5.2.3.2.3 Plant Site Direct Wetland ~~Effects~~Impacts

PolyMet proposes to reuse the former LTVSMC processing plant and Tailings Basin. The processing plant is located on uplands with no wetland resources present. The existing constructed plant reservoir located east of the concentrator is not regulated as a wetland. Therefore, no direct wetland ~~effects~~ impacts are anticipated in this portion of the Plant Site.

Direct wetland ~~effects~~ impacts would result from the following Plant Site components: construction of the Tailings Basin, pump station, treated water discharge pipelines, flotation tailings pipeline, Tailings Basin containment system to manage Tailings Basin seepage, rock buttress for stability along the north and east sides of Cell 2E, drainage swale and overflow channel located northeast of Cell 2E, and the Hydrometallurgical Residue Facility.

Direct wetland ~~effects~~ impacts within the Plant Site would total 14~~7.1~~8.4 acres. These wetlands ~~effects~~ impacts would be caused by fill (12 percent), excavation (31 percent), excavation and fill (less than one percent), and the containment system (58 percent), and therefore, these wetlands would be permanently lost. Table 5.2.3-8 summarizes the directly ~~affected~~ impacted wetlands within the Plant Site by community type while Table 5.2.3-9 identifies the activity that causes the ~~effects~~ impacts expected within the Plant Site. The majority of the wetlands (94~~5~~ percent) that would be ~~affected~~ impacted are rated as low quality and ~~6~~ 7 percent are rated as moderate quality wetlands.

The rock buttress described in Section 3.2.3 and Section 4.2.13 would abut the existing toe of the Tailings Basin. The water containment system would extend approximately 300 ft around the northern and western sides, and portions of the eastern sides of the Tailings Basin, encapsulating the Tailings Basin, the rock buttresses and wetlands between it and the rock buttresses. Construction of the Tailings Basin for the NorthMet Project Proposed Action would also result in expansion of the existing eastern footprint onto natural highland. The majority of the ~~affected~~ impacted wetlands are rated as low quality, primarily because the hydrology supporting these wetlands has been modified by seepage from the Tailings Basin and other drainage modifications made in the area (PolyMet 2015b~~3b~~). These hydrologic modifications have resulted in inundation and changes in wetland cover types from forested and scrub shrub wetlands (as evidenced in aerial photographs from the 1940s prior to LTVSMC operations) to deep marsh (Barr 2008b).

Wetlands located outside of the Cliffs Erie Permit to Mine Ultimate Tailings Basin boundary (this boundary is shown on Figure 5.2.3-18 and Figure 5.2.3-19) but within the Hydrometallurgical Residue Facility are included in the direct wetland ~~effects~~ impact analysis. As previously noted, approximately 28.6 acres of wetlands in the Hydrometallurgical Residue Facility are not subject to state or federal regulations as they are located within an actively permitted waste storage facility. Two wetlands located in the Hydrometallurgical Residue Facility are subject to state or federal regulation covering 7.5 acres and would be directly ~~affected~~ impacted by fill. Both wetlands are shallow marsh wetlands (see Figure 5.2.3-19).

There would be no direct wetland ~~effects~~ impacts along the Colby Lake Water Pipeline Corridor or in the Second Creek area~~,~~ as there would be no construction within ~~this corridor~~these two areas.

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Table 5.2.3-8 Total Projected Direct Wetland ~~Effects~~ Impacts for the Plant Site

	Directly ~~Affected~~ Impacted Wetlands at the Plant Site		
Eggers and Reed Class[1]	**Acres**	**%**	**No.**[2]
Coniferous bog	0.0	0	0
Coniferous swamp	10.7	7	3
Deep marsh	~~73~~74.40	50	14
Hardwood swamp	0.~~0~~7	~~0~~<1	~~0~~1
Open bog	0.0	0	0
Open water (includes shallow, open water, and lakes)	0.0	0	0
Sedge/wet meadow	1.4~~5~~	1	~~5~~6
Shallow marsh	52.7	36	13~~4~~
Shrub swamp (includes alder thicket and shrub-carr)	8.9	6	6
Total Direct ~~Effects~~Impacts	~~147~~148.14	100	~~42~~44

Source: PolyMet 2015b~~3b~~.

[1] Eggers and Reed 1997.

[2] There are 44 unique wetlands directly impacted at the Plant Site, which includes the Tailings Basin and Hydrometallurgical Residue Facility footprint. One wetland (ID 1155) has been split between the Tailings Basin and Hydrometallurgical Residue Facility footprint in the Wetland Data Package for a total of 45 wetlands directly impacted in Wetland Data Package report.

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Figure 5.2.3-18 Tailing Basin Wetlands and Direct Wetland Impacts

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Figure 5.2.3-19 Hydrometallurgical Residue Facility Wetlands and Direct Wetland Impacts

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Table 5.2.3-9 Type of Projected Direct Wetland ~~Effects~~ Impacts at the Plant Site

	Directly ~~Affected~~ Impacted Wetlands at the Plant Site		
Type of ~~Effect~~Impact	**Acres**	**%**	**No.**[1]
Fill	17.~~0~~6	12	~~16~~17
Excavation	45.2	31	1
Fill and Excavation	0.2	<1	1
Containment System	8~~4.7~~5.4	58	2~~6~~4
Total Direct ~~Effects~~Impacts	14~~7.1~~8.4	100	4~~2~~45

Source: PolyMet 2015b~~3b~~.

1. There are 44 unique wetlands directly impacted at the Plant Site, which includes the Tailings Basin and Hydrometallurgical Residue Facility ~~HRF~~ footprint. One wetland (ID 1155) has been split between the Tailings Basin and Hydrometallurgical Residue Facility footprint in the Wetland Data Package for a total of 45 wetlands directly impacted in Wetland Data Package report. This ~~wetland~~ would result in ~~wetland~~ impacts on wetlands as a result of filling at the Hydrometallurgical Residue Facility and ~~wetland effects as a result of~~ placement of the containment system at the Tailings Basin.

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