



**US Army Corps
of Engineers®**

**Buffalo District
Permit Application
No. LRB-2025-01019**

PUBLIC NOTICE

Published: July 31, 2026
Expires: August 31, 2026

Interested parties are hereby notified that the U.S. Army Corps of Engineers (USACE), Buffalo District has received an application for a Department of the Army (DA) permit pursuant to Section 404 of the Clean Water Act (33 U.S.C. §1344). The purpose of this public notice is to solicit comments from the public and information necessary to evaluate the probable impact on the public interest regarding the proposed activity as described below and as shown on the enclosed drawings.

APPLICANT: Titan Mining Corporation
408 Sylvia Lake Rd
Gouverneur, New York 13642

LOCATION OF PROPOSED ACTIVITY: The project area is located south of County Route 22 and west of State Highway 58, in the Town of Fowler, St. Lawrence County, New York; at Latitude 44.264630 and Longitude -75.408870 (Sheet 1 of 38)

EXISTING CONDITIONS: The project lies within the historic Balmat–Edwards–Pierrepont mining district, a historic mining region with documented production since the early 1900's. Existing mining operations within and adjacent to the project area include active underground zinc mine workings, a concentrator and mill, the Tailings Management Facility, process and mine water management systems, haul and access roads, and rail infrastructure.

The 2,539-acre project area is dominated by deciduous forest [947.14 acres, 37 percent (%) of the project area], previously disturbed mine area (654.40 acres, 26%), mixed forest (276.45 acres, 11%), agricultural (149.53 acres, 6%), forested wetlands (127.88 acres, 5%), open water (125.36 acres, 5%), and the remaining containing developed space, evergreen forest, herbaceous grasslands, and other non-forested wetlands (emergent and scrub-shrub) (Sheet 2 of 38). Parcel ownership within and adjacent to the LOD is 132 property owners, including the applicant.

Regional surface water features include the Oswegatchie River to the north and Sylvia Lake to the south (both off-site). Two mapped stream systems convey flow from the Project Area off-site (Sheet 3 of 38):

- 1) Turnpike Creek / Sylvia Lake outlet (flowing through Project Area to the northeast) - Turnpike Creek–Oswegatchie River watershed (HUC 12: 041503020801).
- 2) Sawyer Creek (northwest portion of the project flowing west) - Sawyer Creek watershed (HUC 12: 041503020701).



No previous USACE Regulatory actions were completed at this site. The applicant submitted an aquatic resource delineation report along with the application, which identified 64 potential wetland areas totaling 425.11 acres and 15 stream channel reaches, totaling 14,760 linear feet, within the 2,539-acre Project Area (Sheet 4 of 38). This office conducted a site visit on the delineation report and it is anticipated that 20 potential wetland areas totaling 245.31 acres, and 15 stream channels totaling 14,760 linear feet, may be potentially jurisdictional under USACE regulations within the 1,262-acre Limit of Disturbance (LOD) area (Sheets 5-10 of 38). This office will complete the Jurisdictional Determination request of aquatic resources concurrently with the processing of the application. It is anticipated that 179.83 acres of wetlands located within the LOD may not be jurisdictional under Section 404 of the Clean Water Act (Sheets 5-7 of 38).

PROJECT PURPOSE:

Basic: The extraction and processing of natural flake graphite ore.

Overall: To mine natural flake graphite ore, which will involve construction of impoundments for water retention for ore processing and water management, mine waste and material storage, tailings management, and supporting infrastructure (site roads, haul roads, power transmission line, utility corridors, and temporary construction areas) on a 1,262-acre LOD area that will serve national and New York State flake graphite need and demand.

PROPOSED NEED: The applicant states that the need for the project arises from the lack of a secure and established domestic supply of natural flake graphite. Graphite has been designated as a critical mineral by the United States Geological Survey, is essential to national defense under the Defense Production Act, and is an essential input for lithium-ion battery anodes used in electric vehicles, grid-scale energy storage, defense systems, and advanced manufacturing. Congress has further declared it the continuing policy of the United States to promote an adequate and stable supply of critical minerals necessary to maintain national security. Additionally, the project supports the development of critical minerals needed to affordably and reliably supply New York State's battery storage and electrification programs.

PROPOSED ACTIVITY: The applicant is requesting a DA permit to discharge fill material into Waters of the United States (WOTUS), including wetlands, for a mining and processing of flake graphite project (Sheet 11 of 38), which includes mining waste and tailings management, construction of earthen water impoundment structures, and supporting infrastructure (site roads, haul roads, power transmission line, utility corridors, and temporary construction areas) (Sheet 12 of 38). The drawings and estimated impacts to WOTUS described below are preliminary estimates as the applicant has indicated they anticipate project modifications that would further reduce the LOD, and potential impacts to regulated WOTUS. Proposed impacts to jurisdictional wetlands and streams constitute discharges of dredged or fill material, including rock, soil, overburden, and tailings, associated with construction, grading, filling, and placement of mine components and their associated infrastructure within the LOD. The

applicant further described details on the project components, which can be found on Sheets 13 & 14 of 38.

More specifically, the following components, including the proposed impacts to WOTUS, have been described by the applicant:

Open pits: The project will include two open pits, the Main Pit and the East Pit, together with pit access and safety areas (Sheets 15-16 of 38).

Mine waste and material storage: Mined material not processed will be managed in dedicated storage facilities, including the Main Waste Rock Storage Facility and the Overburden Stockpile area.

Tailings management: Graphite processing tailings will be managed using a combination of conventional and surface dry-stack methods. The current conceptual layout includes both candidate drystack tailings storage facility locations - the Northwest Tailings Storage Facility and the #2 Tailings Storage Facility together with use of the Arnold Pit for conventional tailings management.

Processing and plant site: Graphite ore will be processed at the mine-site plant complex, which includes crushing, grinding, flotation, dewatering, and material handling to produce flake graphite concentrate, together with associated run-of-mine stockpiles and ore-handling areas.

Water management: Mine water will be managed through a system of contact-water and non-contact-water conveyances, collection ditches, sedimentation basins, retention basins, pumping systems, and associated stormwater controls.

Impoundment structures: The project will include three impoundment-type structures to hold water for project use (Sheets 17-19 of 38). During Phase 1 it is anticipated that all water management basins will be excavated rather than constructed with dams and the water management basins will not impound enough water to require dam safety approval. However, during Phase 2, tailings will be managed using impoundments. All impoundment and containment structures will be designed by qualified professional engineers in accordance with applicable U.S. engineering standards for mining infrastructure and hydraulic works and consistent with NYSDEC dam safety guidance. The applicant has acknowledged that either a state dam safety permit or independent review of the impoundment structures by qualified persons may be required before a permit decision can be completed.

Site access and utilities: Supporting infrastructure will include site roads, haul roads, a power transmission line, utility corridors, monitoring wells, and temporary construction areas necessary to construct, operate, maintain, and reclaim the mine.

The project will be constructed completely within the LOD and operated in three phases over an approximately 13+ year open-pit mine life, beginning with site preparation,

infrastructure establishment, and progressing through two distinct tailings management phases. The applicant further described details on the proposed project phases, shown on Sheets 20-22 of 38. The applicant described details on how hydrology will be maintained during each phase, shown on Sheets 23-24 of 38. Water management infrastructure (including contact-water conveyances, sedimentation basins, and retention basins) will be established prior to or concurrent with earth disturbance in each phase to preserve hydrologic connections. The applicant described the total type, composition, and quantity of mining material expected to be generated from the project over the life of the mine shown on Sheet 25 of 38.

The applicant described the proposed jurisdictional WOTUS to be impacted by the discharge of fill material (Sheet 26 of 38). The project, as currently proposed, is anticipated to permanently impact a total of 98.05 acres of potentially jurisdictional wetlands/open water and 5,984.28 linear feet of stream channels in the LOD (Sheet 27 of 38). The total discharges of fill material associated with the project are anticipated to permanently impact the following potentially jurisdictional stream channel flow regimes: 4,402.65 linear feet of perennial stream channels, 432.04 linear feet of intermittent stream channels, and 1,149.58 linear feet of ephemeral stream channels (Sheet 27 of 38). And the total discharges of fill material are anticipated to permanently impact the following potentially jurisdictional wetland vegetation types, including open water: 9.47 acres of forested wetlands, 21.00 acres of scrub-shrub wetlands, 56.36 acres of emergent wetlands, and 11.23 acres of open water (Sheet 27 of 38). Additionally, the project is anticipated to impact a total of 67.63 acres of wetlands and open-water features currently identified as potentially non-jurisdictional (Sheets 5-7 of 38).

The applicant is considering potential indirect effects caused by the proposed project. As the mining operation can alter the local water table in the vicinity of the open-pit, the applicant has an existing and ongoing monitoring program that includes seven previously installed groundwater monitoring wells across the project area. Baseline water level data from these wells will be integrated into a quantitative hydrogeologic assessment and pit dewatering impact analysis currently in preparation. The assessment will include groundwater modeling in the vicinity of the project under operational dewatering conditions and will evaluate the potential hydrologic effects on adjacent jurisdictional wetlands by wetland feature and water-source type.

AVOIDANCE AND MINIMIZATION: The applicant has provided the following information in support of efforts to avoid and/or minimize impacts to the aquatic environment:

Project component impacts have been avoided and minimized through iterative design refinement, described in Sheets 28-31 of 38. The most significant avoidance measure to date is the evolution of the tailings management approach from a conventional large-footprint impoundment to the current hybrid dry-stack configuration, which has removed a substantial regulated wetland complex from the Limit of Disturbance relative to the prior configuration. The applicant provided a detailed summary of their avoidance and minimization efforts, shown on Sheets 32-35 of 38.

In addition, the applicant has indicated that they are preparing a formal Section 404(b)(1) alternatives analysis, including evaluation of offsite and onsite alternatives and supporting information on the identification of the least environmentally damaging practicable alternative.

COMPENSATORY MITIGATION: The applicant has provided the following information to explain how lost functions and services to WOTUS associated with the proposed activity are to be compensated.

The applicant described the proposed project's compensatory wetland mitigation requirements as 210.46 acre-credits needed (Sheet 36-37 of 38). For impacts to stream channels, the applicant described that they are anticipating that they will be required to re-establish stream channels at a ratio of 2.2:1 (re-established to impacted) resulting in need of 13,200 linear feet of re-established stream channels.

The applicant has proposed a compensatory wetland mitigation strategy (additional details are shown on Sheet 38 of 38) that includes:

- 1) On-site Wetland Permittee Responsible Mitigation - Restoration (Re-establishment & Rehabilitation) and Enhancement.
- 2) Mine Reclamation (Arnold Pit) – Wetland Establishment.
- 3) Off-site Permittee Responsible Mitigation (Streams and Wetlands)
- 4) In-Lieu Fee Credit Purchase (Ducks Unlimited) – Eastern and Western St. Lawrence Service Areas.
- 5) On-site Preservation (Wetlands).

Compensatory mitigation for unavoidable impacts to USACE-jurisdictional streams will be satisfied primarily through off-site, in-watershed Permittee-Responsible Mitigation.

The Applicant's siting strategy for offsite compensatory mitigation will prioritize, in order: (1) sites within the same HUC 12 sub-watershed as the impacted resources; (2) if no practicable site is identified within the same HUC 12, sites within an immediately adjacent HUC 12 sub-watershed within the same HUC 8 watershed (Upper Oswegatchie River); and (3) only if neither is practicable, sites elsewhere within the same HUC 8 watershed, consistent with the watershed approach of the USACE Mitigation Rule.

The applicant informed USACE that they will perform a functional assessment to aid in determining final wetland and stream mitigation ratios/requirements and will submit a complete compensatory wetland and stream Permittee-Responsible Mitigation plan that includes the 12 items required under 33 CFR 332.4(c).

The USACE will determine the type and amount of compensatory mitigation necessary to offset losses of WOTUS which may result from the proposed activity in accordance with 33 CFR § 332.

HISTORIC PROPERTIES/CULTURAL RESOURCES: Section 106 of the National Historic Preservation Act of 1966, as amended (54 U.S.C. § 306108), requires federal agencies to consult with the appropriate state and/or tribal Historic Preservation Officers to take into account the effects of actions they undertake or permit on historic properties listed in or eligible for listing in the National Register of Historic Places.

The USACE is evaluating the undertaking for effects to historic properties as required under Section 106 of the National Historic Preservation Act. This public notice serves to inform the public of the proposed undertaking and invites comments including those from local, state, and federal Government agencies with respect to historic resources. The USACE final determination relative to historic resource impacts may be subject to additional coordination with the State Historic Preservation Officer (SHPO), federally recognized tribes and other interested parties.

The USACE's final eligibility and effect determination relative to historic resource impacts may be subject to additional coordination with the SHPO, federally recognized tribes, and other interested parties, and with full consideration given to the proposed undertaking's potential direct and indirect effects on historic properties within the USACE-identified permit area.

This Public Notice initiates our consultation with the New York State Office of Parks, Recreation, and Historic Preservation (NYS OPRHP), the New York State SHPO. The applicant has previously submitted information to the SHPO to aid both agencies' review and our determination. The NYS OPRHP project code is PR# 25PR10921.

ENDANGERED SPECIES: Section 7 of the Endangered Species Act (ESA) (16 U.S.C. § 1536) requires federal agencies to consult with U.S. Fish and Wildlife Service (USFWS) on all actions that may affect a species listed (or proposed for listing) under the ESA as threatened or endangered or that may adversely modify designated critical habitat (or critical habitat proposed such designation). The USACE's preliminary review indicates the following species are located on the Official Species List: Northern long-eared bat (*Myotis septentrionalis*), federally-listed as Endangered; tricolored bat (*Perimyotis subflavus*), proposed Endangered; and Monarch butterfly (*Danaus plexippus*), proposed Threatened. The USACE will make an effects determination for listed species, and will complete any required consultation under Section 7 of the ESA, including conferencing on any proposed species, prior to finalizing a permit decision.

This notice serves as request to the USFWS for any additional information on whether any listed or proposed to be listed endangered or threatened species or critical habitat may be present in the area which would be affected by the proposed activity.

NAVIGATION: The proposed structure or activity is not located in the vicinity of a federal navigation channel.

SECTION 408: The applicant will not require permission under Section 14 of the Rivers and Harbors Act of 1899 (33 U.S.C. § 408) because the activity, in whole or in part, would not alter, occupy, or use a USACE Civil Works project.

WATER QUALITY CERTIFICATION: An Individual Water Quality Certification is required from the New York State Department of Environmental Conservation pursuant to Section 401 of the Clean Water Act (33 U.S.C. § 1341).

COASTAL ZONE MANAGEMENT: A federal consistency decision is not required from the State of New York pursuant to Section 307 of the Coastal Zone Management Act of 1972 (16 U.S.C. § 1451).

NATIONAL WILD AND SCENIC RIVERS: The project is not located within a National Wild and Scenic River.

MARINE SANCTUARIES (MPRSA): The project is not located within the Lake Ontario National Marine Sanctuary (<https://sanctuaries.noaa.gov/lake-ontario/>). The sanctuary is located within Lake Ontario, and extends waterward from the low water datum of Lake Ontario (243.3 feet IGLD) bordering Wayne, Cayuga, Oswego and Jefferson Counties. Coordination with the appropriate federal agency may be initiated pursuant to 16 U.S.C. 1432.

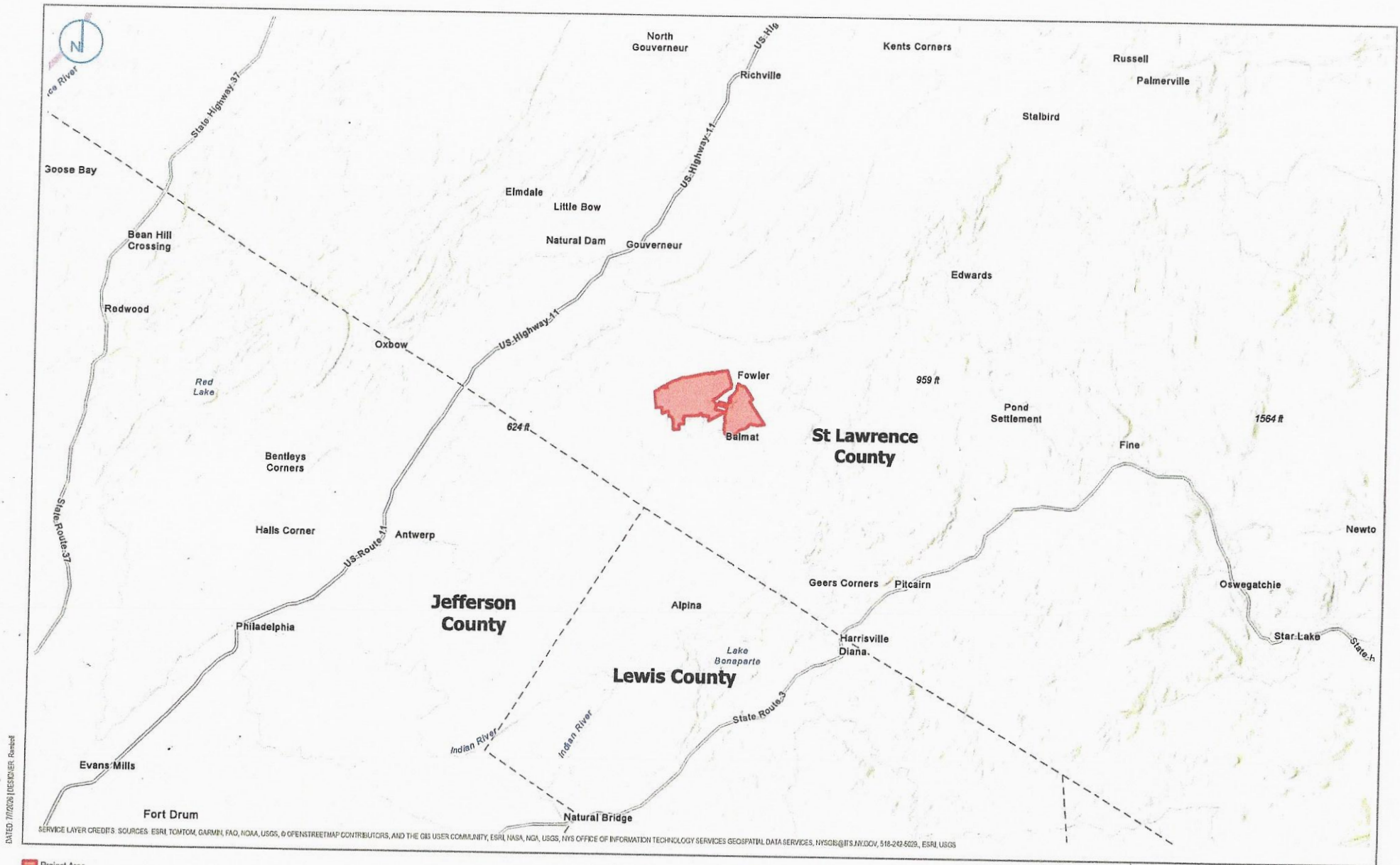
NOTE: This public notice is being issued based on information furnished by the applicant. This information has not been verified or evaluated to ensure compliance with laws and regulation governing the regulatory program. The geographic extent of aquatic resources within the proposed project area that either are, or are presumed to be, within the USACE jurisdiction has not been verified by USACE personnel.

EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impact including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. All factors which may be relevant to the proposal will be considered including cumulative impacts thereof; among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and in general, the needs and welfare of the people. Evaluation of the impact of the activity on the public interest will also include application of the guidelines promulgated by the Administrator, U.S. Environmental Protection Agency (USEPA), under authority of Section 404(b) of the Clean Water Act or the criteria established under authority of Section 102(a) of the Marine Protection Research and Sanctuaries Act of 1972. A permit will be granted unless its issuance is found to be contrary to the public interest.

COMMENTS: The USACE is soliciting comments from the public, federal, state, and local agencies and officials; tribal nations; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the USACE to determine whether to issue, modify, condition, or deny a permit for this proposed activity. To make this determination, comments are used to assess impacts to endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an environmental assessment and/or an environmental impact statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity. Any comments or objections which are received during this period may be forwarded to the applicant for possible resolution before the determination is made whether to issue or deny the requested permit. Please note that all comments received will become part of the administrative record and are subject to public release under the Freedom of Information Act.

Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider the application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Requests for a public hearing will be granted, unless the District Engineer determines that the issues raised are insubstantial or there is otherwise no valid interest to be served by a hearing.

The Buffalo District will receive written comments on the proposed activity, as outlined above, until August 31, 2026. Comments should be submitted electronically via the Regulatory Request System (RRS) at <https://rrs.usace.army.mil/rrs/public-notice> (preferred). Alternatively, you may submit comments to David Leput at david.w.leput2@usace.army.mil or U.S. Army Corps of Engineers, Buffalo District, Attention: David Leput, 478 Main Street, Buffalo, NY 14202. Please refer to "LRB-2025-01019" in your comments.



Titan Mining Corp
Kilbourne Graphite Mine
DA No LRB-2025-01019
Sheet 1 of 38



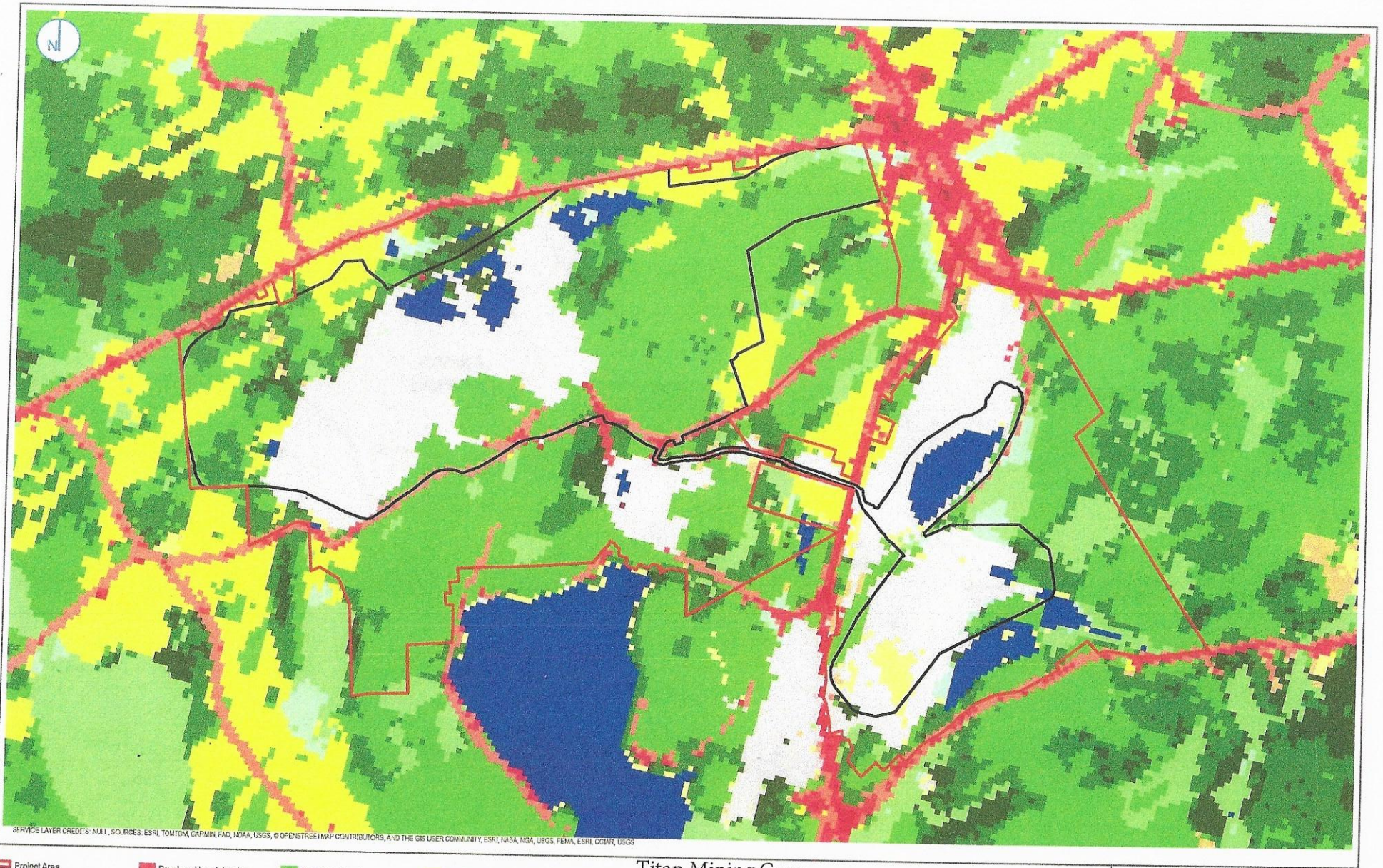
PROJECT LOCATION

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York



FIGURE 01

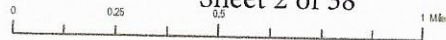




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- | | | | |
|-------------------------|----------------------------|------------------|------------------------------|
| Project Area | Developed Low Intensity | Deciduous Forest | Grassland/Herbaceous |
| Limits of Disturbance * | Developed Medium Intensity | Evergreen Forest | Pasture/Hay |
| Open Water | Developed High Intensity | Mixed Forest | Woody Wetlands |
| Developed Open Space | Barren Land | Shrub/Scrub | Emergent Herbaceous Wetlands |

* LOD reflects conceptual-stage design and is subject to refinement as engineering advances.



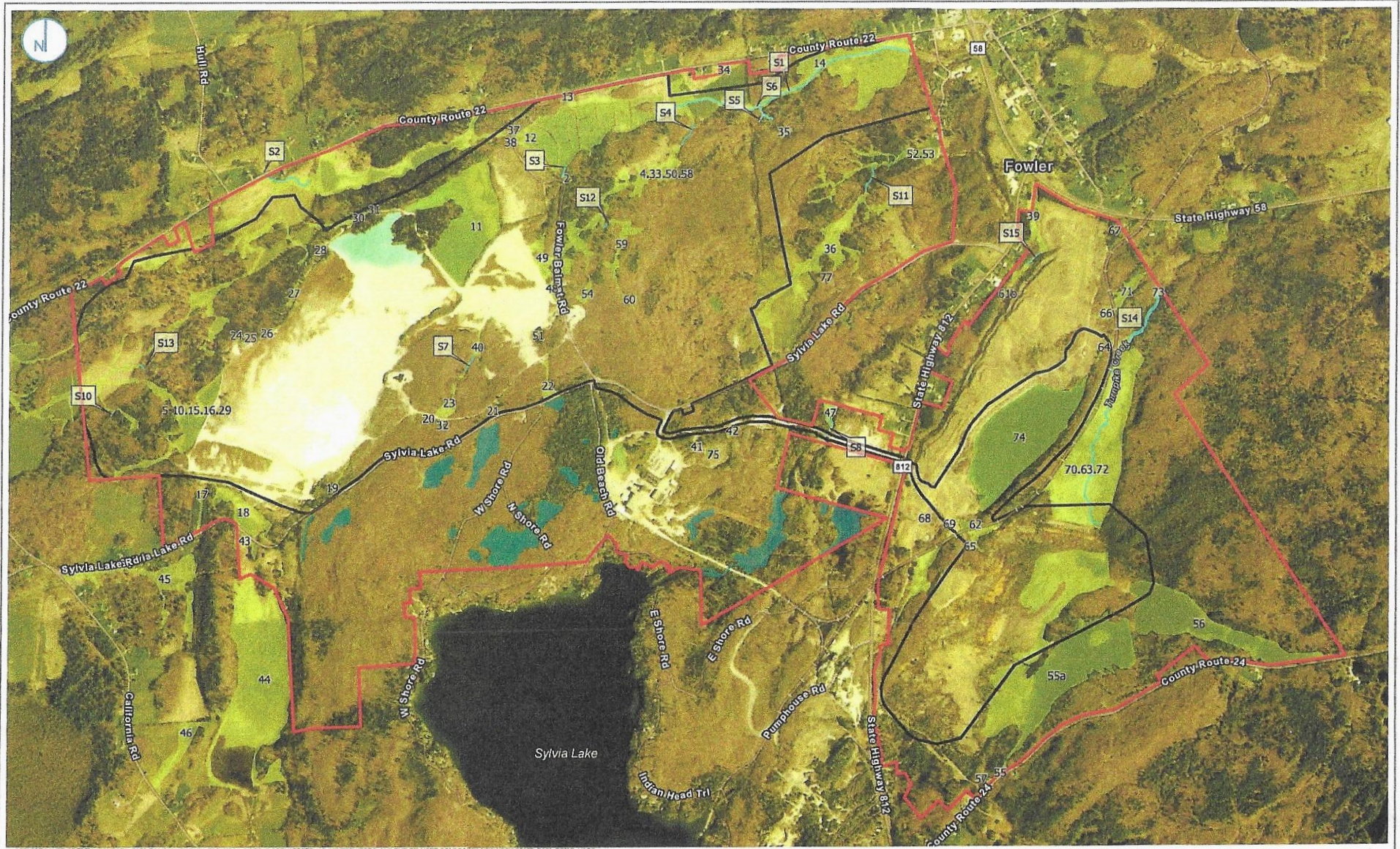
Titan Mining Corp
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EXISTING LAND COVER

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York



FIGURE 07



SERVICE LAYER CREDITS: SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, NEW YORK STATE, ESRI, COMIX, USGS

- Project Area
- Limits of Disturbance*
- Field-Delineated Wetlands
- Desktop Wetlands (Not Field-Delineated)
- Streams

Titan Mining Corp
Kilbourne Graphite Mine
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FIELD-DELINEATED AQUATIC RESOURCES

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York



FIGURE 09

4.2 Delineated Wetlands

There were sixty-four wetlands/wetland complexes and waterbodies mapped at the Site (Table 2, Figure 5). These included artificial ponds, shallow emergent marshes, vernal pools, open water, scrub-shrub, and forested wetlands. Forested areas are characterized by woody vegetation that is 6 meters (20 feet) tall or taller with 30 percent or more areal canopy cover consisting of tree-sized species. Shrub wetlands consist of woody vegetation greater than 1 meter tall with a diameter-at-breast-height less than 3 inches. Emergent areas are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. This vegetation is present for most of the growing season in most years and is usually dominated by perennial plants. Open water bodies that have deep water and minimal hydrophytic vegetation were classified as open water rather than a wetland.

Table 2 provides details associated with the wetlands including centralized coordinates, area, vegetation cover type, and the projected regulatory jurisdiction. Wetland complexes were created to reflect field-verified hydrologic and ecological connections among wetlands that were initially flagged and numbered as separate features. Because the AOI was large and field work occurred over multiple mobilizations, individual wetland boundaries were identified sequentially as delineators traversed different portions of the Site. As additional areas were added to the investigation and mapping was reviewed, several wetlands that had been assigned separate field identifiers were determined to be contiguous or part of the same wetland system. To preserve the original field flagging, wetland numbering, and associated datasheets, the individual identifiers were retained and grouped under wetland complex names. This approach maintains consistency with field documentation while more accurately representing the connected wetland systems for reporting, mapping, acreage calculations, and potential jurisdictional review. Copies of the datasheets are in Appendix E.

Table 2 - Delineated Wetlands and Water bodies

Identifier	Centralized Latitude	Centralized Longitude	Acres	Vegetative Cover Type ¹	Potential Jurisdiction
1	44.27645493	-75.41358996	0.05	PEM	Non-jurisdictional
2	44.27655108	-75.41382635	0.04	PEM	Non-jurisdictional
3	44.27533988	-75.4127006	0.15	PEM	Non-jurisdictional
Complex 4.33.50.58	44.2761813	-75.41081839	10.29	PEM/OW/PFO	NYSDEC/USACE
Complex 5-10.15.16.29	44.2706913	-75.43298858	57.51	PEM/PSS/OW/PFO	NYSDEC/USACE
11	44.27489509	-75.41951495	25.60	PEM/OW	Non-jurisdictional
12	44.27866523	-75.41282543	24.60	PEM/PSS/OW	USACE
13	44.27983224	-75.41378546	0.07	PEM	USACE
14	44.28101317	-75.39802548	27.96	PEM/PSS/PFO	NYSDEC/USACE
17	44.26369113	-75.43401178	0.56	PSS	USACE
18	44.26306754	-75.43175864	5.86	PEM/OW	Non-jurisdictional

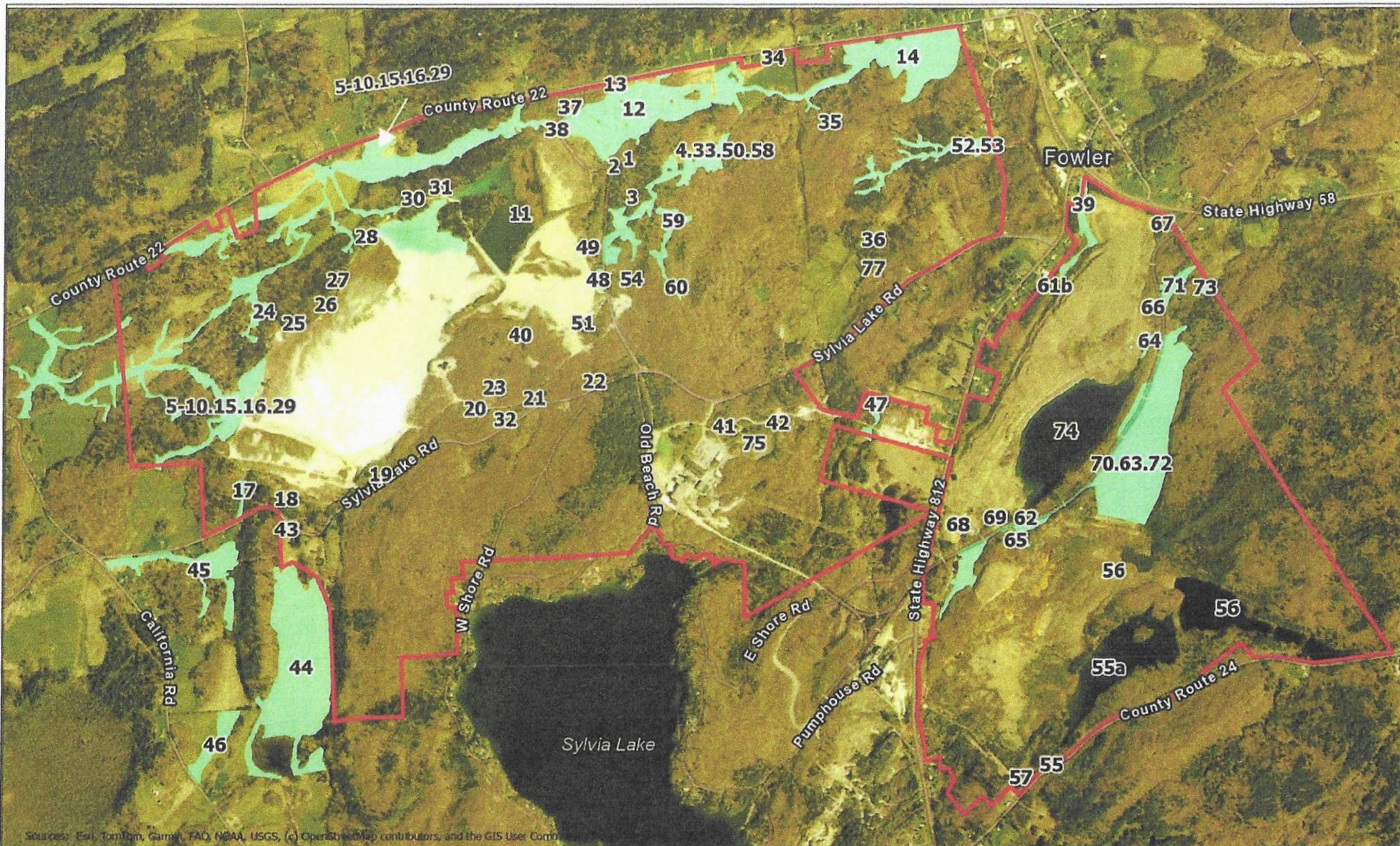
Identifier	Centralized Latitude	Centralized Longitude	Acres	Vegetative Cover Type ¹	Potential Jurisdiction
19	44.26451988	-75.42633339	0.41	PEM	Non-jurisdictional
20	44.26681201	-75.42127901	0.12	PEM	Non-jurisdictional
21	44.26724201	-75.41791987	0.11	PEM	Non-jurisdictional
22	44.26822253	-75.41472845	0.96	PEM/PFO/PSS	Non-jurisdictional
23	44.26748066	-75.42031991	1.44	PEM/PSS	Non-jurisdictional
24	44.27011771	-75.43213459	0.13	PEM	Non-jurisdictional
25	44.27013974	-75.43151725	0.07	PEM	Non-jurisdictional
26	44.27024248	-75.43046816	0.18	PEM	Non-jurisdictional
27	44.27183523	-75.42909129	0.45	PFO	Non-jurisdictional
28	44.27363381	-75.42754571	0.38	PEM	Non-jurisdictional
30	44.27506631	-75.42513995	0.07	PEM	Non-jurisdictional
31	44.27525361	-75.4246448	0.08	PEM	Non-jurisdictional
32	44.26669487	-75.42067197	0.14	PEM	Non-jurisdictional
34	44.28091904	-75.40505991	1.14	PEM	Non-jurisdictional
35	44.2784411	-75.40167423	0.49	PEM	Non-jurisdictional
36	44.27315649	-75.39966477	12.86	PEM/PSS/OW	NYSDEC
37	44.27841866	-75.41689978	0.03	PEM	Non-jurisdictional
38	44.27799868	-75.41697208	0.03	PEM	Non-jurisdictional
39	44.27458895	-75.38760716	3.09	PEM/PSS	USACE
40	44.26973534	-75.4187457	0.54	PEM	Non-jurisdictional
41	44.26575883	-75.40636785	0.11	PEM	Non-jurisdictional
42	44.26640238	-75.40438858	0.43	PEM	Non-jurisdictional
43	44.26188575	-75.43167311	1.34	PEM/OW	Non-jurisdictional
44	44.2563403	-75.43090586	45.91	PEM/PSS/PFO/OW	NYSDEC/USACE
45	44.26021651	-75.43652878	10.06	PFO/PSS	NYSDEC/USACE
46	44.25334611	-75.43542454	4.37	PEM	NYSDEC/USACE
47	44.2671324	-75.39886436	1.70	PEM	USACE
48	44.27210911	-75.41467479	0.40	PSS/OW	USACE
49	44.27332912	-75.41512809	2.32	PEM/OW	NYSDEC
51	44.27027367	-75.41533593	0.16	PEM	Non-jurisdictional
52.53	44.27709466	-75.39638856	5.19	PEM/PSS/OW	NYSDEC/USACE
54	44.2719278	-75.41263069	0.79	PEM	Non-jurisdictional
55	44.25256961	-75.38931298	0.46	PSS	Non-jurisdictional
55a	44.25659983	-75.38603238	39.79	PEM/OW	NYSDEC
56	44.25915634	-75.37974453	45.55	PEM/OW	NYSDEC
57	44.25248133	-75.39023594	0.19	PEM	Non-jurisdictional
59	44.27390644	-75.41064911	2.49	PFO	NYSDEC/USACE
60	44.27169427	-75.41018286	0.35	PFO	NYSDEC/USACE
61a	44.26284215	-75.39168646	0.05	PEM	Non-jurisdictional

Identifier	Centralized Latitude	Centralized Longitude	Acres	Vegetative Cover Type ¹	Potential Jurisdiction
61b	44.2719601	-75.38901012	0.23	PEM	Non-jurisdictional
62	44.26270604	-75.39052928	1.13	PEM	NYSDEC
64	44.26947113	-75.38383343	0.29	PFO	NYSDEC/USACE
65	44.26179574	-75.390929	0.31	PEM	NYSDEC
66	44.2711645	-75.38349618	0.75	PFO	NYSDEC/USACE
67	44.27449616	-75.38305507	0.08	PEM	Non-jurisdictional
68	44.26289669	-75.39348113	0.09	PEM	Non-jurisdictional
69	44.26267376	-75.39210633	0.02	PEM	Non-jurisdictional
70.63.72	44.26520469	-75.38497719	47.29	PEM	NYSDEC/USACE
71	44.27203186	-75.38234353	2.00	PEM/PSS	NYSDEC/USACE
73	44.27201119	-75.3805788	0.45	PSS	NYSDEC/USACE
74	44.26615633	-75.38823417	35.14	OW	Non-jurisdictional
75	44.26553056	-75.40563592	0.30	PEM/OW	Non-jurisdictional
77	44.27258811	-75.39917091	0.01	PEM	Non-jurisdictional
Total			425.11 ac		

¹ PEM – Palustrine Emergent, PSS – Palustrine Scrub/Shrub, PFO – Palustrine Forested, OW – Open Water

Table 3 - Delineated Streams

Identifier	Centralized Latitude	Centralized Longitude	Length in AOI (FT)	Flow Regime & Direction	Potential Jurisdiction
S1	-75.401518	44.280406	3,934.20	Perennial that flows east	USACE
S2	-75.429482	44.276439	809.91	Intermittent stream that flows northwest	USACE
S3	-75.413979	44.276799	159.04	Ephemeral stream that flows north	USACE
S4	-75.406994	44.278314	360.15	Ephemeral stream that flows north	USACE
S5	-75.402941	44.279002	97.69	Ephemeral stream that flows northwest	USACE
S6	-75.40278	44.279158	366.81	Ephemeral stream that flows northwest	USACE
S7	-75.419158	44.269117	237.56	Intermittent stream that flows northeast	USACE
S8	-75.398991	44.266635	917.47	Ephemeral stream that flows to east	USACE
S9	-75.445549	44.2698	825.17	Intermittent stream that flows north	USACE
S10	-75.43916	44.267038	85.03	Intermittent stream that flows west	USACE
S11	-75.396733	44.27657	392.77	Intermittent stream that flows northeast	USACE
S12	-75.411556	44.274639	109.43	Intermittent stream that flows northeast	USACE
S13	-75.437519	44.268915	94.97	Perennial stream	USACE
S14	-75.383	44.26777	6,135.31	Perennial stream named Turnpike Creek, flows north	USACE/DEC C(T)
S15	-75.38756	44.273357	234.23	Intermittent stream that flows north	USACE
Total			14,760'		



0 0.28 0.55 1.1 Miles

Aquatic Resources Map

Figure 6

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York
S. Shaw, 7/1/2026

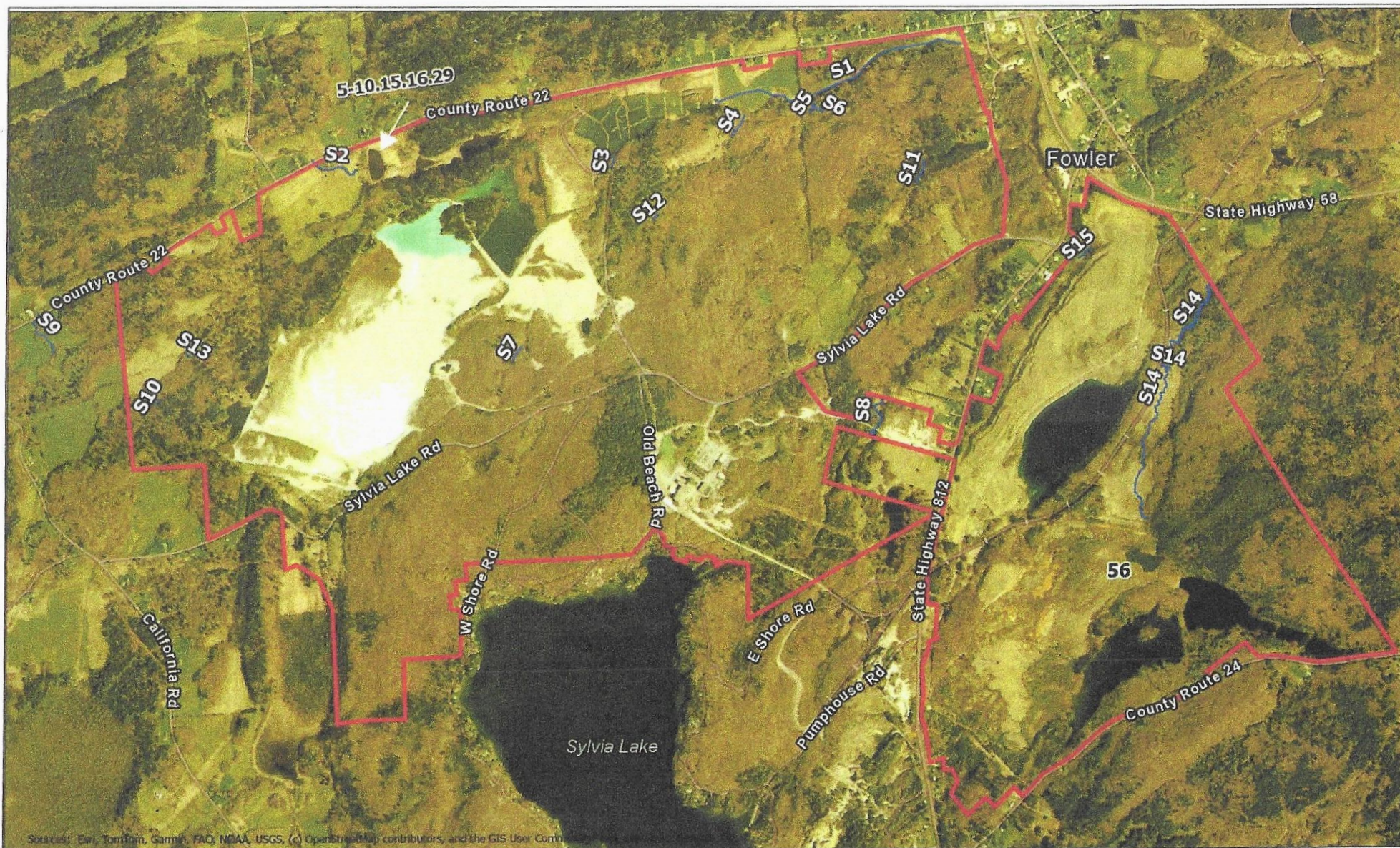
Titan Mining Corp
Kilbourne Graphite Mine
DA No. LRB-2025-01019
Sheet 9 of 38

Investigation Area

Wetlands-Projected Jurisdiction

USACE





Aquatic Resources Map

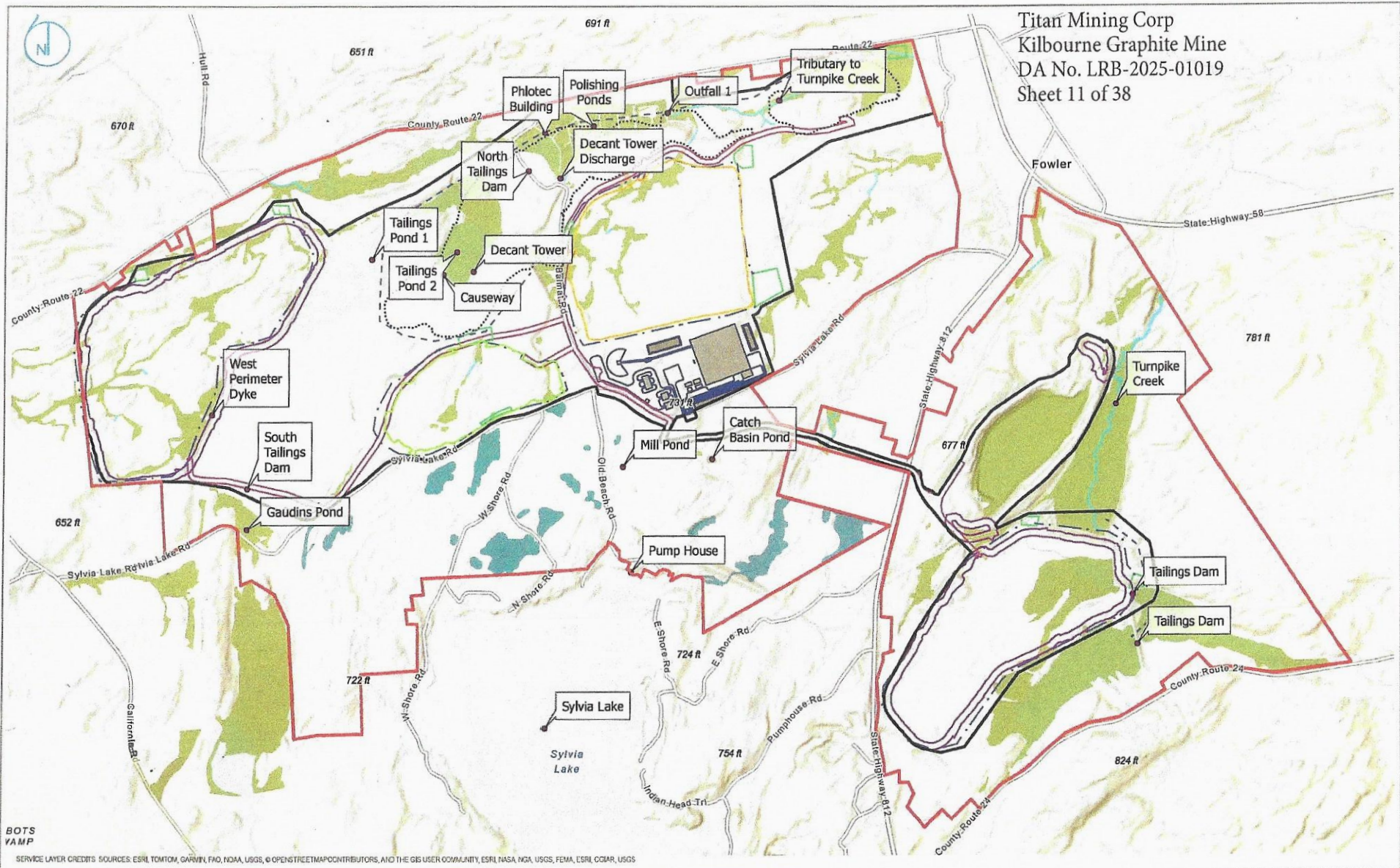
Figure 7

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York
S. Shaw, 6/30/2026

Titan Mining Corp
Kilbourne Graphite Mine
DA No. LRB-2025-01019
Sheet 10 of 38

Investigation Area
— Streams





BOTS
VAMP

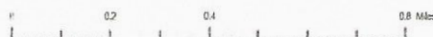
SERVICE LAYER CREDITS: SOURCES: ESRI, TOMTOM, GARMIN, FAO, NOAA, USGS, © OPENSTREETMAPCONTRIBUTORS, AND THE GIS USER COMMUNITY, ESRI, NASA, NOAA, USGS, FEMA, ESRI, CIGAR, USGS

- Project Area
- Basins
- Limits of Disturbance *
- Tailings Management Facility
- Existing ESM Water Infrastructure
- Main Waste Rock Storage Facility
- Plant Site Layout
- Overburden Pile

- Site Roads
- Contact Water
- Non-Contact Water
- Pili Design

- Field-Delineated Wetlands
- Desktop Wetlands (Not Field-Delineated)
- Streams

* LOD reflects conceptual-stage design and is subject to refinement as engineering advances.

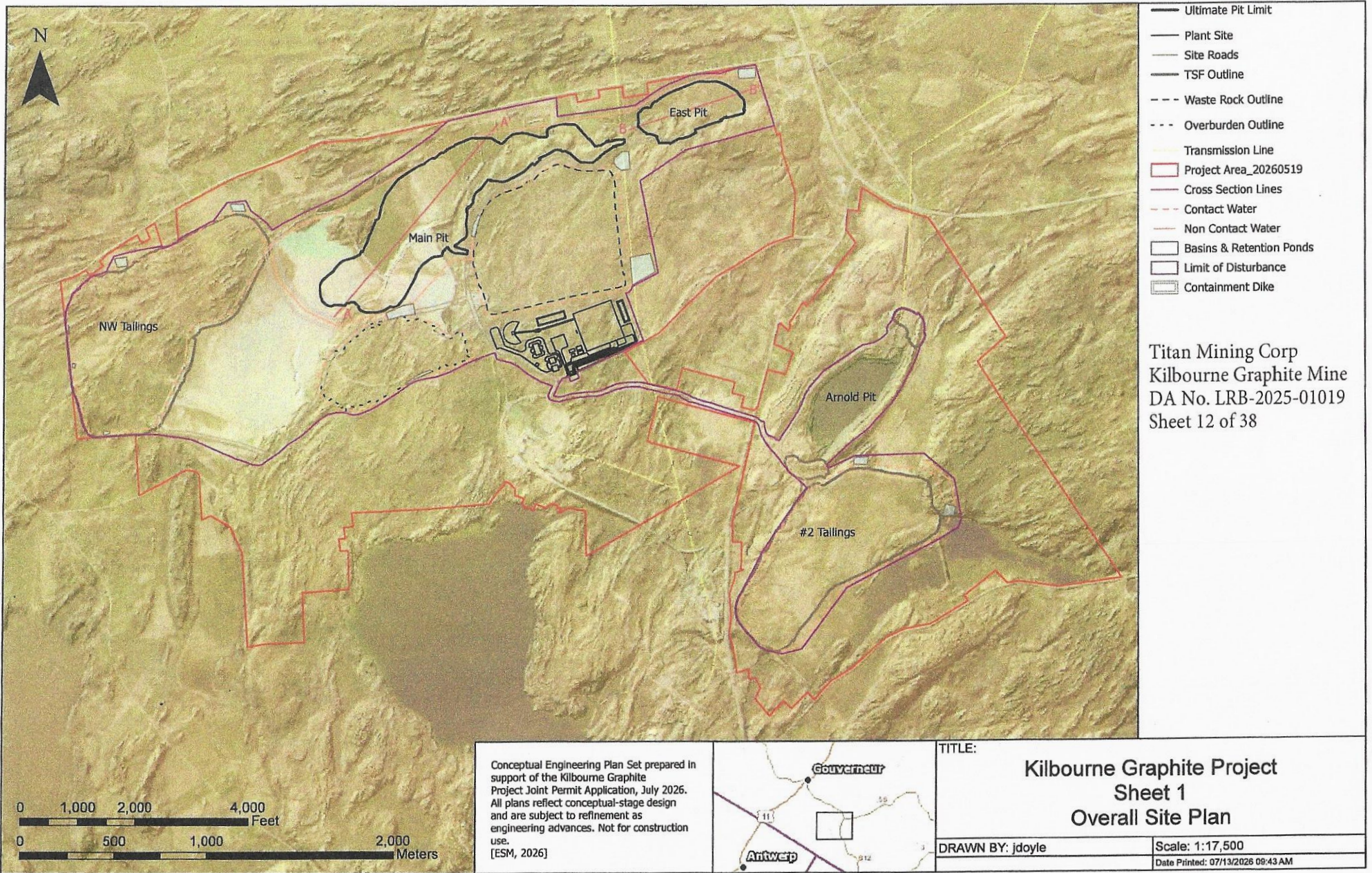


CONCEPTUAL PROJECT LAYOUT (JUNE 2026)

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York



FIGURE 08



PROJECT LAYOUT AND COMPONENTS:

The Project employs conventional owner-operated open-pit mining methods — drilling and blasting with excavator and haul truck material handling — selected based on the near-surface configuration of the graphite resource. The mine plan is based on a concentrate plant feed rate of approximately 1.7 million tons per year with approximately 29,664 ktons of potential mill feed (ore-grade material processed at the on-site plant to produce graphite concentrate) extracted over an approximately 13+ year open-pit mine life. Total material mined over the life of mine, including potential mill feed, waste rock, overburden, and existing zinc tailings requiring relocation, is estimated at approximately 83,626 ktons, resulting in an overall strip ratio of approximately 1.8:1.

Mining components. The Project includes two open pits, the Main Pit and the East Pit, together with pit access and safety areas. The open pit locations are constrained by the location and configuration of the recoverable graphite resource.

Mine waste and material storage. Mined material that is not processed is managed in dedicated storage facilities, including the Main Waste Rock Storage Facility (Main WRSF) and the Overburden Stockpile area (OVb). Over the life of mine, material managed in these facilities is estimated to include approximately 42.98 million tons of waste rock and 9.25 million tons of overburden.

Tailings management. Graphite processing tailings are managed using a combination of conventional and dry-stack (surface stack) methods. Consistent with the Project's maximum Limit of Disturbance approach, the current conceptual layout conservatively includes both candidate drystack tailings storage facility locations; the Northwest Tailings Storage Facility (NW TSF) and the #2 Tailings Storage Facility (#2 TSF) together with use of the Arnold Pit for conventional tailings management. Final engineering is expected to select only one of the two dry-stack candidates for construction; both are included in the current maximum Limit of Disturbance to ensure the impact analysis in this application represents a conservative upper bound. The selected hybrid tailings management approach substantially reduces the tailings footprint and associated wetland impacts relative to a conventional tailings configuration.

Processing and plant site. Ore is processed at the mine-site plant complex, which includes crushing, grinding, flotation, dewatering, and material handling to produce flake graphite concentrate, together with associated run-of-mine stockpiles and ore-handling areas.

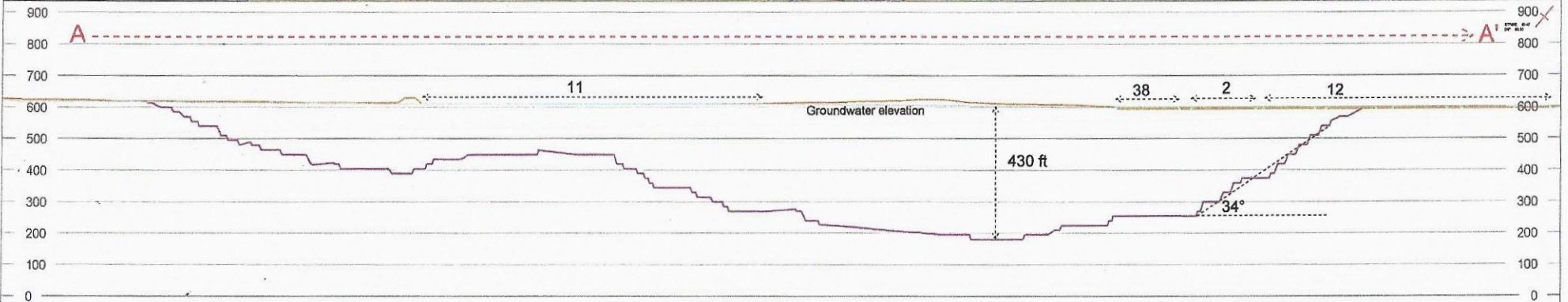
Water management. Mine water is managed through a system of contact-water and non-contact-water conveyances, collection ditches, sedimentation basins, retention basins, pumping systems, and associated stormwater controls. Water management infrastructure is being designed to defined hydrologic and civil design criteria consistent with NYSDEC stormwater and dam safety guidance and applicable USACE and NRCS standards, including separation and independent management of contact and non-contact water. The Project is designed to utilize and expand upon existing ESM water management infrastructure where practicable.

Impoundment structures and dam safety. The Project includes impoundment-type structures subject to 33 CFR 325.1(d)(6). During Phase 1, the Arnold Pit conventional tailings facility functions as a hydraulic tailings impoundment with staged perimeter containment dikes designed to return the ground to original grade at the former pit access points. The Project's water management system also includes retention and sedimentation basins that impound water, however, it is

anticipated that all water management basins will be excavated rather than constructed with dams. Nor is it anticipated that water management basins will impound enough water to require dam safety. During Phase 2, tailings are managed in a filtered dry-stack configuration with a waste rock outer containment shell rather than a conventional water-retaining embankment; the dry-stack facility is an engineered fill structure constructed in compacted lifts, with conceptual outer slopes of approximately 3:1, lift heights on the order of 50 feet, and intermediate benches, reaching conceptual crest elevations on the order of 700-845 feet depending on the facility. Retention basins are being designed to a storage capacity equal to or exceeding the 100-year, 24-hour event with a minimum 3 feet of freeboard, Hazard Classification B, and emergency spillways sized to pass 225 percent of the 100-year rainfall event, consistent with NYSDEC dam safety guidance (Guidelines for Design of Dams). All impoundment and containment structures will be designed by qualified professional engineers in accordance with applicable U.S. engineering standards for mining infrastructure and hydraulic works. The Applicant acknowledges, consistent with 33 CFR 325.1(d)(6), that either a state dam safety permit or independent review of the impoundment structures by qualified persons may be required before a permit decision can be completed.

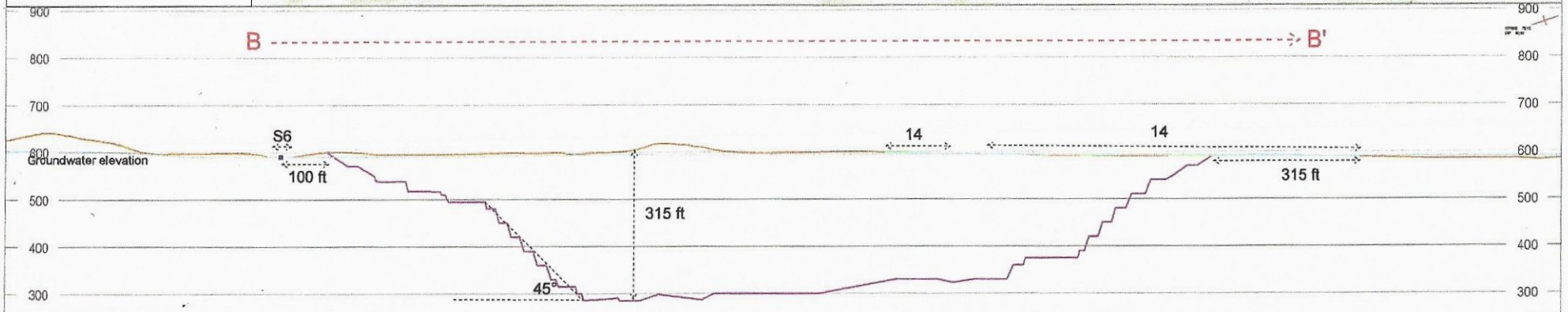
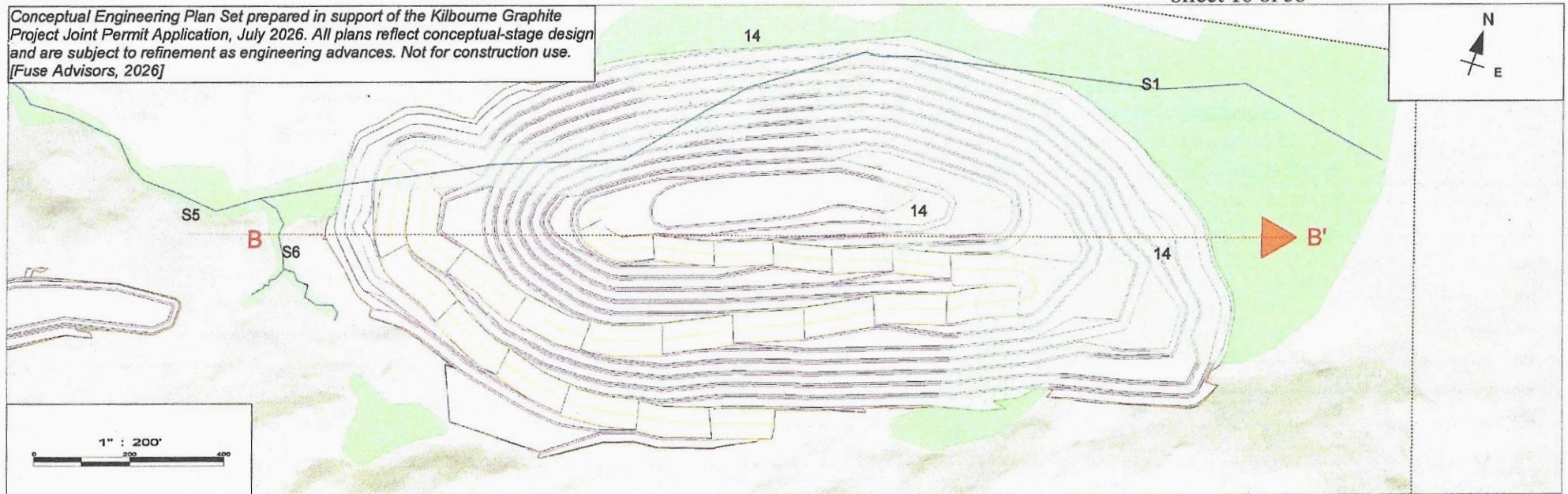
Site access and utilities. Supporting infrastructure includes site roads, haul roads, a power transmission line, utility corridors, monitoring wells, and temporary construction areas necessary to construct, operate, maintain, and reclaim the mine.

Conceptual Engineering Plan Set prepared in support of the Kilbourne Graphite Project Joint Permit Application, July 2026. All plans reflect conceptual-stage design and are subject to refinement as engineering advances. Not for construction use. [Fuse Advisors, 2026]

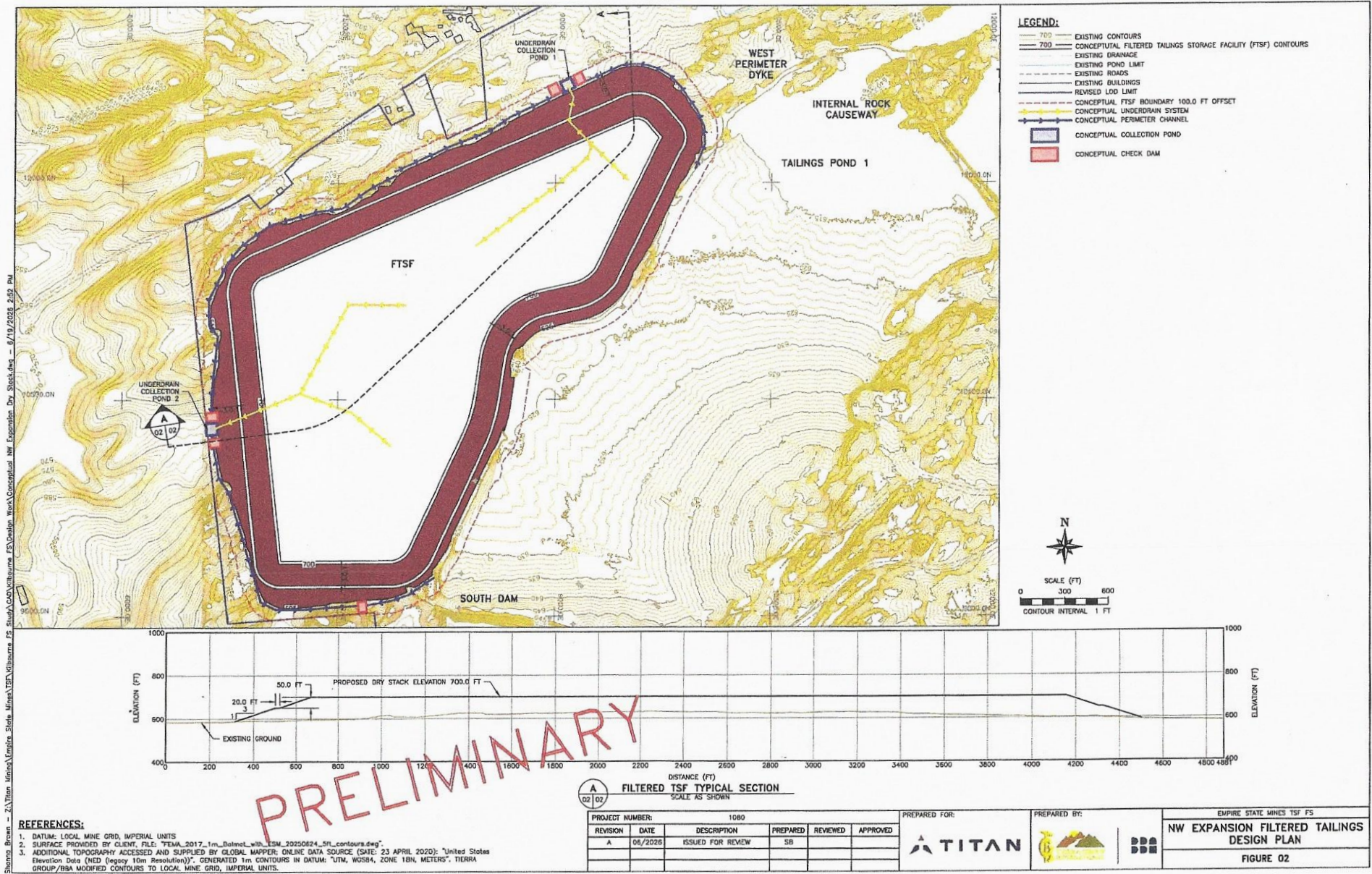


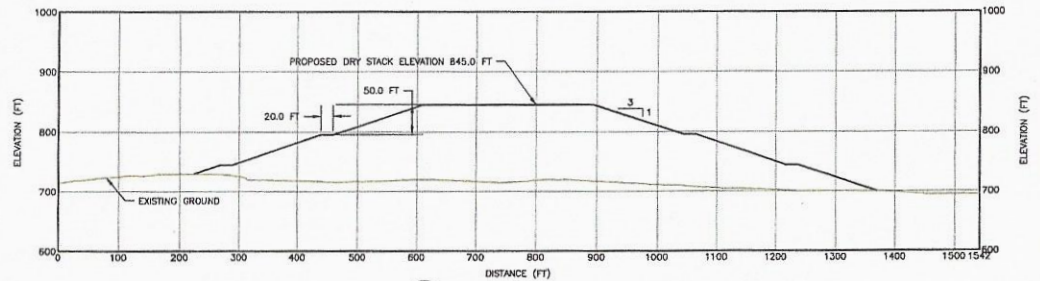
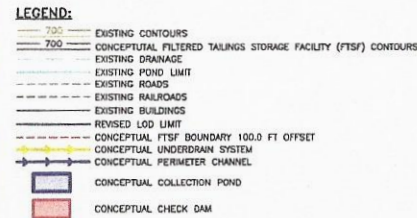
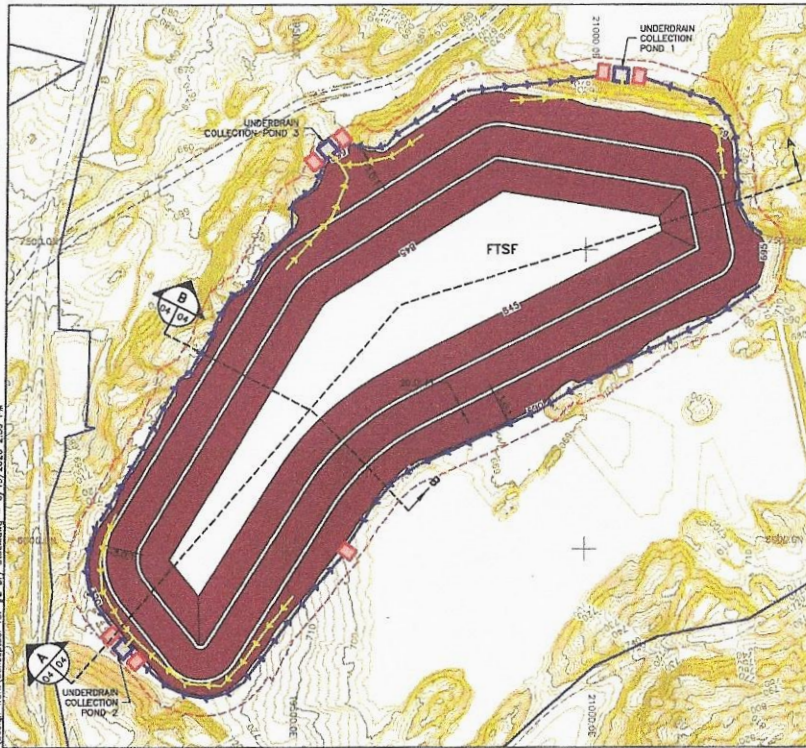
0 1" : 300' 2000 Legend Streams Wetland Ground Water Elevation Pit Wall Topography Limit of Disturbance	FUSE ADVISORS PART OF SLR	TITAN	<table><tr><td>DRAWING:</td><td>KILBOURNE MAIN PIT - CROSS SECTION</td></tr><tr><td>PROJECT:</td><td>KILBOURNE GRAPHITE OPEN PIT</td></tr><tr><td>COMPANY</td><td>TITAN MINING CORPORATION</td></tr><tr><td>DATE:</td><td>2026/06/23</td></tr><tr><td>SCALE:</td><td>X = 1" : 300'</td></tr><tr><td></td><td>Y = 1" : 300'</td></tr></table>	DRAWING:	KILBOURNE MAIN PIT - CROSS SECTION	PROJECT:	KILBOURNE GRAPHITE OPEN PIT	COMPANY	TITAN MINING CORPORATION	DATE:	2026/06/23	SCALE:	X = 1" : 300'		Y = 1" : 300'
DRAWING:	KILBOURNE MAIN PIT - CROSS SECTION														
PROJECT:	KILBOURNE GRAPHITE OPEN PIT														
COMPANY	TITAN MINING CORPORATION														
DATE:	2026/06/23														
SCALE:	X = 1" : 300'														
	Y = 1" : 300'														

Conceptual Engineering Plan Set prepared in support of the Kilbourne Graphite Project Joint Permit Application, July 2026. All plans reflect conceptual-stage design and are subject to refinement as engineering advances. Not for construction use.
 [Fuse Advisors, 2026]

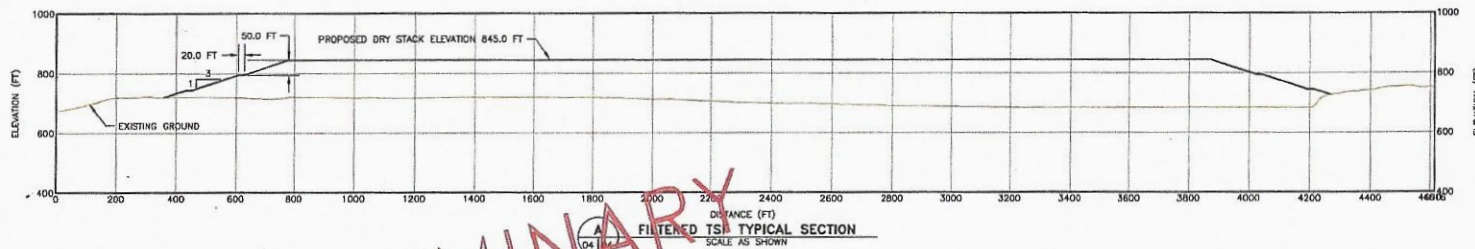


1" : 200' </





FTSF TYPICAL SECTION
SCALE AS SHOWN



FTSF TYPICAL SECTION
SCALE AS SHOWN

REFERENCES:

1. DATUM: LOCAL MINE GRID, IMPERIAL UNITS
2. SURFACE PROVIDED BY CLIENT, FILE: "TDM_2017_1m_Belmont_Lith_10M_20250824_51L_contours.dwg"
3. ADDITIONAL TOPOGRAPHY ACQUIRED AND SUPPLIED BY GLOBAL WARRIOR; ONLINE DATA SOURCE (DATE: 23 APRIL 2020): "United States Elevation Data (NED (Legacy 10m Resolution))", GENERATED 1m CONTOURS IN DATUM: "UTM, WGS84, ZONE 18N, METERS", TERRA GROUP/BBA MODIFIED CONTOURS TO LOCAL MINE GRID, IMPERIAL UNITS.

PROJECT NUMBER: 1080					
REVISION	DATE	DESCRIPTION	PREPARED	REVIEWED	APPROVED
A	06/2025	ISSUED FOR REVIEW	SB		

PREPARED FOR:
TITAN

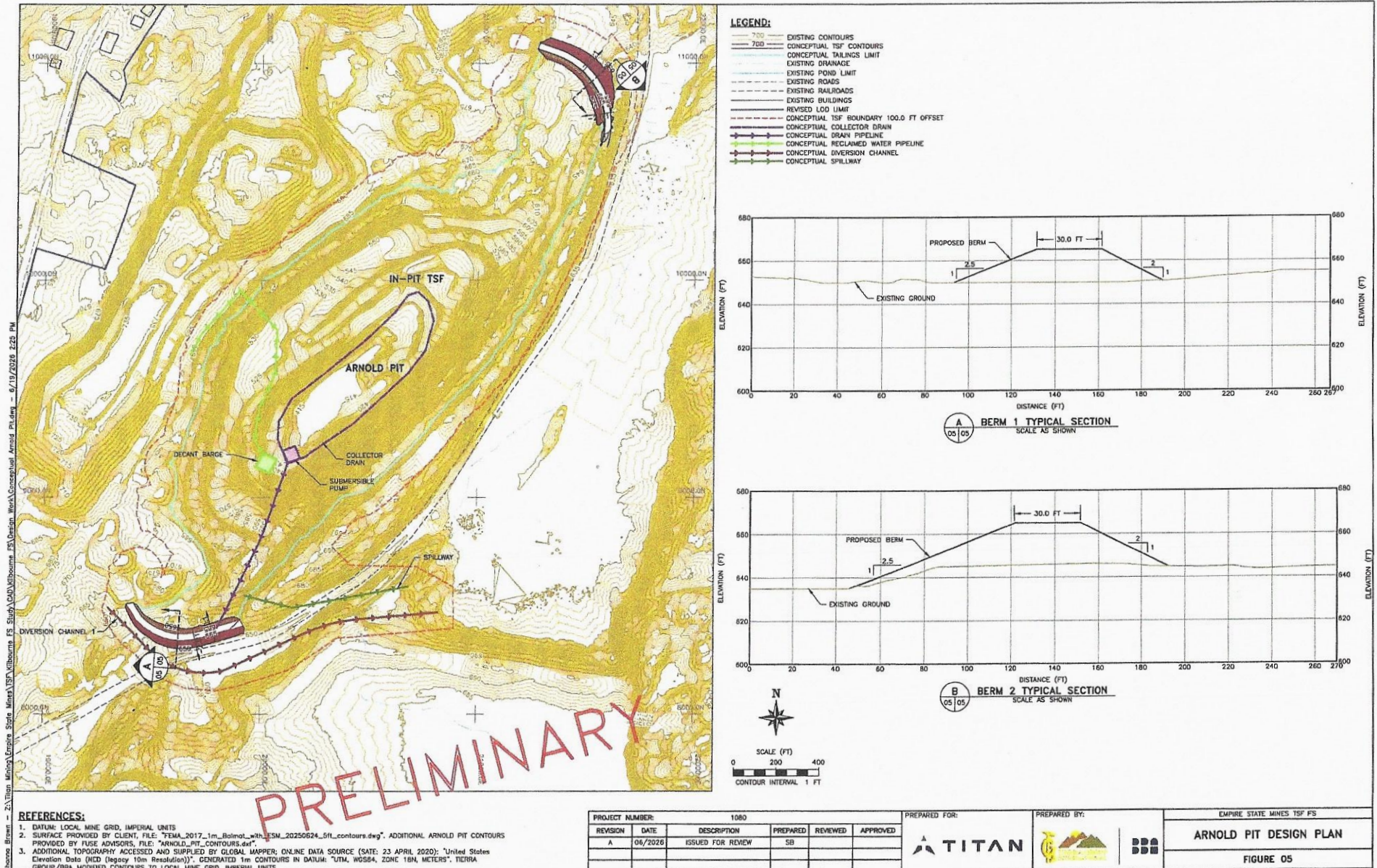
PREPARED BY:
TERRA

BBA

EMPIRE STATE MINES TSF FS

**TSF #2 FILTERED TAILINGS
DESIGN PLAN**

FIGURE 04



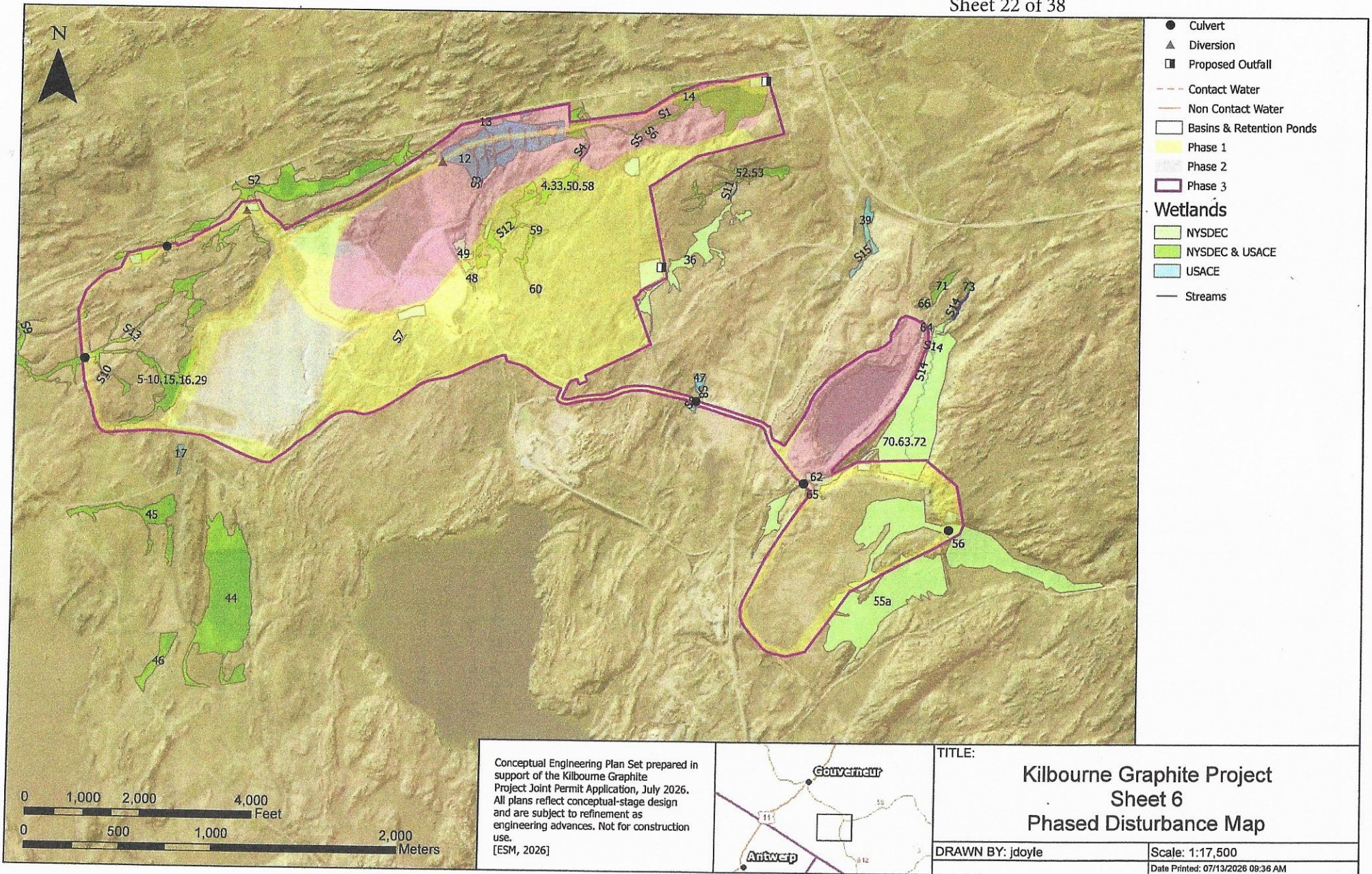
Phase 1 — Site Preparation and Early Infrastructure. Initial construction comprises clearing and grubbing of trees and other vegetation within the active disturbance area, installation of erosion and sediment controls, construction or improvement of site access and haul roads, establishment of initial contact-water and non-contact-water conveyances and sedimentation and retention basins, and construction of the mine-site processing plant and ore-handling facilities. The discharges to waters of the United States (WOTUS) associated with this phase consist predominantly of fill material — rock, soil, and earthen fill — placed for grading, road construction, and water management infrastructure where these features intersect jurisdictional wetlands and streams. Consistent with USACE's observation that the majority of the first-phase discharge consists of grading activities, the Phase 1 and early Phase 2 discharges are dominated by grading and infrastructure fill rather than tailings placement. Early-phase water management infrastructure is established prior to or concurrent with earth disturbance to maintain water quality and to preserve hydrologic connections during construction, as depicted on the water management sheet of the Conceptual Engineering Plan Set.

Phase 2 — Open-Pit Development and Conventional Tailings Management. Open-pit mining commences in the northern limb area of the deposit, where no existing tailings are present, allowing deferral of existing-tailings removal and perimeter dike construction. As mining progresses to the central area of the pit (approximately Years 3–6), removal of existing zinc tailings overlying the deposit and staged construction of perimeter containment dikes are required to prevent in-place tailings from migrating into the open pit. During Phase 1, graphite process tailings are managed using a conventional hydraulic (slurry) method in the Arnold Pit tailings facility. Phase 2 continues until the Arnold Pit reaches design storage capacity or the filtered tailings plant is commissioned, currently scheduled at approximately Year 8. The discharges to waters of the United States associated with Phase 2 consist of: fill material (rock, soil) placed for continued road, water management, and facility construction; fill associated with perimeter dike construction and waste rock placement in the Main and East WRSF and overburden placement in the OVB; and placement of conventional hydraulic tailings within the Arnold Pit facility. Waste rock and overburden placement quantities increase substantially during this phase, with waste rock placement peaking in the Year 7–8 period.

Phase 3 — Filtered Dry-Stack Tailings Management. Following commissioning of the filter plant at approximately Year 8, new tailings production transitions to a filtered dry-stack operation. Filtered tailings are transported to the active dry-stack facility and placed in engineered, compacted lifts using conventional earthmoving equipment, with waste rock generated from open-pit mining forming the outer containment shell of the facility in lieu of a conventional engineered embankment. This integrated approach combines tailings storage with waste rock management and provides for progressive reclamation of the facility as lifts are completed. The dry-stack facility is depicted in the conceptual design as the NW TSF and #2 TSF on the LOD3 Conceptual Site Layout; the feasibility study is carrying forward two candidate dry-stack configurations for final selection. The discharges to waters of the United States associated with Phase 3 consist of fill material — filtered tailings and waste rock — placed within the dry-stack facility footprint where it intersects jurisdictional areas, together with continued fill for associated water management and infrastructure. Consistent with USACE's framing, the second-phase discharge introduces tailings placement as a discharge type distinct from the grading-dominated earlier phases.

Progressive and Final Reclamation (concurrent and post-closure). Progressive reclamation will be implemented concurrent with operations where practicable, particularly for the dry-stack facility, whose lift-and-shell construction method enables reclamation of completed lifts during the operating life. Final reclamation will address closure of the open pits, waste rock and tailings facilities, and associated infrastructure consistent with the Mined Land Reclamation Permit requirements under ECL Article 23, Title 27, including financial assurance. The potential reclamation of the Arnold Pit to a wetland condition is under evaluation. Any discharge of dredged or fill material to waters of the United States associated with reclamation activities, or the creation of new waters of the United States through reclamation, will be addressed in the reclamation plan and the compensatory mitigation plan.

Titan Mining Corp
Kilbourne Graphite Mine
DA No. LRB-2025-01019
Sheet 21 of 38



CONSTRUCTION-PHASE WATER QUALITY CONTROLS:

Construction of the Kilbourne Graphite Project will involve land disturbance at significant scale across the approximately 1,262-acre maximum Limit of Disturbance over an approximately 13+ year mine development period. Land disturbance associated with construction activities at the Kilbourne Project is subject to the NYSDEC SPDES General Permit for Stormwater Discharges from Construction Activity (GP-0-25-001, effective January 29, 2025). The Applicant will prepare and implement a Stormwater Pollution Prevention Plan (SWPPP) consistent with the performance criteria of GP-0-25-001 and the New York State Stormwater Management Design Manual, prior to commencement of regulated land disturbance activities. The SWPPP will be submitted through a Notice of Intent to NYSDEC and will be updated as construction phases advance. [Draft ENG Form 4345; BBA Kilbourne Feasibility Hydrology Design Criteria, R01B, June 2, 2026]

In addition to construction general permit coverage, the Project site is subject to existing stormwater requirements associated with SPDES Permit No. NY0001791, which requires the facility to maintain coverage under SPDES permit requirements for stormwater associated with industrial activity pursuant to 40 CFR 122.26(a)(6) and requires continued implementation of a Best Management Practices (BMP) plan to prevent or minimize the release of toxic or hazardous pollutants to state waters. The existing BMP plan must be updated annually and an updated plan will be submitted to NYSDEC under the Schedule of Additional Submittals requirements of the renewed SPDES permit. Construction activities associated with the Kilbourne Project will be integrated into the facility-wide BMP plan as design advances. [SPDES Permit NY0001791, Effective April 1, 2026]

Erosion and sediment control appropriate to each phase of construction will be identified in the SWPPP and installed prior to or concurrent with land disturbance within or adjacent to jurisdictional wetlands and streams. The Project water management system is designed to establish separation between contact water and non-contact water from the earliest stages of construction. Contact-water conveyances, sedimentation basins, and initial retention basins will be constructed prior to or concurrent with earth disturbance in each phase, ensuring mine-impacted water is intercepted and managed prior to any release. Design criteria for sedimentation basins — including a minimum storage capacity equal to the 10-year, 24-hour rainfall event, a minimum length-to-width ratio of 3:1, a minimum freeboard of 2 feet, and emergency spillways sized to pass the 100-year, 24-hour event — and for retention basins — including a storage capacity equal to the 100-year, 24-hour rainfall event or greater, a minimum freeboard of 3 feet, Hazard Classification B designation, and emergency spillways sized to pass 225 percent of the 100-year rainfall event consistent with NYSDEC dam safety guidance — have been established in the project hydrologic design criteria. A 15 percent increase factor is applied to design rainfall intensities to account for the anticipated effects of climate change on extreme precipitation events. [BBA Kilbourne Feasibility Hydrology Design Criteria, R01B, June 2, 2026]

The Conceptual Engineering Plan Set provides a water management schematic showing conceptual contact-water and non-contact-water conveyance routes, basin locations, flow directions, and the relationship of these features to the existing SPDES Permit No. NY0001791 discharge infrastructure.

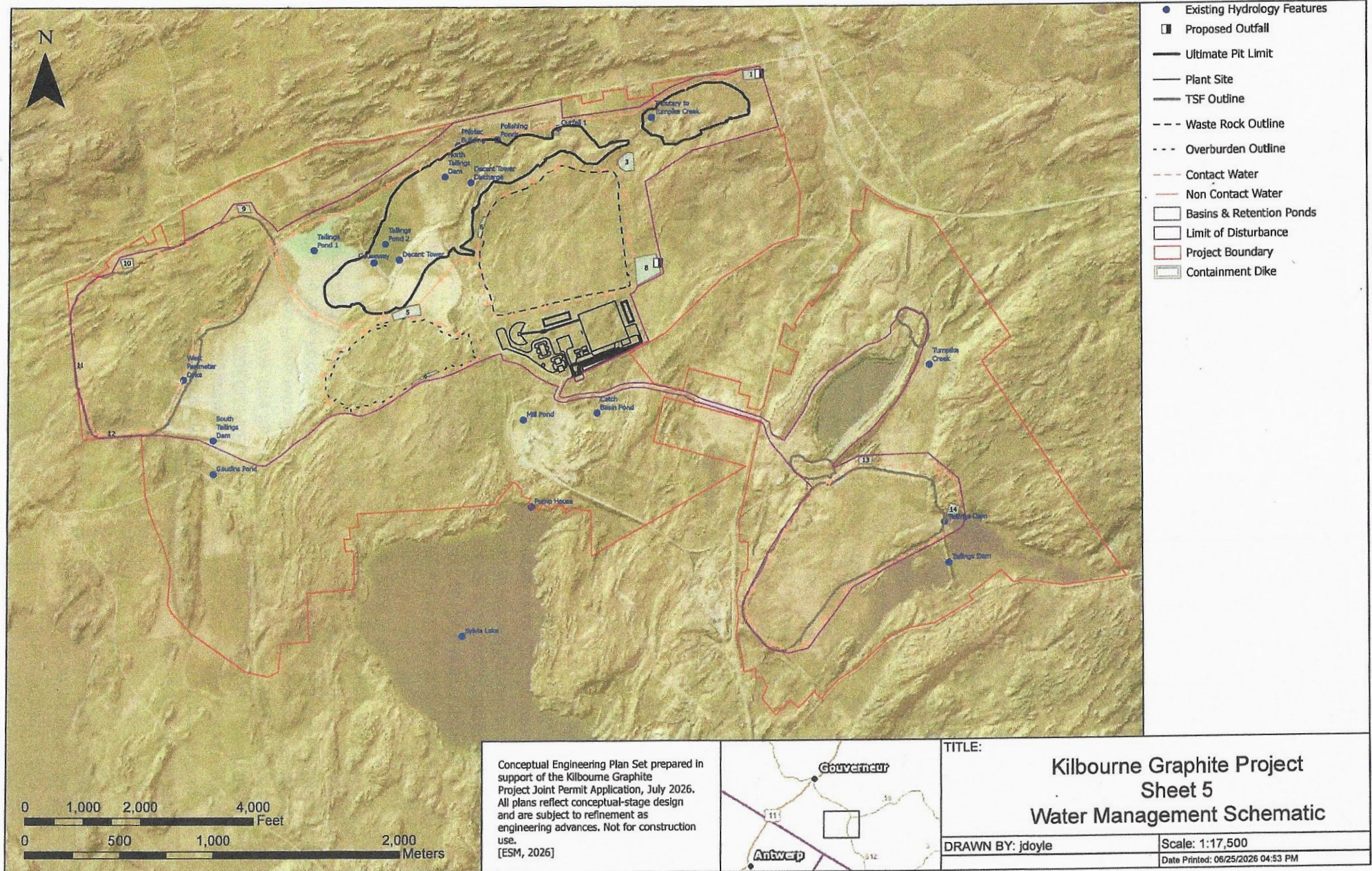
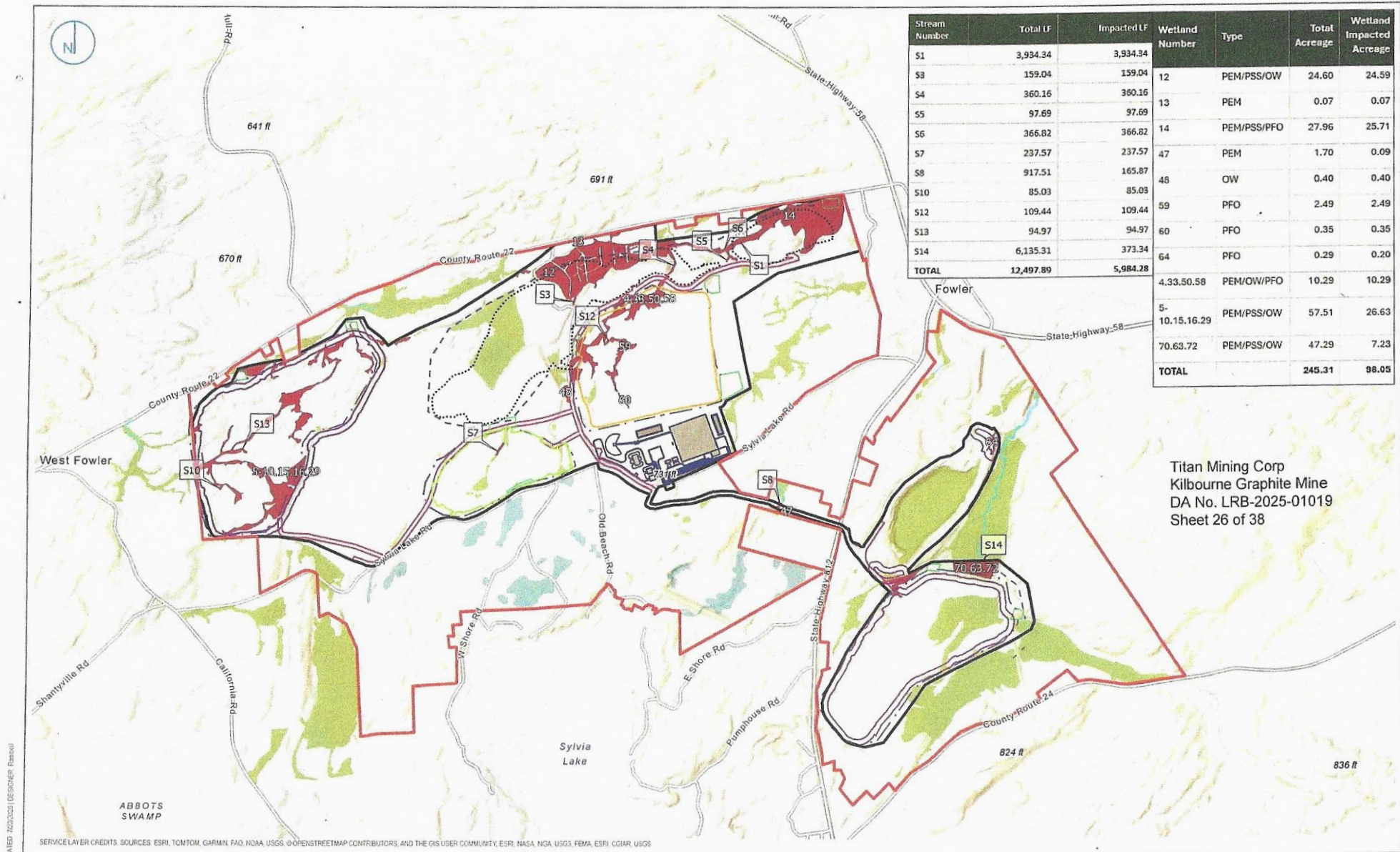


Table 4. Mining Quantities by Year — Kilbourne Graphite Project, Town of Fowler, St. Lawrence County, New York.							
Period	Potential Mill Feed (kton)	Avg. Grade (% Cg diluted)	Waste Rock (kton)	Overburden (kton)	Existing Zinc Tailings Removed (kton)	Total Material Mined (kton)	Notes
LOM Total	29,664	2.82	42,984	9,255	1,723	83,626	Engineering team: confirm LOM totals match latest feasibility planning. Source: Titan TR Table 16-32, December 2025.
Note: All quantities are in thousands of short tons (kton). Average grade is expressed as percent total graphitic carbon (% Cg), diluted. Total Material Mined (Column G) is calculated automatically as the sum of Potential Mill Feed + Waste Rock + Overburden + Existing Zinc Tailings Removed. Existing Zinc Tailings Removed represents relocation of in-place zinc tailings overlying the deposit as mining progresses into the central pit area (approximately Years 2–4); these are not new graphite process tailings. Year -1 reflects no mining activity in the pre-production period. Phase 2 / Phase 3 division reflects the anticipated transition from Arnold Pit conventional hydraulic tailings to filtered dry-stack tailings at approximately Year 8, coinciding with filter plant commissioning. Life-of-Mine weighted average grade is PMF-weighted across production years. All quantities and estimations including graphite resource are subject to confirmation and correction by the engineering team as feasibility-level design advances.							

Titan Mining Corp
 Kilbourne Graphite Mine
 DA No. LRB-2025-01019
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Stream Number	Total LF	Impacted LF	Wetland Number	Type	Total Acreage	Wetland Impacted Acreage
S1	3,934.34	3,934.34	12	PEM/PSS/OW	24.60	24.59
S3	159.04	159.04	13	PEM	0.07	0.07
S4	360.16	360.16	14	PEM/PSS/PFO	27.96	25.71
S5	97.69	97.69	47	PEM	1.70	0.09
S6	366.82	366.82	48	OW	0.40	0.40
S7	237.57	237.57	59	PFO	2.49	2.49
S8	917.51	165.87	60	PFO	0.35	0.35
S10	85.03	85.03	64	PFO	0.29	0.20
S12	109.44	109.44	5-10,15,16,29	PEM/PSS/OW	57.51	26.63
S13	94.97	94.97	70,63,72	PEM/PSS/OW	47.29	7.23
S14	6,135.31	373.34				
TOTAL	12,497.89	5,984.28			245.31	98.05

Titan Mining Corp
Kilbourne Graphite Mine
DA No. LRB-2025-01019
Sheet 26 of 38

DATED: 10/20/2021 (DESIGNER: Ramboll)

SERVICE LAYER CREDITS: SOURCES: ESRI, TCMTOM, GARMIN, FAO, NOAA, USGS, ©OPENSTREETMAP CONTRIBUTORS, AND THE GIS USER COMMUNITY, ESRI, NASA, NGA, USGS, FEMA, ESRI, COIAR, USGS

- Project Area
- Limits of Disturbance *
- Plant Site Layout
- Basins
- Tailings Management Facility
- Main Waste Rock Storage Facility
- Overburden Pile
- Site Roads
- Contact Water
- Non-Contact Water
- Pit Design
- Field-Delineated Wetlands
- Desktop Wetlands (Not Field-Delineated)
- Streams
- Impacted Projected USACE Jurisdictional Wetlands
- Impacted Streams



* LOD reflects conceptual-stage design and is subject to refinement as engineering advances.

IMPACTS TO PROJECTED USACE AQUATIC RESOURCES

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York



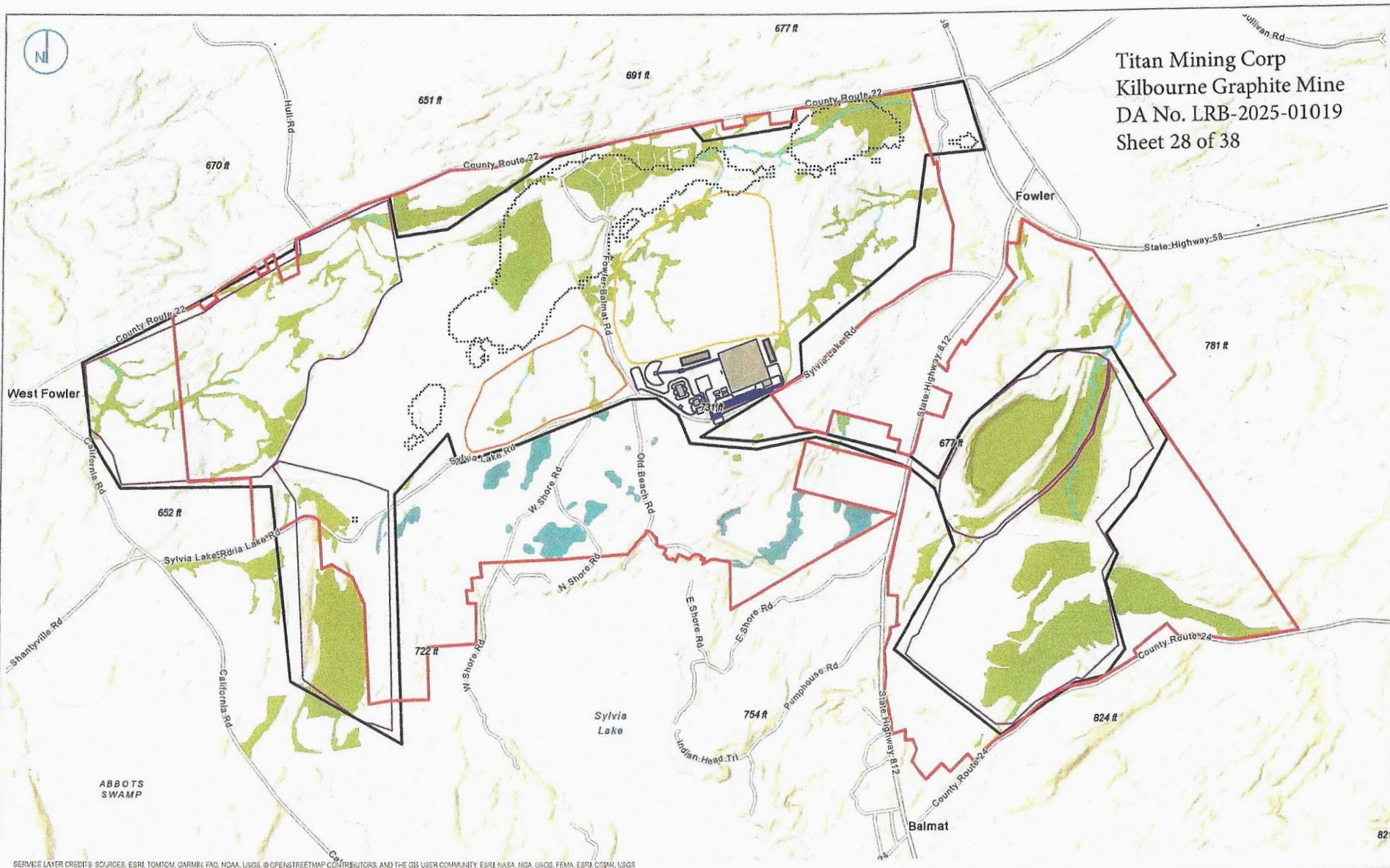
FIGURE 15

Proposed Jurisdictional Wetland Impacts

Wetland Number	Type	Total Acreage	Wetland Impacted Acreage
12	PEM/PSS/OW	24.60	24.59
13	PEM	0.07	0.07
14	PEM/PSS/PFO	27.96	25.71
47	PEM	1.70	0.09
48	OW	0.40	0.40
59	PFO	2.49	2.49
60	PFO	0.35	0.35
64	PFO	0.29	0.20
4.33.50.58	PEM/OW/PFO	10.29	10.29
5-10.15.16.29	PEM/PSS/OW	57.51	26.63
70.63.72	PEM/PSS/OW	47.29	7.23
TOTAL		245.31	98.05

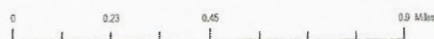
Proposed Jurisdictional Stream Impacts

Stream Number	Total LF	Impacted LF
S1	3,934.34	3,934.34
S3	159.04	159.04
S4	360.16	360.16
S5	97.69	97.69
S6	366.82	366.82
S7	237.57	237.57
S8	917.51	165.87
S10	85.03	85.03
S12	109.44	109.44
S13	94.97	94.97
S14	6,135.31	373.34
TOTAL	12,497.89	5,984.28



- ▬ Project Area
- ▬ Limits of Disturbance *
- ▬ Plant Site Layout
- ▬ Tailings Management Facility
- ▬ Waste Rock Storage Facility
- ▬ Overburden Pile
- ⋯ Preliminary Pit Design
- ▬ Field-Delineated Wetlands
- ▬ Desktop Wetlands (Not Field-Delineated)
- ▬ Streams

* LOD reflects conceptual-stage design and is subject to refinement as engineering advances.

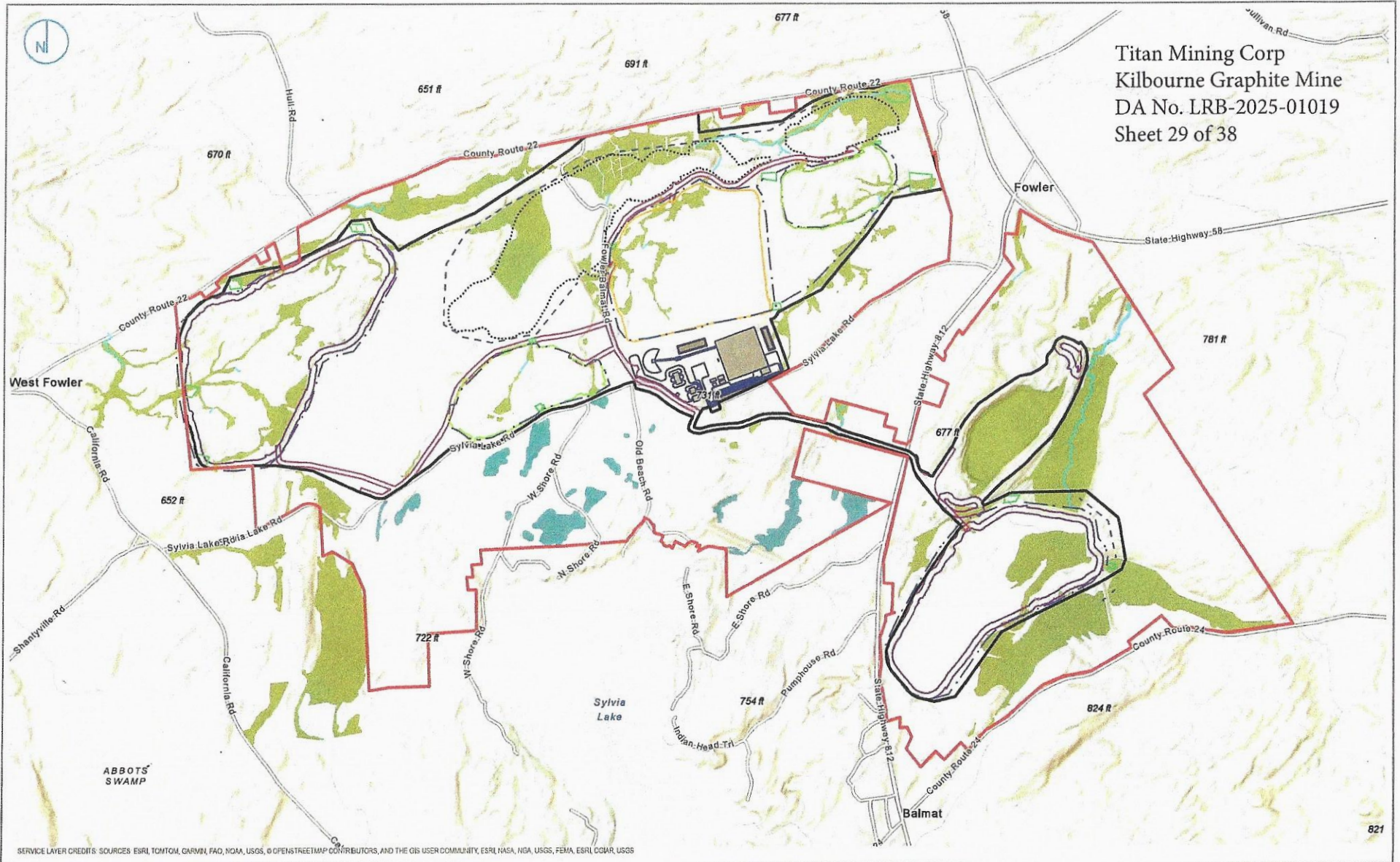


CONCEPTUAL DESIGN EVOLUTION (APRIL 2026)

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York

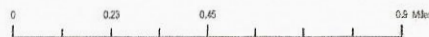


FIGURE 13A



- Project Area
- Limits of Disturbance *
- Plant Site Layout
- Basins
- Tailings Management Facility
- Main Waste Rock Storage Facility
- East Waste Rock Storage Facility
- Overburden Pile
- Site Roads
- - - Contact Water
- - - Non-Contact Water
- Pit Design

* LOD reflects conceptual-stage design and is subject to refinement as engineering advances.



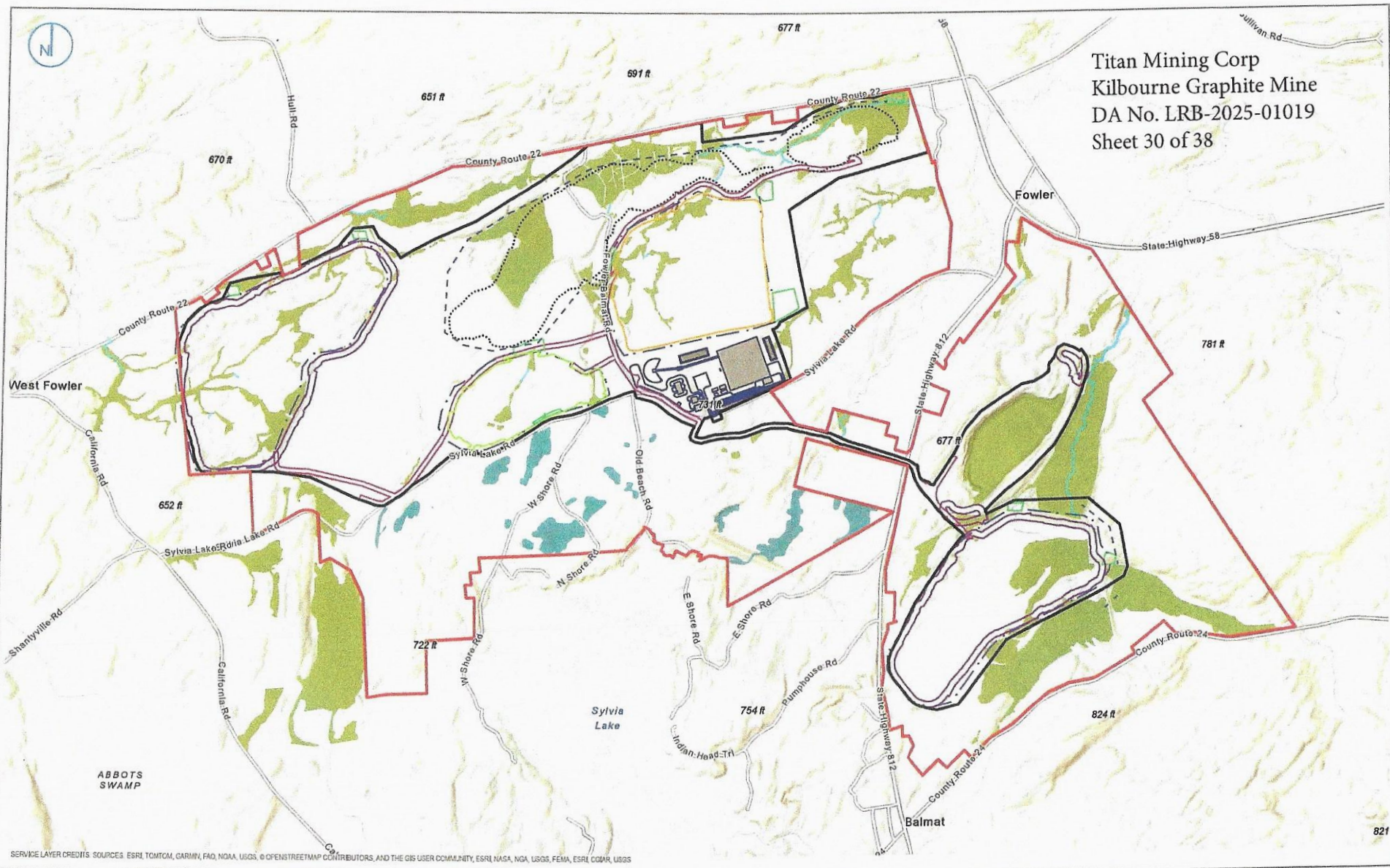
CONCEPTUAL DESIGN EVOLUTION (MAY 2026)

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York



FIGURE 13B

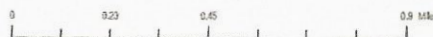
DATED 7/10/2024 | DESIGNER: Ramboll



Titan Mining Corp
Kilbourne Graphite Mine
DA No. LRB-2025-01019
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- Project Area
- Limits of Disturbance*
- Plant Site Layout
- Basins
- Tailings Management Facility
- Main Waste Rock Storage Facility
- Overburden Pile
- Site Roads
- Contact Water
- Non-Contact Water
- Pit Design
- Field-Delineated Wetlands

* LOD reflects conceptual-stage design and is subject to refinement as engineering advances.



CONCEPTUAL DESIGN EVOLUTION (JUNE 2026)

Kilbourne Graphite Mine
Town of Fowler
St. Lawrence County, New York



FIGURE 13C



Table 5. Design Alternatives and Wetland Impact Comparison by Design Configuration — Kilbourne Graphite Project, Town of Fowler, St. Lawrence County, New York.

Design Configuration	Figure	Approx. LOD Footprint (acres)	Total Wetlands within LOD (acres)	USACE Wetlands within LOD (acres)	NYSDEC Wetlands within LOD (acres)	NYSDEC 100' Adj Area within LOD (acres)
LOD1 (April)	13A	1,839.59	348.15	196.19	248.29	303.03
LOD2 (May)	13B	1,330.58	205.65	103.41	113.27	197.26
LOD3 (June/Current)	13C	1,261.76	195.04	98.05	102.24	173.91
Final Design (Placeholder)	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]	[TBD]

Note: All footprint and wetland impact figures are preliminary and subject to refinement as feasibility engineering advances.

Table 6. Avoidance and Minimization Measures Summary — Kilbourne Graphite Project, Town of Fowler, St. Lawrence County, New York.

Measure Category	Description	Project Component(s) Affected	Aquatic Resource Benefit	Status / Timing
<i>Tailings Management Design Evolution</i>				
TMF footprint reduction — conventional to hybrid dry-stack	Shift from a large conventional tailings impoundment to a hybrid approach combining the NW TSF (surface dry-stack with waste rock outer shell), #2 TSF, and Arnold Pit conventional storage. Eliminates large southward impoundment expansion.	NW TSF; #2 TSF; Arnold Pit	Removes southwestern and western wetland complex from the Limit of Disturbance relative to LOD1 configuration. Eliminates impacts to NYSDEC/USACE regulated wetlands in that area.	Incorporated in LOD2, May 28, 2026. Ongoing refinement anticipated through feasibility study.
TSF site screening — elimination of Southeast Extension alternative	Four candidate TSF locations were screened in a March 2026 workshop (Northwest Expansion/100 Acre Wood, Southeast Extension, Historic TSF #2, Arnold Pit). The Southeast Extension was eliminated from further evaluation based on the presence of high quality wetlands across a majority of the site, the need to reroute Sylvia Lake Road, and proximity to residences.	Southeast Extension (eliminated)	Avoided a conventional and filtered TSF alternative sited predominantly within an area characterized by natural wetlands, representing avoidance of a potentially more environmentally damaging alternative at the screening stage.	Screened and eliminated, March 2026 workshop; documented in Tierra Group/BBA Technical Memorandum, June 5, 2026.
Dry-stack waste rock outer shell integration	Use of mine waste rock as the outer containment shell of the dry-stack TSF, integrating tailings storage with waste rock management and eliminating the need for a separate embankment borrow source. Waste rock shell and progressive reclamation reduce dust generated by the dry stack facility.	NW TSF; Main WRSF	Reduces total disturbed area by consolidating tailings and waste rock placement. Decreases haul-road disturbance associated with separate borrow operations. Reduces dust generation of the dry stack facility.	Incorporated in LOD2. Design details to be confirmed at feasibility-study level.
Arnold Pit post-closure wetland reclamation potential	The Arnold Pit has been identified as a candidate for reclamation to wetland condition at mine closure, potentially re-establishing aquatic resource functions within the former pit footprint.	Arnold Pit	Potential long-term wetland creation offset against mine-related impacts. Contribution to overall aquatic resource outcome at closure.	Under evaluation. Not a current commitment. To be addressed in subsequent design and mitigation submittals.
Evaluation of existing tailings facility expansion and raising alternatives	Expansion or raising of existing tailings management facilities was initially evaluated as a means of avoiding new disturbance areas. These alternatives were not advanced due to geotechnical constraints, foundation conditions, operational limitations associated with maintaining ongoing ESM operations, and disproportionate engineering complexity relative to achievable storage capacity. The selected hybrid tailings management approach provides required capacity while maintaining safe operation and reducing overall aquatic resource impacts.	Existing TMF; NW TSF; #2 TSF; Arnold Pit	Documents consideration of alternatives that could have reduced new disturbance, while demonstrating why those alternatives were not practicable. Supports LEDPA and Article 24 avoidance sequencing findings.	Evaluated during feasibility-stage tailings planning. Conclusions subject to confirmation through ongoing geotechnical investigations.
<i>Mine Siting and Layout</i>				
Open-pit footprint	The Main Pit and East Pit locations are determined by the configuration of the recoverable graphite resource and pit optimization, not by discretionary siting. No additional avoidance of specific wetlands through pit relocation is practicable. Further reductions in pit limits were evaluated but could sterilize recoverable graphite reserves, undermine achievement of the Project purpose, and potentially	Main Pit; East Pit	Avoidance through wholesale pit relocation is not practicable because the graphite resource is fixed in location. Pit limits have been optimized to balance resource recovery, environmental impact reduction, and operational safety. Additional footprint reductions	Established constraint; documented in §4.2 and Appendix D (in preparation).

Measure Category	Description	Project Component(s) Affected	Aquatic Resource Benefit	Status / Timing
	compromise required pit slope geometries, haul-road widths, and geotechnical safety factors. Final pit limits remain subject to ongoing evaluation.		could sterilize recoverable reserves and compromise safe mining operations Pit-adjacent wetlands addressed through buffer setbacks and water management design where feasible.	
Waste rock and overburden storage siting	Waste rock and overburden storage facilities were refined through successive design iterations to reduce impacts to wetlands and other aquatic resources. Most notably, the previously proposed East Waste Rock Storage Facility (East WRSF) was eliminated from the project layout during design refinement, consolidating waste rock management within the Main WRSF and other project components. Elimination of the East WRSF also removed the need for an associated contact-water management basin that would have been located within or adjacent to wetland resources. Water management infrastructure was subsequently reconfigured to route contact water through alternative conveyances and treatment features, avoiding additional wetland and stream impacts while maintaining required water management, operational, and regulatory performance standards. Storage areas were further positioned to utilize previously disturbed areas where practicable and maintain separation from regulated wetland complexes consistent with operational and engineering constraints.	Main WRSF; East WRSF (eliminated); OVB	Elimination of the East WRSF avoided direct impacts to wetlands and streams that would have occurred under earlier design configurations and contributed to the reduction in aquatic resource impacts between LOD2 and LOD3. Removal of the associated contact-water basin avoided an additional wetland impact area, while revised contact-water routing eliminated the need for further aquatic resource encroachments associated with basin construction and conveyance infrastructure. Consolidation of waste rock storage reduced the overall disturbance footprint and limited encroachment into regulated wetland complexes.	Incorporated into LOD3 (current design/LEDPA). Additional refinements may occur as feasibility engineering advances.
In pit backfill	In-pit backfill with waste rock from the main pit will reduce the size of the waste rock storage facility and overall surface disturbance while providing a more suitable landform for reclamation as compared to an open pit.	East Pit; Main WRSF	Reduces size of main WRSF. Increases reclaimable land surface.	Still under evaluation as mine plan progresses. Not a current commitment.
Water Management Design				
Revised contact-water routing and basin optimization	Following elimination of the East Waste Rock Storage Facility (East WRSF), the associated contact-water management basin and related conveyance infrastructure were removed from the conceptual layout. The revised routing maintains required contact-water containment, treatment, and conveyance functions while reducing the footprint of water management infrastructure and avoiding additional aquatic resource encroachments. The redesign maintains compliance with project hydrologic design criteria for contact/non-contact water separation, stormwater management, and water quality protection.	Contact-water conveyances; sedimentation basins; retention basins; Main WRSF; East WRSF (eliminated)	Elimination of the East WRSF-associated contact-water basin avoided direct impacts to wetland resources and reduced the extent of associated conveyance infrastructure. Revised contact-water routing avoided additional wetland and stream impacts that would have been required to service the former East WRSF area, contributing to the reduction in aquatic resource impacts between LOD2 and LOD3.	Incorporated in LOD3 (current design/LEDPA). Subject to continued refinement as feasibility-level engineering advances.
Contact-water / non-contact-water separation	Water management system designed to segregate mine-impacted contact water from clean stormwater runoff through independent conveyance, collection, and treatment pathways, consistent with BBA Hydrology Design Criteria R01B.	All water management features site-wide	Prevents migration of mine-impacted water to non-impacted wetlands and streams. Reduces extent of wetland areas subject to altered hydrology from process water.	Design criteria established per BBA Kilbourne Feasibility Hydrology Design Criteria, R01B, June 2, 2026. Specific

Measure Category	Description	Project Component(s) Affected	Aquatic Resource Benefit	Status / Timing
				feature siting to be confirmed as design advances.
Use of existing ESM water management infrastructure	Contact-water and non-contact-water conveyance routes and water management features designed to utilize and expand upon existing Empire State Mines infrastructure and conveyances where practicable.	Contact-water conveyances; non-contact-water diversions; retention and sedimentation basins	Reduces new construction in undisturbed areas. Limits new stream and wetland crossings associated with new water management infrastructure.	Incorporated in conceptual layout. Confirmed in LOD2 design. Details to advance with feasibility engineering.
Retention and sedimentation basin siting	Sedimentation basins (10-yr/24-hr storage capacity) and retention basins (100-yr/24-hr or greater storage capacity) sited to intercept runoff before discharge and to avoid placement within regulated wetland boundaries where practicable.	Sedimentation basins; retention basins; contact-water management areas	Prevents sediment and contact-water discharge to jurisdictional wetlands and streams during construction and operation. Supports Section 401 WQC water quality protection standards.	Design criteria per BBA, R01B, June 2, 2026. Feature locations preliminary; to be confirmed and refined as design advances.
General Water Management Infrastructure	Water management features, including diversion channels, conveyances, sedimentation basins, retention basins, spillways, and related infrastructure, have been configured to avoid and minimize aquatic resource impacts while maintaining required stormwater management, contact/non-contact water separation, dam safety, and SPDES compliance functions. Additional reductions in these features were evaluated but could compromise water quality protection, flood conveyance capacity, operational reliability, and/or regulatory compliance.	Water management system site-wide	Limits disturbance to the minimum footprint practicable while maintaining protection of downstream wetlands, streams, and receiving waters through effective water management and treatment.	Incorporated into conceptual hydrologic design criteria and subject to refinement during detailed engineering.
Roads, Utilities, and Access				
Haul road and site road alignment	Site roads and haul roads configured to utilize existing ESM road corridors where practicable and to limit new stream and wetland crossings to those required for mine operational connectivity.	Site roads; haul roads; utility corridors	Reduces total linear feet of new stream and wetland crossings. Limits temporary disturbance associated with construction access.	Incorporated in LOD2 conceptual layout. Final road alignments subject to refinement as engineering advances.
Power transmission and utility corridor routing	Power transmission line and utility corridor alignments routed to avoid the largest regulated wetland complexes to the extent practicable, consistent with grid connection requirements and site access needs.	Power transmission line; utility corridors	Reduces permanent and temporary wetland crossings associated with utility infrastructure.	Conceptual routing reflected in LOD2. Subject to engineering refinement.
Construction Methods and Sequencing				
Erosion and sediment control installation prior to disturbance	Erosion and sediment controls, including stabilized construction entrances, silt fence or equivalent, sediment traps or basins, and temporary diversion swales, to be installed prior to or concurrent with ground disturbance within or adjacent to aquatic resource areas.	All construction areas within or adjacent to jurisdictional wetlands and streams	Prevents sediment transport to jurisdictional wetlands and streams during construction. Maintains water quality in receiving waters consistent with §401 WQC requirements.	Standard construction requirement. Details to be developed in SWPPP and construction specifications as design advances.

Measure Category	Description	Project Component(s) Affected	Aquatic Resource Benefit	Status / Timing
Time-of-year restrictions for tree clearing	Tree clearing and forest disturbance subject to time-of-year restrictions to be confirmed through ESA Section 7 informal consultation with USFWS, based on results of ongoing bat acoustic surveys. Restrictions anticipated to address active roosting season of the federally endangered northern long-eared bat (<i>Myotis septentrionalis</i>) and tricolored bat (<i>Perimyotis subflavus</i>).	All forested areas within LOD	Avoids direct take of federally listed bat species. Reduces disturbance to forested wetland communities during critical wildlife use periods.	ESA Section 7 consultation ongoing. Clearing windows to be incorporated into construction planning upon consultation completion.
Progressive reclamation concurrent with operations	Progressive reclamation of disturbed areas, including waste rock and tailings facilities, implemented concurrent with mine operations where practicable and consistent with ECL Article 23 Mined Land Reclamation Permit requirements.	Main WRSF; East WRSF; OVB; TSF areas	Reduces the total acreage of simultaneously disturbed land at any point in time. Accelerates re-establishment of vegetated cover and associated wetland buffer functions in reclaimed areas.	Required under ECL Article 23. Reclamation plan to be submitted as part of Mined Land Reclamation Permit modification.

Note: Measures listed reflect the avoidance and minimization commitments and design decisions incorporated into the Project as of the conceptual design stage and maximum Limit of Disturbance (LOD3, June 26, 2026). Additional measures are anticipated to be identified and incorporated as feasibility engineering advances. Final avoidance and minimization measures will be documented in the Section 404(b)(1) Alternatives Analysis (Appendix D) for future submittal and updated permit application materials.

Table 10. *Estimated Compensatory Mitigation Ratio by Cover Type — USACE §404-Regulated Wetland Impacts. Kilbourne Graphite Project, Town of Fowler, St. Lawrence County, New York.*

Cover Type	Estimated Impacted Area (ac) ¹	% of USACE Impact	Typical Ratio Range	Applied Ratio (Planning Estimate)	Required Credit-Acres	Basis / Notes
Palustrine Emergent (PEM)	56.36	57.5%	1.5:1 – 2.5:1	2.0:1	112.72	Dominant cover type at Kilbourne; standard emergent marsh re-establishment; achievable in 3–5 years with proper hydrology; consistent with USACE 33 CFR §332 minimum for palustrine emergent re-establishment. Includes contributions from WL 12, 14, 4.33.50.58, 5-10.15.16.29, and 70.63.72.
Palustrine Scrub-Shrub (PSS)	21.00	21.4%	2.0:1 – 3.0:1	2.5:1	52.50	Intermediate ecological function; woody vegetation re-establishment requires 7–10 years to functional maturity; ratio consistent with Micron-level PSS precedent and NYSDEC Part 663 expectation for shrub-dominated wetland replacement. Includes contributions from WL 12, 14, 5-10.15.16.29, and 70.63.72.
Palustrine Forested (PFO)	9.47	9.7%	2.5:1 – 3.5:1	3.0:1	28.41	Highest ecological function; USACE Buffalo District consistent with 2.5:1–3:1 for deciduous PFO re-establishment in Upstate NY; Micron JPA precedent reached ~3.5:1 for forested wetlands under CLCPA carbon lag analysis. Includes WL 59, 60, 64 (pure PFO) and PFO fractions of WL 14 and 4.33.50.58.
Open Water / Palustrine Unconsolidated Bottom (OW)	11.23	11.4%	1.0:1 – 2.0:1	1.5:1	16.83	Lower functional replacement threshold; open water habitat achievable through excavation and grading; shorter establishment timeline than vegetated wetlands. Includes OW

Cover Type	Estimated Impacted Area (ac) ¹	% of USACE Impact	Typical Ratio Range	Applied Ratio (Planning Estimate)	Required Credit-Acres	Basis / Notes
						fractions of WL 12, 4.33.50.58, 5-10.15.16.29, and 70.63.72, plus WL 48 (pure OW, 0.40 ac).
TOTAL	98.05	100%	—	2.15:1	210.46	Weighted average based on cover type acreage apportionment. ~210 credit-acres of compensatory mitigation required under CWA §404 to satisfy USACE Buffalo District.

¹ Cover type acreages are estimated through proportional apportionment of multi-cover-type wetland features. Where a delineated wetland feature carries multiple Cowardin cover type designations (e.g., PEM/PSS/OW), acreage is apportioned based on field-consistent estimates of relative type distribution within the feature.

² Ratio ranges reflect published USACE 33 CFR Part 332 guidance, NYSDEC 6 NYCRR Part 663 practice, Mitigation Rule precedent for the Buffalo District, and the Micron Semiconductor JPA compensatory mitigation program (Town of Clay, NY, July 2025) as a regional precedent. Applied (point-estimate) ratios represent conservative mid-range planning figures for mitigation demand estimation. Final ratios are subject to negotiation with USACE Buffalo District and NYSDEC Region 6 and will be established in the mitigation plan.

³ USACE and NYSDEC impacts overlap significantly (~73 ac dual-jurisdiction). Total mitigation credit-acres required by each program are not additive. The compensatory mitigation program will be designed as a single coordinated package to satisfy both agencies, with the more demanding program governing for overlapping impacts. As of July 10, 2026, a total of 45.615 Wetland Mitigation credits are available for purchase across the Western St. Lawrence Service Area (30.275 credits) and Eastern St. Lawrence Service Area (15.34 credits) of the Ducks Unlimited New York In-Lieu Fee Program; however, as available ILF credits represent approximately only a percentage of the estimated ~210 credit-acre USACE §404 mitigation obligation, a permittee-responsible off-site mitigation program will be required to satisfy the substantial majority of the federal mitigation demand and the entirety of the NYSDEC Article 24 compensatory mitigation requirement.

Table 12. USACE §404 Compensatory Mitigation Program — Kilbourne Graphite Project, Town of Fowler, St. Lawrence County, New York.

Mitigation Component	Method	USACE §404 Credits (est.)	Notes
1 — Onsite Wetland Restoration	Re-establishment (primary); rehabilitation; enhancement	40–80	Within Project Area outside LOD. Same physical sites satisfy NYSDEC Article 24 simultaneously. Conservation easement and long-term management.
2 — Mine Reclamation (Arnold Pit)	Wetland establishment above Article 23 reclamation baseline	20–60	Deferred-timing discount applied. Additionality above required reclamation baseline to be confirmed in the compensatory mitigation plan [33 CFR 332.3(a)]. Same physical restoration satisfies NYSDEC Article 24 subject to agency confirmation.
3 — Offsite Permittee-Responsible Mitigation	Re-establishment (primary); rehabilitation	Balance ¹	Upper Oswegatchie River watershed. Re-establishment on agricultural land preferred. Same physical sites satisfy NYSDEC Article 24 simultaneously. Conservation easement. Sized by NYSDEC governing obligation (see Table B).
4 — In-Lieu Fee Credit Purchase	Credit purchase — Ducks Unlimited NY ILF Program	30	USACE §404 only. Credits per DU NY ILF Credit Availability Letter, July 10, 2026. Secured upon purchase. Reduces USACE permittee-responsible obligation to ~180 credit-acres.
5 — Preservation	Conservation easement; long-term management	15–40	USACE §404 only. Supplementary component per 33 CFR 332.3(h); implemented in combination with restoration. Demonstrable threat required for credit.
TOTAL	—	~210 credit-acres	USACE §404 obligation satisfied across Components 1–5.

¹ Component 3 (Offsite Permittee-Responsible) provides the flexible balance of the USACE §404 obligation not met by Components 1, 2, 4, and 5. The physical mitigation sites for Component 3 are sized by the NYSDEC Article 24 governing obligation (67–147 wetland credit-acres; see Table 13), which exceeds the USACE residual need at every combination of component performance.