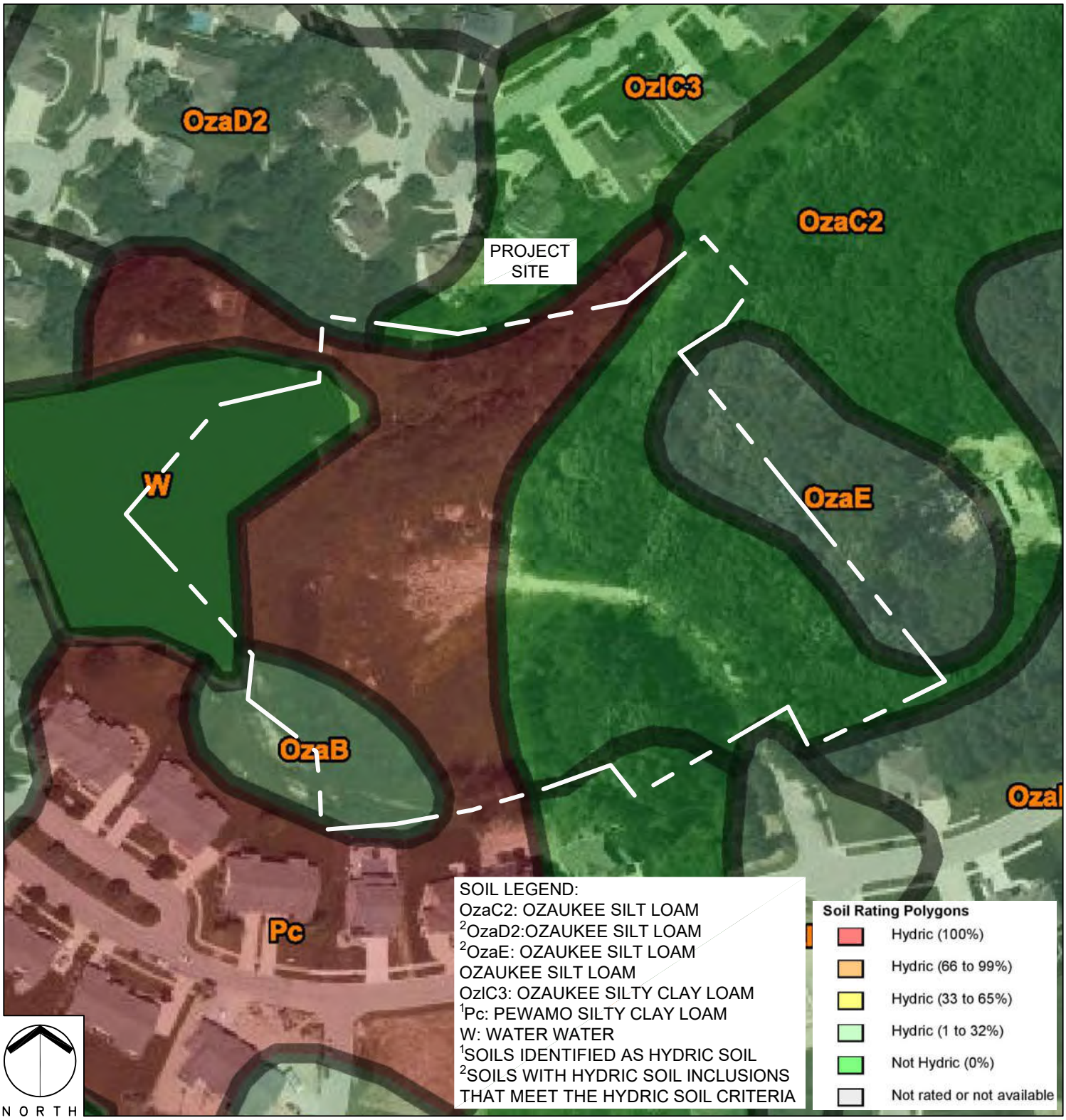
Township:	Range:	Section:
T34N	R8W	SEC 18

Quadrangle: ST. JOHN (IN)

Latitude/Longitude (WGS 84): 41.403024°, -87.378646°

Date:	Attachment:
8-15-2023	B3

Basemap: U.S. Fish and Wildlife Service. 2021. National Wetlands Inventory website. U.S. Department of the Interior, Fish and Wildlife Service. Washington, D.C. http://www.fws.gov/wetlands/.



Project Name:
RELOCATION OF BEAVER DAM DITCH LATERAL NO. 6 REGULATED DRAIN

Agent:

Earth·Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

LAKE COUNTY SOIL SURVEY MAP

0 150 FT 300 FT

Scale 1 IN = 150 FT

Applicant:

BETTY LLC
219 N MAIN STREET, UNIT C
CROWN POINT, INDIANA 46307

State:	County:
INDIANA	LAKE
Township Name: CENTER	
Township: T34N	Range: R8W	Section: SEC 18
Quadrangle: ST. JOHN (IN)	
Latitude/Longitude (WGS 84): 41.403024°, -87.378646°	
Date: 8-15-2023	Attachment: B4

Basemap: Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: http://websoilsurvey.sc.egov.usda.gov/. Accessed 7-5-2022.

Project Name:
RELOCATION OF BEAVER DAM DITCH LATERAL NO. 6 REGULATED DRAIN

Agent:

Earth Source Inc
14921 Hand Road, Fort Wayne, IN 46818
(260) 489-8511 Fax (260) 489-8607

WETLAND DELINEATION MAP

0 150 FT 300 FT

Scale 1 IN = 150 FT

Applicant:

BETTY LLC
219 N MAIN STREET, UNIT C
CROWN POINT, INDIANA 46307

State:	County:
INDIANA	LAKE

Township Name: CENTER

Township:	Range:	Section:
T34N	R8W	SEC 18

Quadrangle: ST. JOHN (IN)

Latitude/Longitude (WGS 84): 41.403024°, -87.378646°

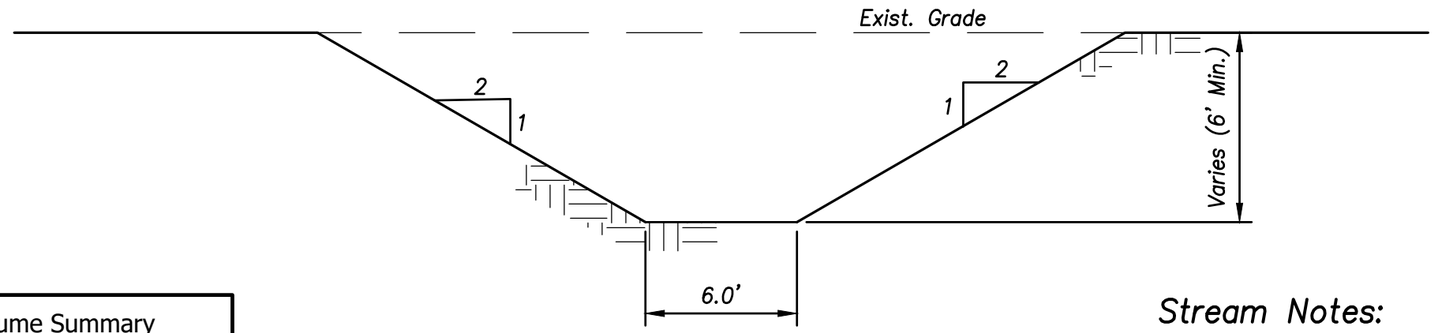
Date:	Attachment:
8-15-2023	B5

Basemap: Farm Service Agency. 2020 Aerial. National Agriculture Imagery Program. U.S. Department of Agriculture. Salt Lake City, Utah.

Relocation of

Beaver Dam Ditch Lateral No. 6 Regulated Drain

Section 18, Township 34 North, Range 8 West
Lake County, Indiana



Typical Ditch Cross-Section

Floodplain Volume Summary					
Station	Ex Vol	Pro Vol	Cum Ex Vol	Cum Pro Vol	Net Vol
10+05	0	0	0	0	0
10+25	12	45	12	45	33
10+50	28	56	40	100	60
10+75	26	54	66	154	88
11+00	24	33	89	187	98
11+25	26	33	116	221	105
11+50	24	33	139	254	115
11+75	23	33	162	287	125
12+00	21	33	183	320	137
12+25	21	33	204	353	149
12+50	22	33	226	386	160
12+75	26	33	253	420	167
13+00	30	33	283	453	170
13+25	31	33	313	486	173
13+50	30	33	343	519	176
13+61	12	14	355	533	178

Stream Notes:

1. Length of disturbance: 361 lineal feet
2. Volume calculations are at the Ordinary High Water Mark of the stream.

Construction Notes:

1. Contractor shall adhere to the rules, conditions, and specifications of the Lake County Drainage Board
2. Slope and cross section of relocated channel shall be as indicated on these drawings..
3. Stabilization measures shall be provided on all banks and land disturbance
4. All disturbed soil shall be permanently seeded with the following seeding mixture
   - Tall Fescue – 50 lbs/acre
   - White Clover – 2 lbs/acre
5. All banks exceeding 4:1 side slopes shall be stabilized with erosion control blanket. Blandet shall be 0.30 inch, 50 psf tensile strength, elongation shall not exceed 30%, 12 month longevity.
6. Land disturbing activities shall comply with storm water pollution prevention plan and General Storm Compliance Permit for Betty Court Subdivision.

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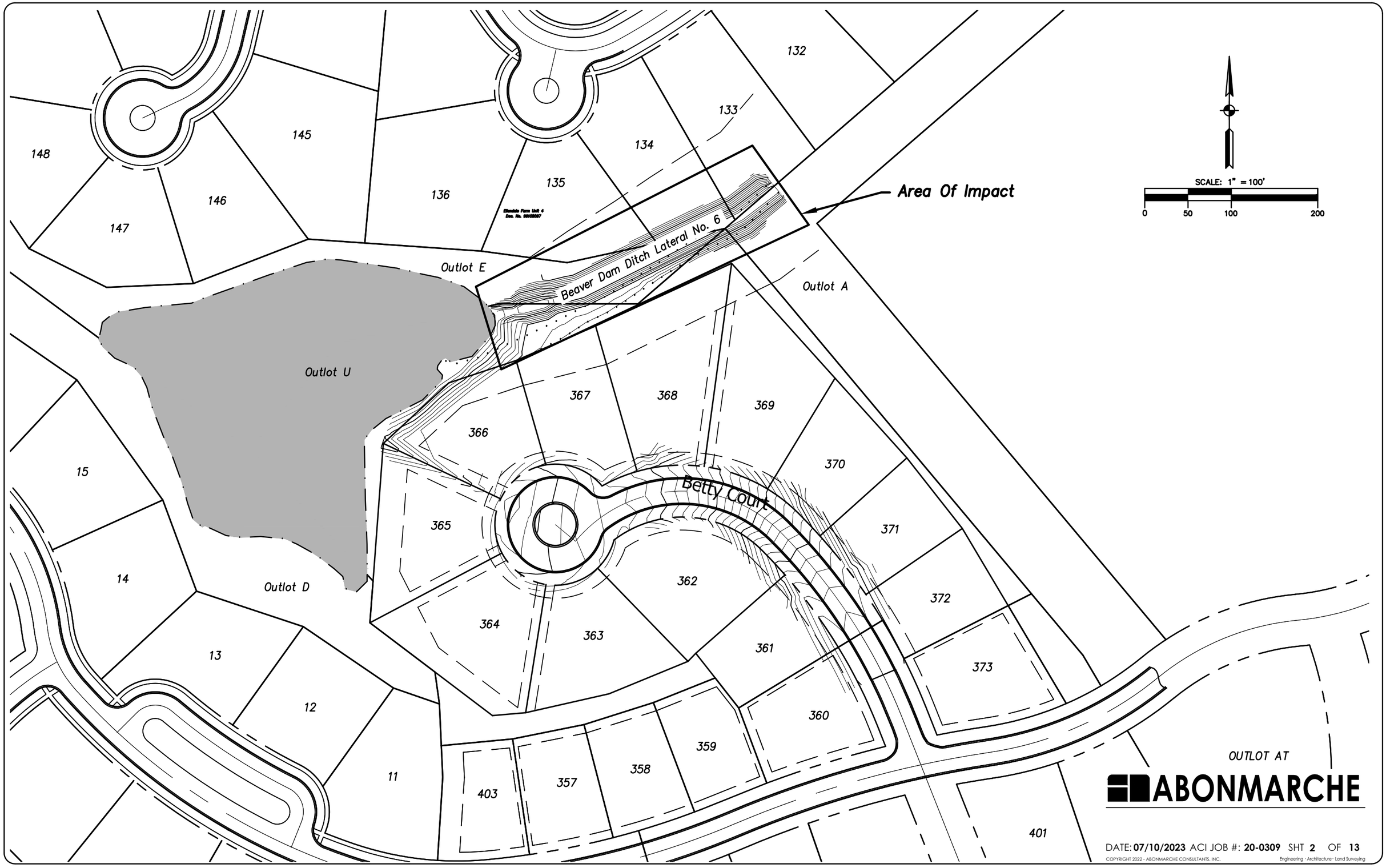

OUTLOT AT

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **2** OF **13**

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SCALE: 1" = 30'

0 15 30 60

136

135

134

Ellendale Farm Unit 4
Doc. No. 99108097

Existing Location 75'
Regulated Drain Easement

Match existing channel
location and elevation

Carroll's Knoll
Doc. No. 2014-006092
Outlot A

56.5'

67.4'

94.6'

71'

75'

45'

25'

Proposed Channel Top of Bank

Beaver Dam Ditch Lateral No. 6

Outlot E

Existing Edge of Water
Ellendale Pond

Approximate Existing end of
Beaver Dam Ditch Lat No. 6

46'

Existing Channel Top of Bank

46.2'

75'

Proposed Location 75'
Regulated Drain Easement

Existing Location 75' Regulated Drain Easement

49.5'

42.7'

Proposed 20' Access
Easement. Connects to
Future Betty Court

20'

369

30.0'

Outlot U

Future Betty Court Addition

366

367

368

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DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **3** OF **13**

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25'x12' Sediment trap.
Install 2 feet below normal flowline.

Centerline of Proposed Channel

10+00

11+00

12+00

13+00

13+61

Existing Channel

Existing Top of Bank

Wetland Section 1

Wetland Drain 2

SCALE: 1" = 30'

0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **4** OF **13**

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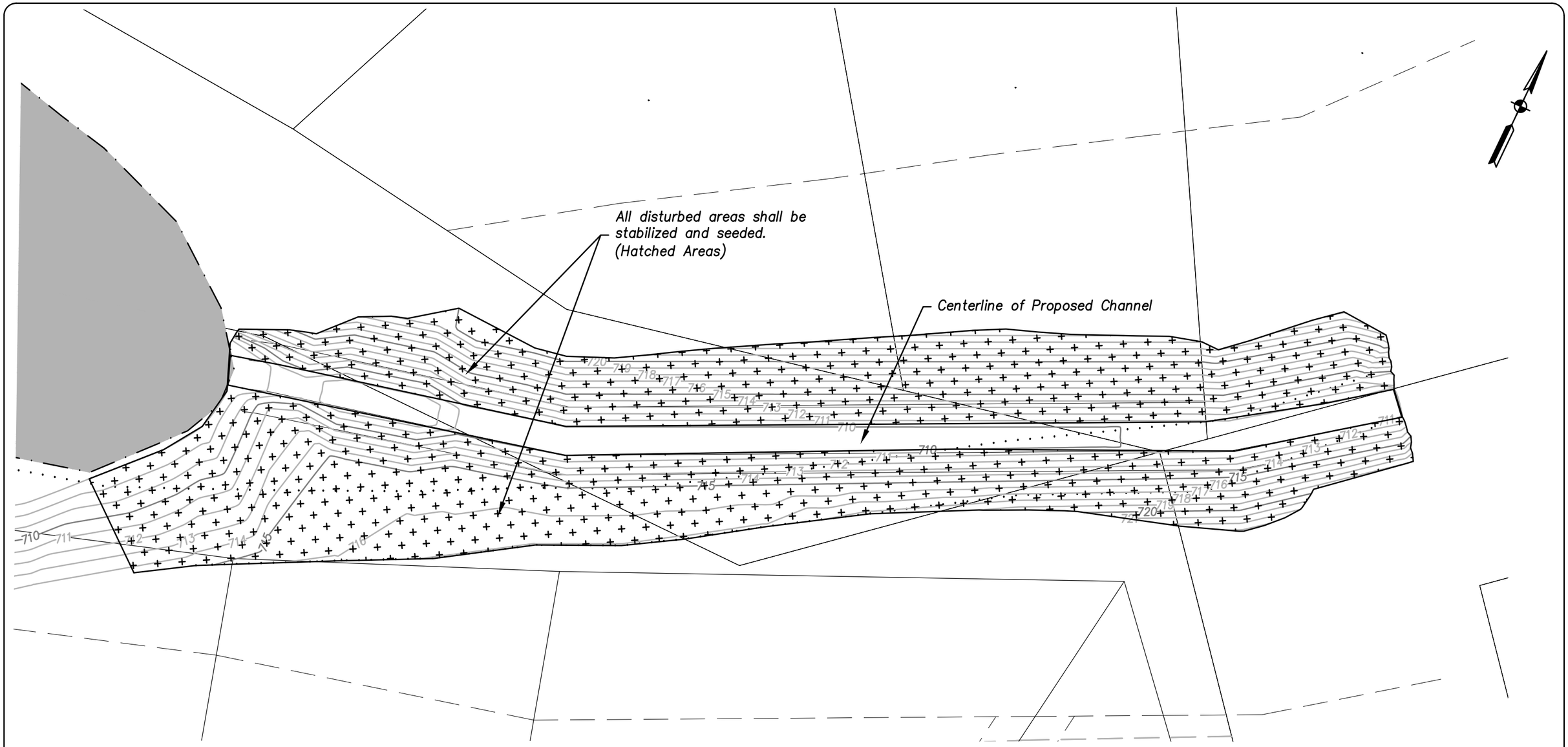

SCALE: 1" = 30'

0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **5** OF **13**

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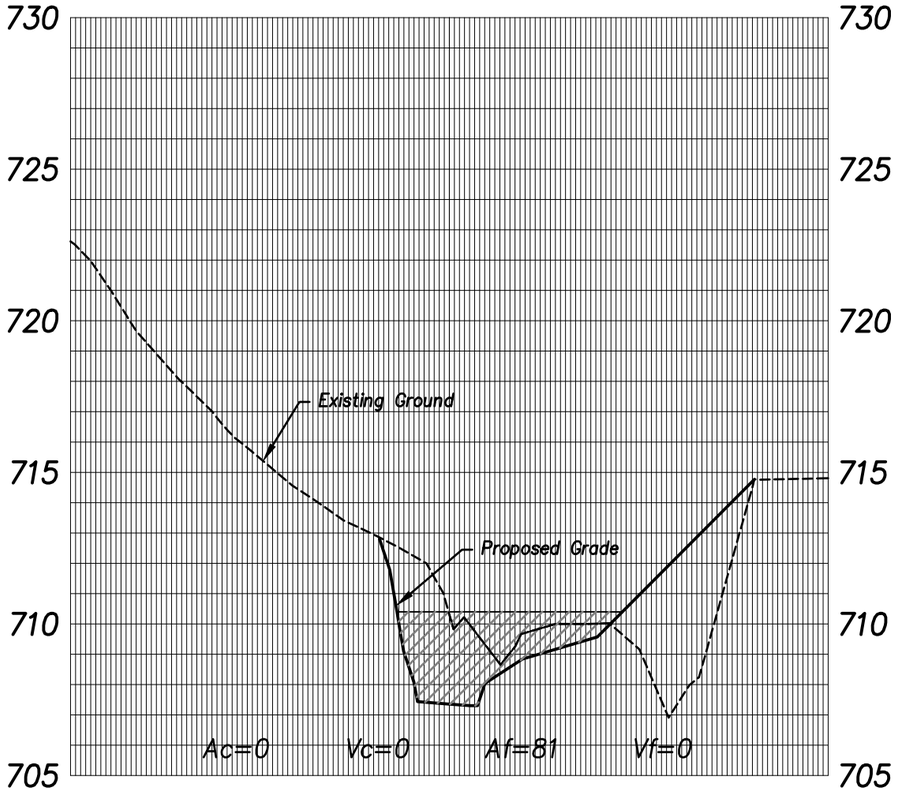
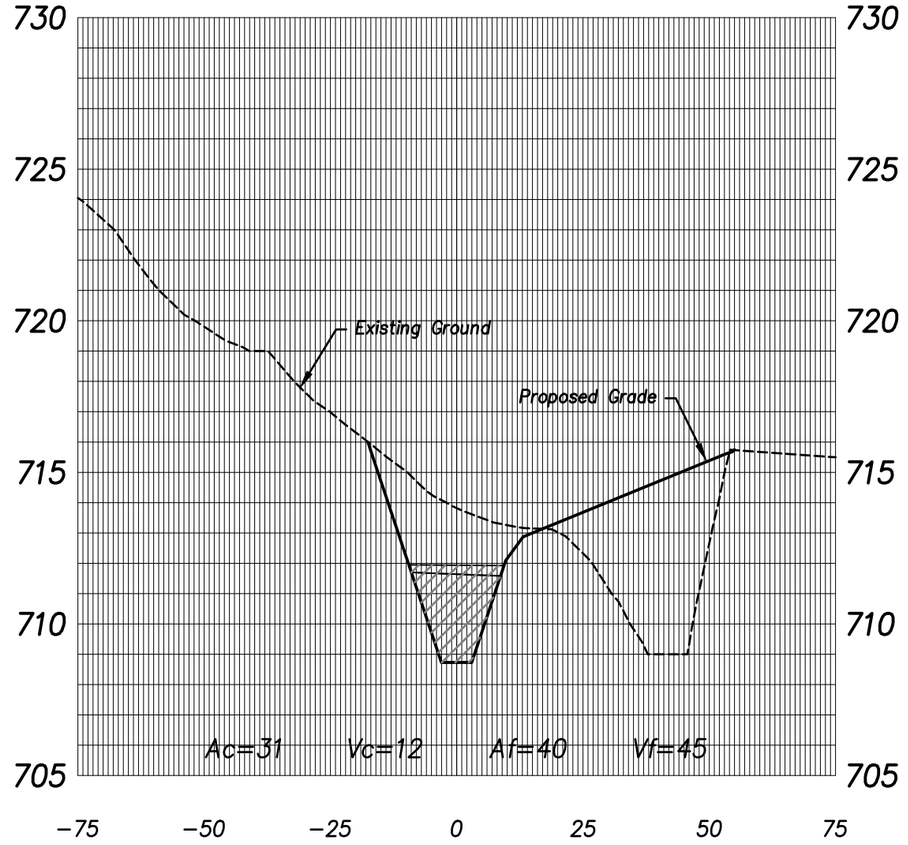
10+05



10+25



SCALE: 1" = 30'

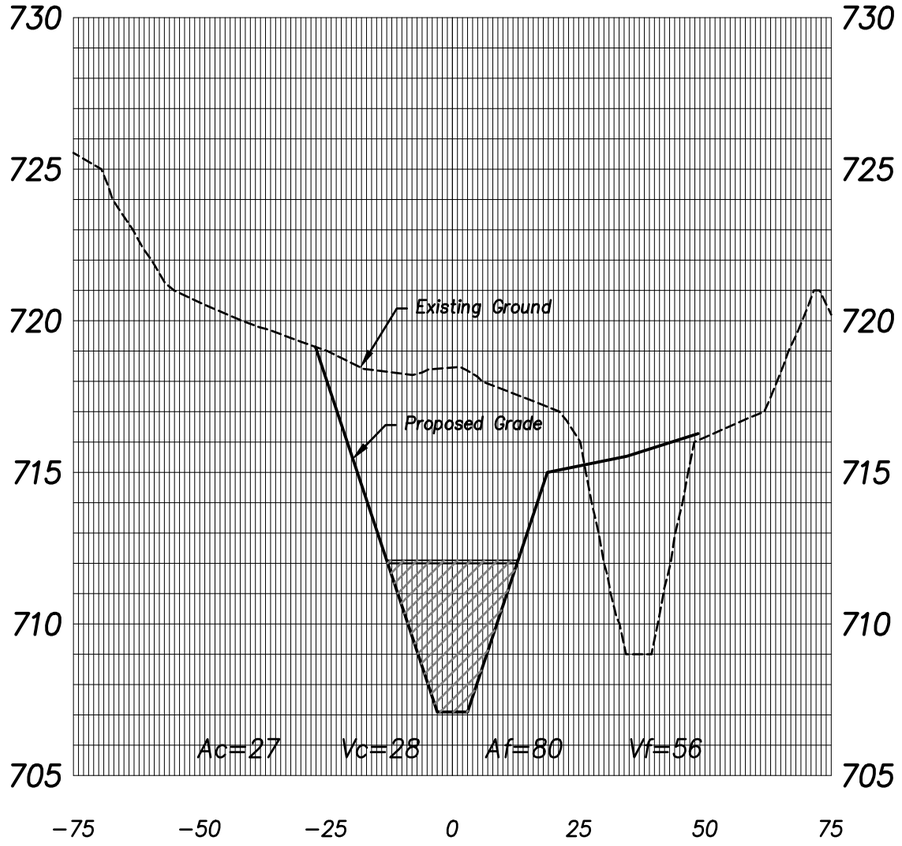
0 15 30 60

ABONMARCHE

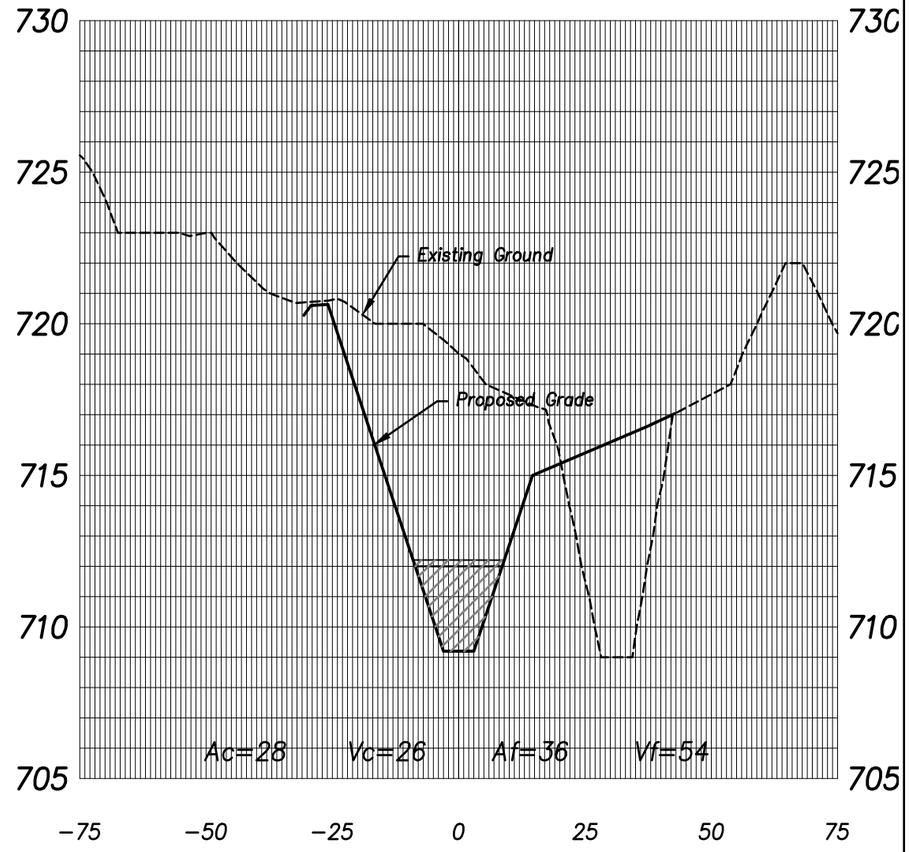
DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **6** OF **13**

Engineering · Architecture · Land Surveying

10+50



10+75



SCALE: 1" = 30'

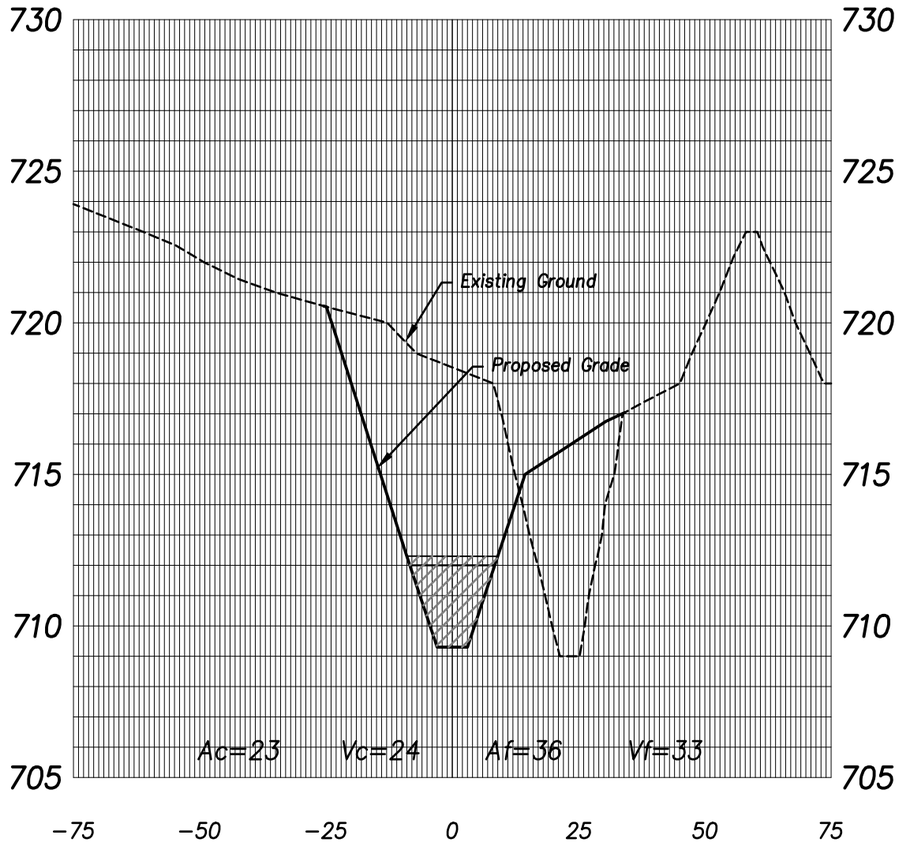
0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **7** OF **13**

Engineering · Architecture · Land Surveying

11+00



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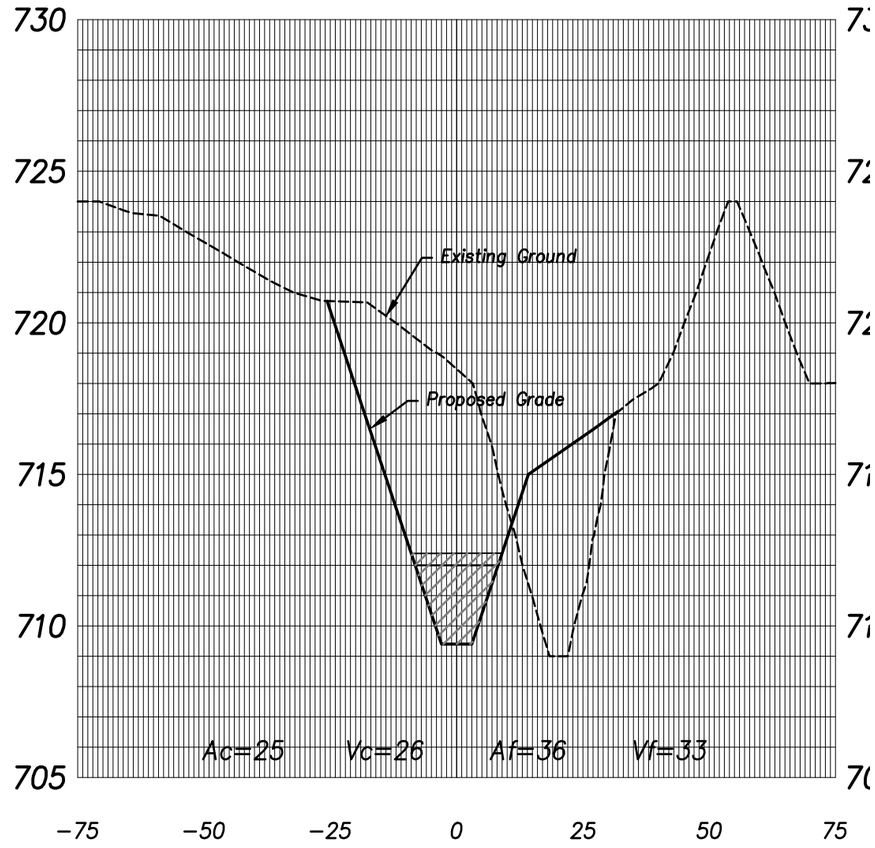


SCALE: 1" = 30'

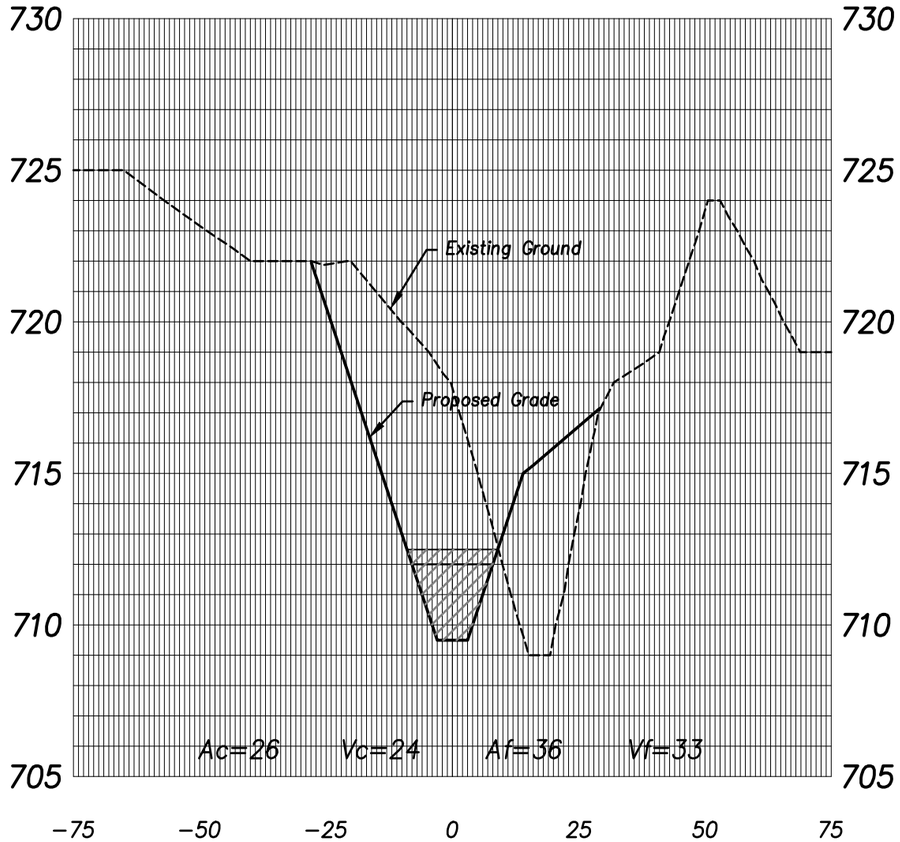
0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **8** OF **13**

Engineering · Architecture · Land Surveying

11+50



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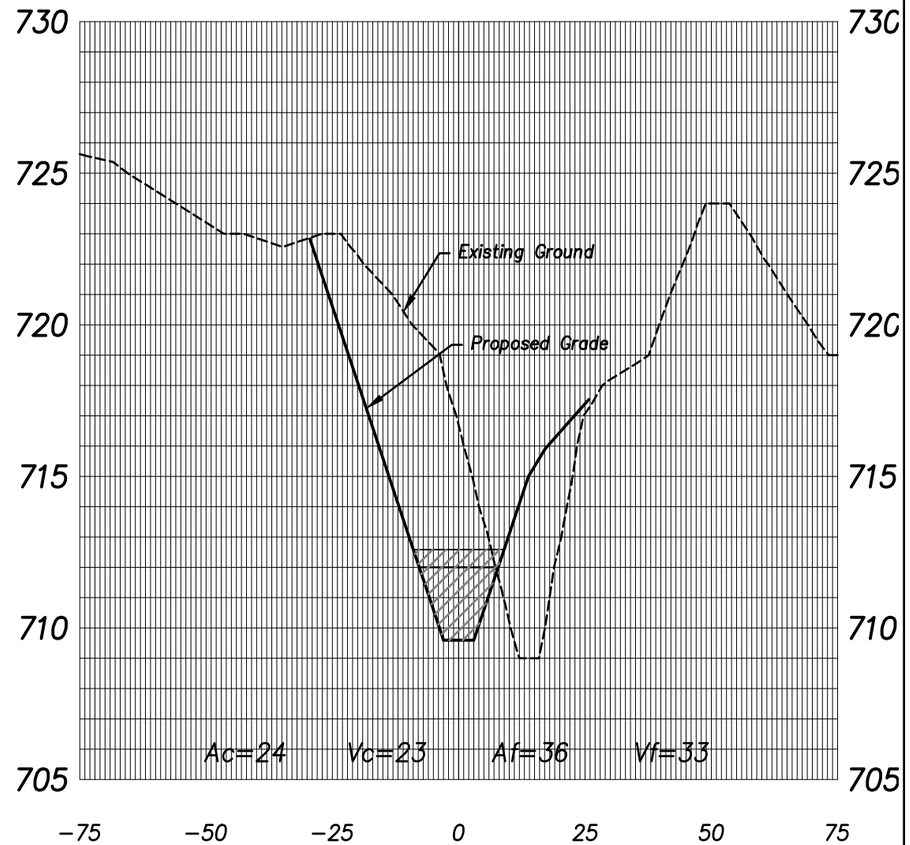


SCALE: 1" = 30'

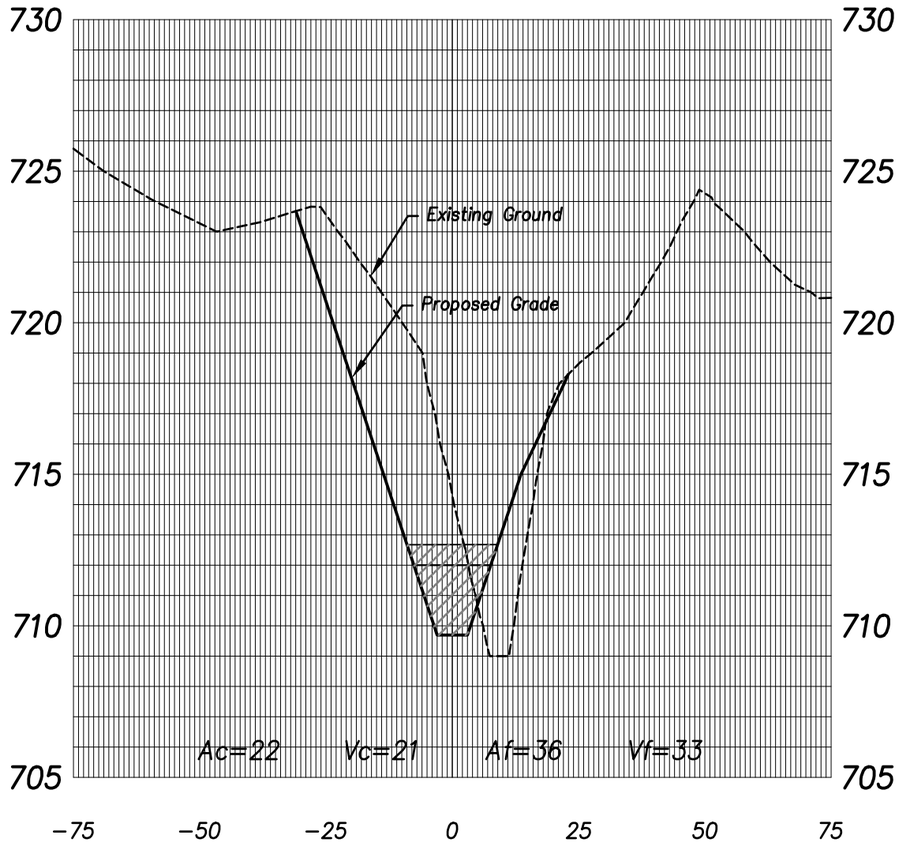
0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **9** OF **13**

Engineering · Architecture · Land Surveying

12+00



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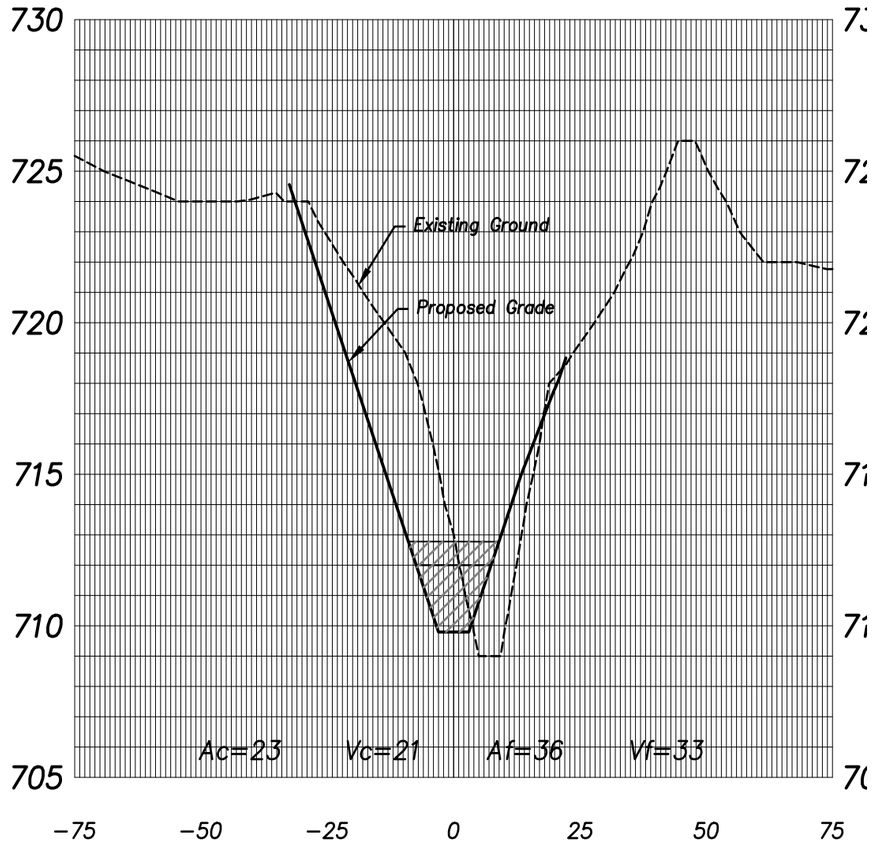

SCALE: 1" = 30'

0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **10** OF **13**

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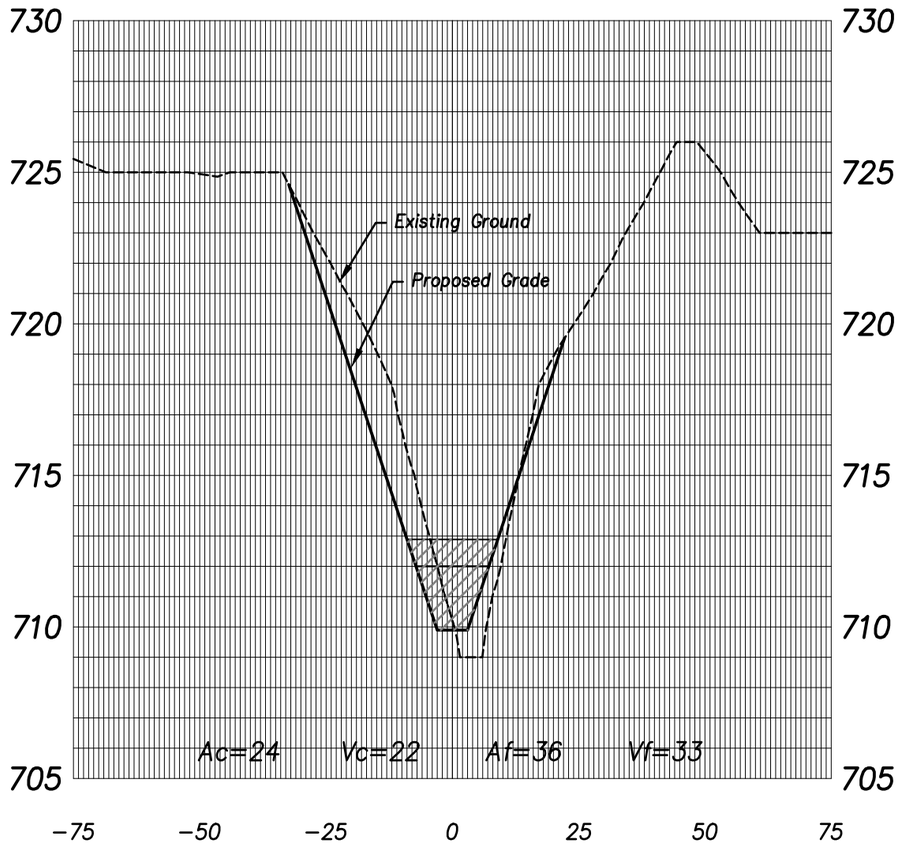
12+50



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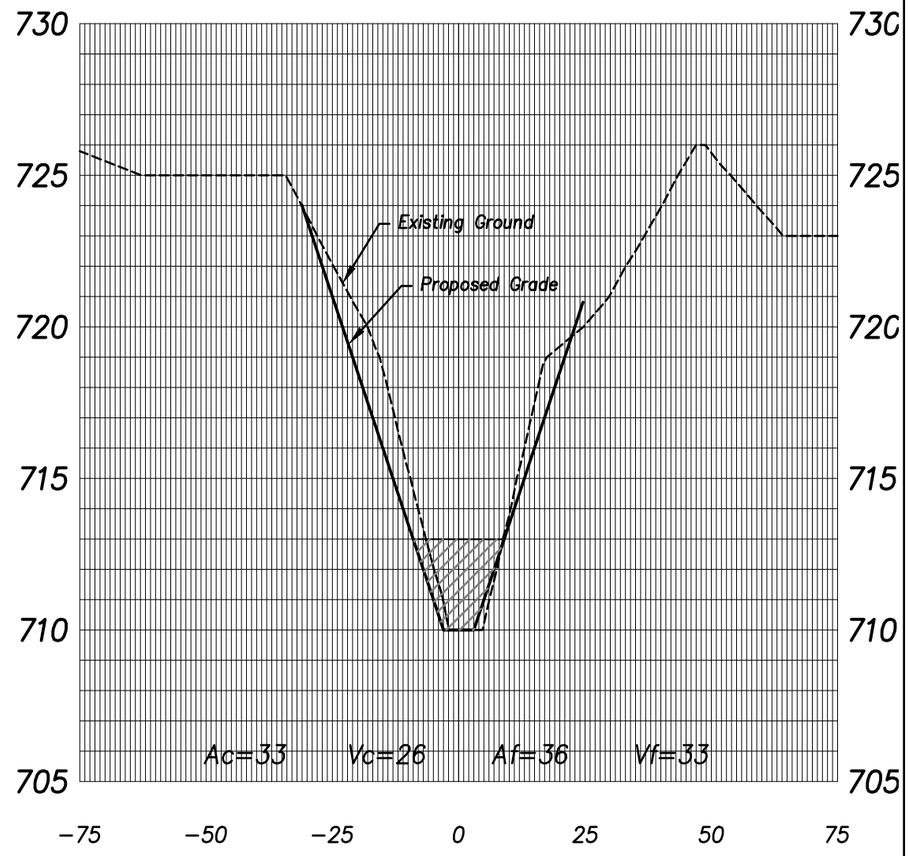


SCALE: 1" = 30'

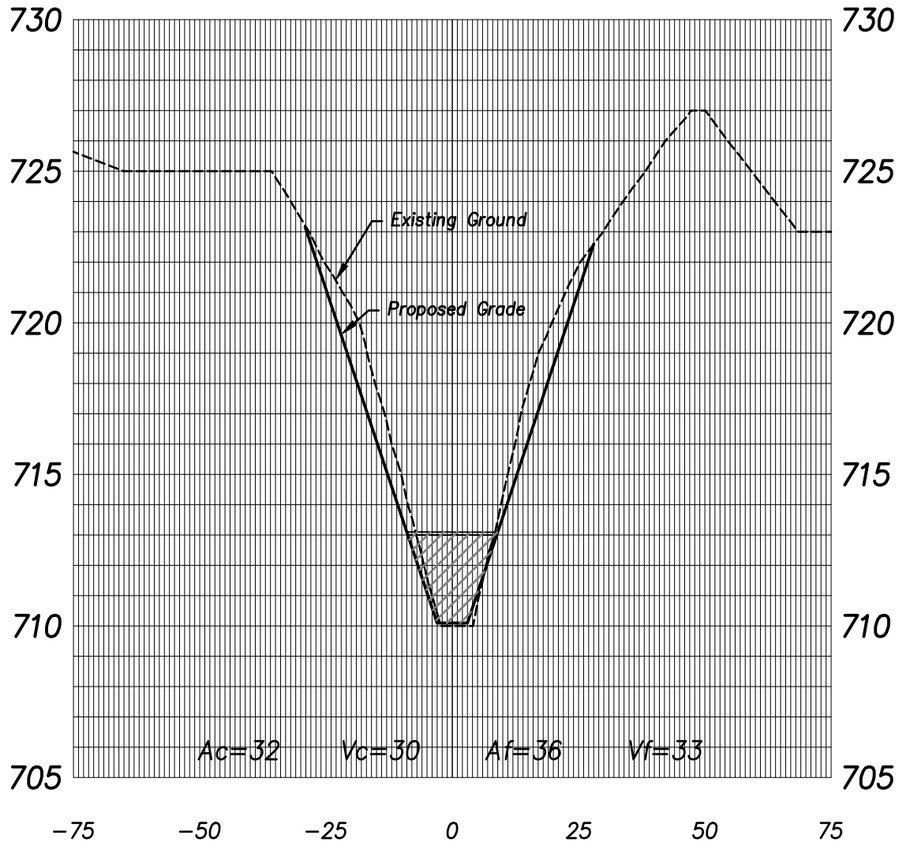
0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **11** OF **13**

Engineering · Architecture · Land Surveying

13+00



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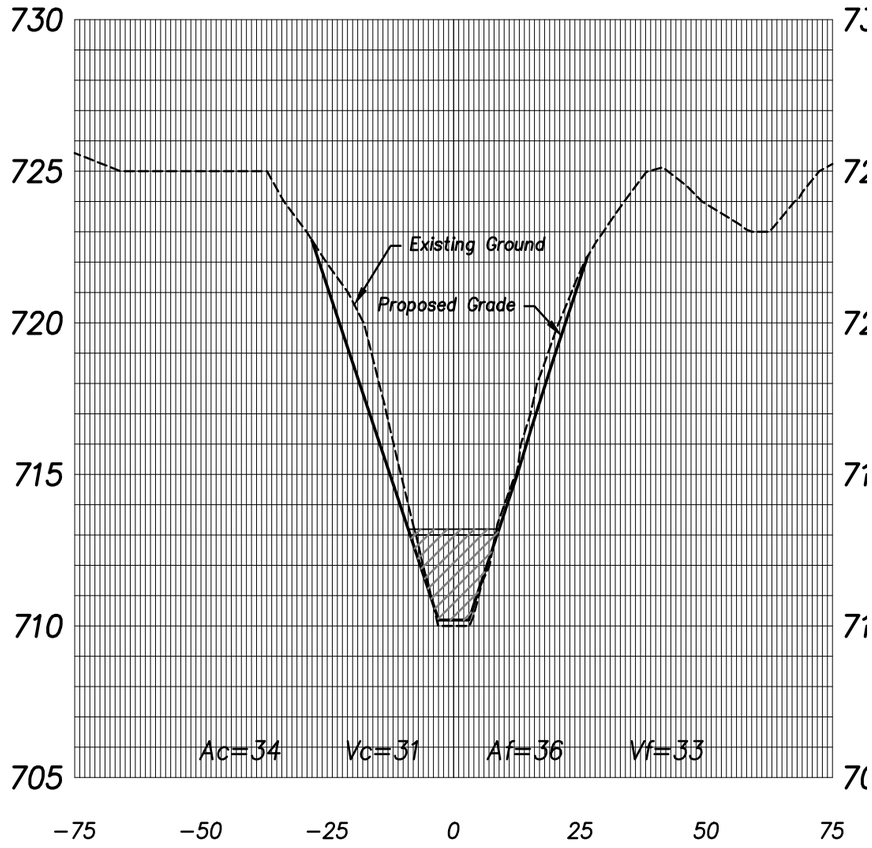


SCALE: 1" = 30'

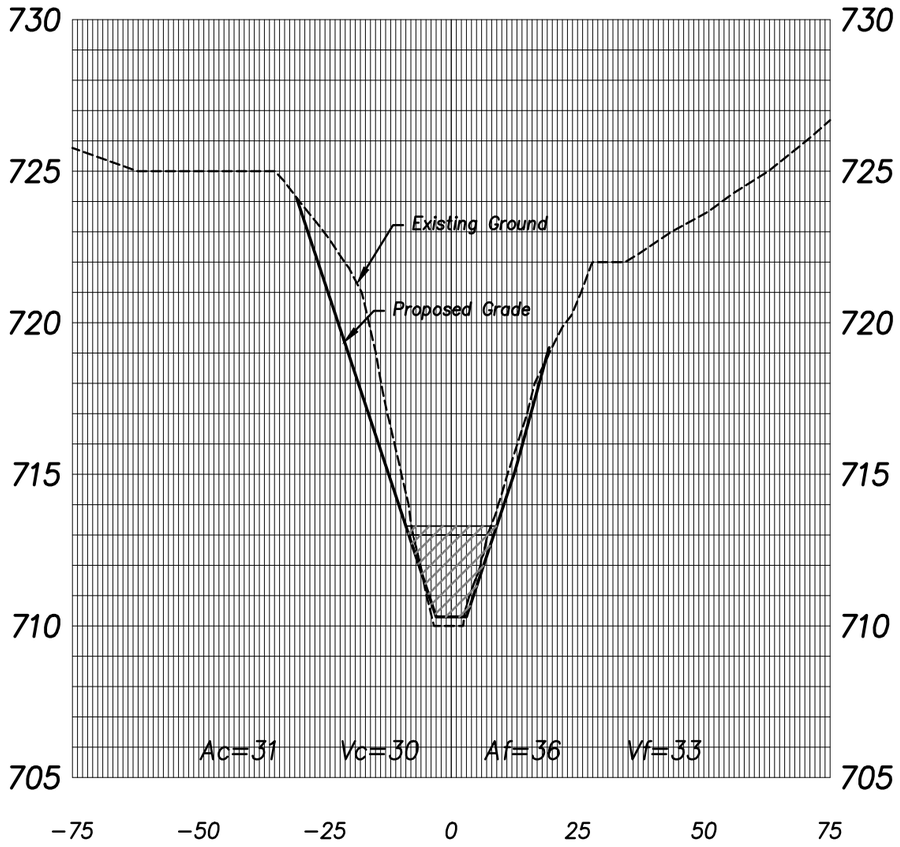
0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **12** OF **13**

Engineering · Architecture · Land Surveying

13+50



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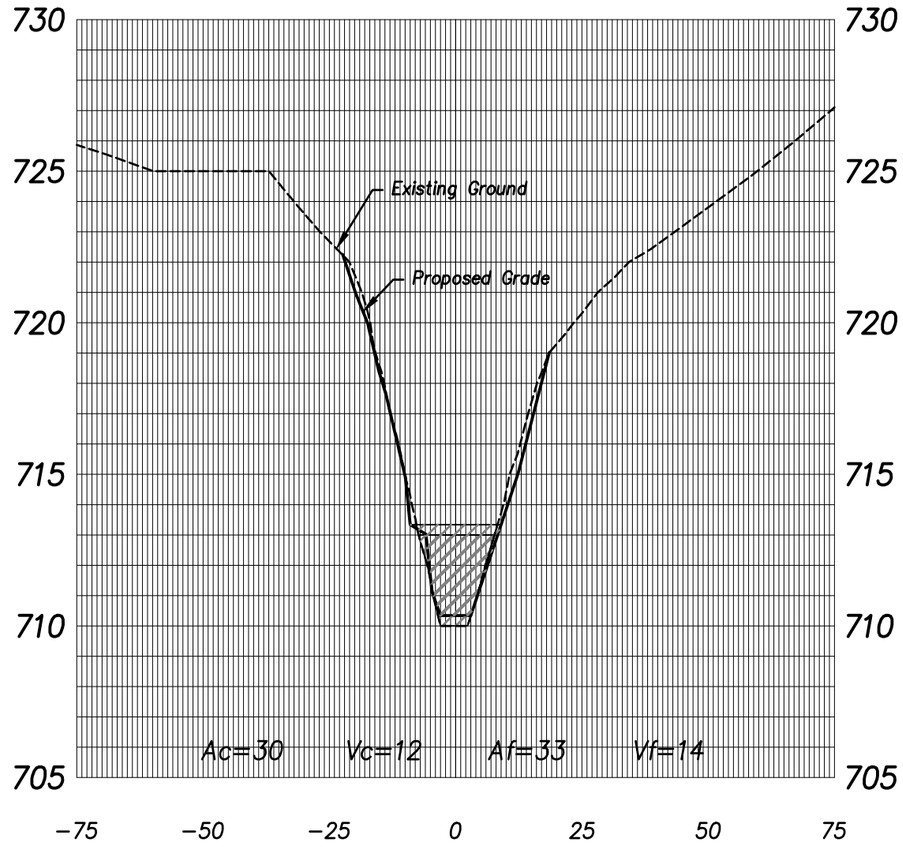

SCALE: 1" = 30'

0 15 30 60

ABONMARCHE

DATE: **07/10/2023** ACI JOB #: **20-0309** SHT **13** OF **13**

Engineering · Architecture · Land Surveying

LAND PLANNING - LANDSCAPE ARCHITECTURE
CONSTRUCTED WETLANDS - WATERSHED ANALYSIS - HABITAT DESIGN
WETLAND DELINEATION, MITIGATION AND MONITORING
SECTION 10, 401 AND 404 PERMITTING

14921 Hand Road, Ft. Wayne, IN 46818
(260) 489-8511 FAX: (260) 489-8607

THIS IS NOT A PERMIT

State of Indiana
DEPARTMENT OF NATURAL RESOURCES
Division of Fish and Wildlife
Early Coordination/Environmental Assessment

DNR#: ER-25921

Request Received: September 5, 2023

Requestor:
Jenny Orsburn
Indiana Department of Natural Resources Lake Michigan Coastal Program
Indiana Dunes State Park
1600 North 25 East
Chesterton, IN 46304

Project:
Relocation of 361' of Beaver Dam Ditch Lateral #6 / UNT Main Beaver Dam Ditch by moving the drainage easement north, Crown Point; LRC-2023-023

County/Site Info: Lake County

The Indiana Department of Natural Resources has reviewed the above referenced project per your request. Our agency offers the following comments for your information and in accordance with the National Environmental Policy Act of 1969.

If our agency has regulatory jurisdiction over the project, the recommendations contained in this letter may become requirements of any permit issued. If we do not have permitting authority, all recommendations are voluntary.

Regulatory Assessment:
Formal approval by the Department of Natural Resources under the regulatory programs administered by the Division of Water is not required for this project.

Natural Heritage Database:
The Natural Heritage Program's data have been checked. The State endangered Comet Darner (*Anax longipes*) has been documented within .5 mile of the project area.

Fish and Wildlife Comments:
Avoid and minimize impacts to fish, wildlife, and botanical resources to the greatest extent possible, and compensate for impacts. The following are recommendations that address potential impacts identified in the proposed project area:

A) Channel Relocation
Channel relocations are not recommended as they are difficult to design and have a high likelihood of failure or permanent loss of habitat and function. For these reasons, all reasonable alternatives must be considered and avoidance maximized during the project planning phase. In many cases, such efforts result in eliminating the need to relocate a stream as part of a project. If, after a complete examination of possible alternatives, relocation remains the best option, mitigation plans must be developed for the project to be considered. Experienced professionals with backgrounds in soils, botany, ecology, fish and wildlife management, fluvial geomorphology, and engineering should design all channel relocation projects. Channel should include the same amount of length as impacted and have equivalent or higher quality habitat along the new length of stream. Habitat improvements along the new channel should replant a minimum 35 foot wide woody or

herbaceous riparian buffer strip using a mixture of grasses, sedges, wildflowers, vines, shrubs, and trees native to Northern Indiana and specifically for stream bank/floodway stabilization purposes.

The use of a two-stage ditch is recommended in place of channel modification or channelization to help reduce flooding issues. A two-stage ditch system can create a more stable ditch, requiring less maintenance, creating fewer disturbances to the biology of the stream, and reducing nutrient pollution and excess sedimentation. The concept of a two-stage ditch was developed by observing natural processes that form stable streams and rivers. The design incorporates a floodplain zone, called a bench, along the ditch by removing the ditch banks roughly 2-3 feet above the stream bottom for a width of about 10 feet on each side. This allows the water to have more area to spread out onto during high flow events leading to decreased flow velocity and increasing the volume of water that the ditch can carry using the benches or floodplain areas for overflow. Benefits of a two-stage ditch over the typical agricultural ditch include both improved drainage function and ecological function because there are no impacts to the channel itself and the benches have the potential to support and maintain better habitat conditions. Consider coordinating with NRCS or The Nature Conservancy.

The additional measures listed below should be implemented to avoid, minimize, or compensate for impacts to fish, wildlife, and botanical resources:

1. Revegetate all bare and disturbed areas that are not currently mowed and maintained with a mixture of grasses, sedges, and wildflowers native to Northern Indiana and specifically for stream bank/floodway stabilization purposes as soon as possible upon completion; turf-type grasses (including low-endophyte, friendly endophyte, and endophyte free tall fescue but excluding all other varieties of tall fescue) may be used in currently mowed areas only. A native herbaceous seed mixture must include at least 5 species of grasses and sedges and 5 species of wildflowers
2. Minimize and contain within the project limits in-channel disturbance and the clearing of trees and brush.
3. Do not work in the waterway from April 1 through June 30 without the prior written approval of the Division of Fish and Wildlife.
4. Do not cut any trees suitable for Indiana Bat or Northern Long-eared Bat roosting (3 inches or greater diameter-at-breast height, living or dead, with loose hanging bark, or with cracks, crevices, or cavities) from April 1 through September 30.
5. All excavated material must be properly spread or completely removed from the project site such that erosion and off-site sedimentation of the material is prevented.
6. Minimize the movement of resuspended bottom sediment from the immediate project area.
7. Do not deposit or allow construction/demolition materials or debris to fall or otherwise enter the waterway. Any incidental fallen material or debris in the waterway must be removed within 24 hours using best management practices, particularly lifting material out of the waterway and not dragging it across the streambed whenever possible.
8. Appropriately designed measures for controlling erosion and sediment must be implemented to prevent sediment from entering the waterbody or leaving the construction site; maintain these measures until construction is complete and all disturbed areas are stabilized.
9. Seed and protect all disturbed streambanks and slopes not protected by other methods that are 3:1 or steeper with erosion control blankets that are heavy-duty, biodegradable, and net free or that use loose-woven / Leno-woven netting to minimize the entrapment and snaring of small-bodied wildlife such as snakes and turtles (follow manufacturer's recommendations for selection and installation); seed and apply mulch on all other disturbed areas.
10. Do not excavate or place fill in any riparian wetland.

Contact Staff:
Our agency appreciates this opportunity to be of service. Please contact me at RVanVoorhis@dnr.IN.gov or (317) 232-8163 if we can be of further assistance.

Rachel Van Voorhis **Date:** October 5, 2023
Rachel Van Voorhis
Environmental Coordinator
Division of Fish and Wildlife