



January 12, 2024

Sent via email to: [Heinz.rachel@azdeq.gov](mailto:Heinz.rachel@azdeq.gov)

Arizona Department of Environmental Quality  
Water Quality Division, Surface Water Protection  
Attn: Rachel Heinz  
1110 W. Washington St.  
Phoenix, AZ 85007

**RE: Comments of South32 Hermosa Inc. on draft renewal permit for January Mine Hermosa Project (AZ0026387); LTF No. 95353**

Dear Ms. Heinz:

South32 Hermosa Inc. (“South32”) appreciates the opportunity to comment on the draft AZPDES renewal permit for two surface water discharges at its January Mine Hermosa Project (“Project”). ADEQ published the public notice for the renewal on November 28, 2023. These same discharges are also regulated by an aquifer protection permit (“APP”), No. P-512235. South32 supports issuance of the renewal permit.

### **Project Background**

The Project consists of ongoing exploration activities and potential future underground mining in an area of historic mineral production south of Patagonia, Arizona. If developed, the Project will produce manganese, zinc, silver, and lead. Two of these minerals, manganese and zinc, are on the most recent list of critical minerals published by the United States Geological Service in February 2022. See 87 Fed. Reg. 10381 (February 24, 2022). Increased domestic production of critical minerals is a priority of current and past Congresses and Administrations, as reflected in numerous pieces of legislation and executive directives,<sup>1</sup> and is critical to allowing the country to transition to cleaner energy sources. The Project is the only advanced manganese development project in North America.

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<sup>1</sup> On the legislative front, the Energy Act of 2020, the Bipartisan Infrastructure Law, the CHIPS and Science Act, and the Inflation Reduction Act all included provisions to identify and secure domestic supplies of critical minerals. An example of executive action is Presidential Determination No. 2022-11, which, *inter alia*, calls for expanding domestic production of minerals, including manganese, that are essential to large capacity batteries. See 87 Fed. Reg. 19775 (April 6, 2022).

In recognition of its potential to produce critical minerals, the Project is the first (and thus far only) mining project accepted by the Federal Permitting Improvement Steering Council (“FPISC”) for inclusion in the FAST-41 program (42 U.S.C. § 4370m *et seq.*). Participation in FAST-41 is intended to lead to a single, coordinated, and transparent permitting timetable for all federal environmental reviews and authorizations for a covered project and to allow expedited issue elevation and dispute resolution procedures. The FPISC has established a framework and schedule for coordinating the necessary federal environmental reviews and authorizations for the Project.<sup>2</sup>

### **Comments on Draft Permit**

1. **ADEQ is correct in noting that the existing permit has been administratively continued (Fact Sheet, p. 1):** The draft Fact Sheet (p. 1) notes that the existing permit, although it carries an expiration date of January 7, 2023, has been administratively continued. This is correct as a matter of law.

The AZPDES regulations allow for a permit that otherwise would have expired on its face to continue so long as: (1) a timely renewal application was submitted at least 180 days before the permit’s stated expiration date, and the permitted activity is of a continuing nature; and (2) ADEQ was unable, through no fault of the permittee, to issue a new permit before the stated expiration date of the existing permit. See A.A.C. R18-9-B904(C). See also A.R.S. § 41-1092.11 (“If a licensee makes timely and sufficient application for the renewal of a license or a new license with reference to any activity of a continuing nature, the existing license does not expire until the application has been finally determined by the agency . . .”).

The pre-conditions for administrative continuance are all satisfied in the present case:

- South32 submitted its renewal application on July 11, 2022, which is 180 days before the existing permit’s stated expiration date of January 7, 2023. The application was determined administratively complete by ADEQ on July 26, 2022, meaning that it contained all components required by statute or rule. See A.R.S. §§ 41-1072(1) & 41-1074; A.A.C. R18-1-501(1). South32’s application was therefore both complete and timely submitted.
- The discharges authorized by the prior permit and the renewal permit are intended to be of a continuing nature. Even if a discharge is not continuous, it may still be considered to be of a “continuing nature.” See, e.g., *Natural Resources Defense Council v. EPA*, 859 F.2d 156, 214 (D.C. Cir. 1988) (in upholding EPA regulation providing that expired NPDES permits are administratively continued even after their expiration date so long as a complete renewal application was timely

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<sup>2</sup> The schedule is available at <https://www.permits.performance.gov/permitting-project/fast-41-covered-projects/south32-hermosa-critical-minerals-project>

submitted, court states: “Nothing in the APA indicates that “continuing” activities may not be weekly, monthly, seasonal or even intermittent in nature.”). The same court also noted that “the bare fact that a source operator subject to the regulation is applying for a renewal of a five-year operating permit is itself some evidence of a continuing activity.” Id. at 213 n. 156.

AZPDES permits are not issued for the purpose of authorizing construction of treatment plants, but to regulate discharges from them. That is the case with respect to South32’s AZPDES permit as well. Its permit regulates discharges from WTP 1 and WTP 2, not construction of the plants. Both WTP 1 and WTP 2 are envisaged as operating for many decades.

- That certain previously permitted discharges did not take place prior to January 7, 2023 is irrelevant. WTP 1 has always been designed to discharge only when available water exceeds on-site reuse needs, which has not yet happened but may in the future. See, e.g., Fact Sheet accompanying 2018 permit, at 3 (“The facility will discharge from the outfall only when all water in the collection pond cannot be reused”). WTP 2, which is intended to discharge on a consistent basis, did not commence discharging immediately upon the effective date of the AZPDES permit amendment<sup>3</sup> allowing it to do so (August 12, 2021) because a large and complex treatment plant takes a long time to construct. South32 also had to deal with the ongoing effects of the coronavirus pandemic and numerous supply chain disruptions. Under the law, the permitted discharges are defined as continuing discharges, regardless of whether they physically commenced prior to January 7, 2023.
- South32 did not engage in action or inaction that prevented ADEQ from making a permit decision before January 7, 2023. South32 timely submitted a complete renewal application, did not modify its application before January 7, 2023, and was not dilatory in responding to any ADEQ requests for information during that period. No “fault of the permittee” prevented issuance of the renewal permit before January 7, 2023.

Therefore, pursuant to both A.A.C. R18-9-B904(C) and A.R.S. § 41-1092.11, South32’s existing permit is administratively continued, as ADEQ notes in the draft Fact Sheet.

**2. The new source language applicable to Outfall 001 is correct and defensible (Part I.A.1.b):** ADEQ has proposed language to address new source questions potentially raised by the Arizona Court of Appeals decision in San Carlos Apache Tribe v. State of Arizona, 254 Ariz.

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<sup>3</sup> This AZPDES permit amendment was not challenged by any party.

179, 520 P.3d 670 (2022), petition for review granted and case argued, No. CV-22-0290-PR (August 22, 2023).

(a) As an initial matter, ADEQ correctly notes on p. 10 of the Fact Sheet that the conditional prohibition on discharges from new sources to impaired waters before a TMDL is completed (A.A.C. R18-9-A903(7)) is not relevant to discharges from Outfall 002 in the draft permit. That is because Harshaw Creek at and below the outfall is not listed as impaired or non-attaining (i.e., Category 4 or 5 on the biennial water quality summary prepared by ADEQ under § 303(d) of the CWA, 33 U.S.C. § 1313(d)). The 2003 TMDL was developed for a portion of Upper Harshaw Creek. ADEQ's draft Fact Sheet (p. 8) shows the end of the non-attaining segment, which is above Outfall 002. This segmentation of Harshaw Creek is consistent with listings of the non-attaining segment of Harshaw Creek subsequent to the 2003 TMDL. For example, the 2016 list of impaired waters identified upper Harshaw Creek as category 4A (not attaining but TMDL completed), giving the endpoint of this segment as latitude 31°27'43" N, longitude 110°43'21" W, and did not identify any other portion of Harshaw Creek as impaired or non-attaining. *See 2016 Clean Water Act Assessment* (July 2017), Appendix B-1.

Attached to these comments is a figure showing the latitude and longitude that marks the end of the impaired portion of Harshaw Creek (i.e., latitude 31°27'43" N, longitude 110°43'21" W), as well as the location of the end of the discharge pipe from WTP 2, which represents outfall 002 (latitude 31°27'57" N, longitude 110°43'12" W). The outfall is approximately 0.4 river miles downstream of the end of the portion of Harshaw Creek designated as non-attaining. This figure makes crystal clear that Outfall 002 is not discharging into the non-attaining portion of Harshaw Creek. Therefore, the prohibition found in A.A.C. R18-9-A903(7) is not relevant to Outfall 002.

Furthermore, ADEQ has recently rebuffed arguments that lower Harshaw Creek currently should be considered impaired or non-attaining. *See* 29 Ariz. Admin. Reg. 3741, 3746-52 (December 8, 2023). A permit renewal proceeding is not the appropriate forum for a collateral challenge to that determination.

(b) As regards Outfall 001, South32 believes that the language in the draft permit is overly restrictive. The language allows the discharge of only the following from Outfall 001: mine drainage from historic workings; stormwater; and drainage water from historic tailings. Although unduly limited, the permitted discharges at outfall 001 clearly do not represent discharges from "new sources" as that phrase is defined in the AZPDES regulations, and their discharge thus does not run afoul of the conditional prohibition of A.A.C. R18-9-A903(7).

A "new source" is defined in A.A.C. R18-9-A901(25) to include discharges from sources whose construction began after standards of performance applicable to the source were adopted or proposed. The Part 440 ELGs applicable to new sources in the ore mining and dressing category were adopted in 1982. *See* 47 Fed. Reg. 54609, 54617-54620 (December 3, 1982). The historic workings on the site were constructed prior to 1982, and the historic tailings on the site were generated prior to 1982. Under any interpretation of San Carlos, water from historic workings and drainage water from historic tailings cannot be considered to be from a new source.

Stormwater also does not emanate from a new source as defined in the regulations because the Part 440 ELGs do not apply to stormwater. Rather, the ELGs apply to discharges of mine drainage or process wastewater and discharges from mills. See 40 C.F.R. §§ 440.102 - 440.104. There are no ELGs “applicable to” discharges of stormwater at mining sites. Discharges of stormwater at mining sites are instead typically regulated under the *AZPDES General Permit for Stormwater Discharges Associated with Industrial Activity – Mineral Industry* (AZMSG2019-001) (amended as of September 29, 2021) (“Mining MSGP”). The Mining MSGP identifies in Table 2-2 those ELGs that are applicable to stormwater discharges at mining sites. Only a single source of stormwater at mining sites is identified as being subject to ELGs: mine dewatering activities at crushed stone, construction sand and gravel, or industrial sand mining facilities (40 C.F.R. Part 436, Subparts B-D). This confirms that discharges of stormwater at facilities regulated by 40 C.F.R. Part 440, Subpart J – including the Project – are not subject to ELGs and thus cannot be considered new sources under A.A.C. R18-9-A901(25).

**3. South32 supports the proposal to establish WQBELs (rather than TBELs) for mercury and lead at Outfall 001 (Part I, table 1.a):** The existing permit (Table 1.a) contains discharge limits for lead and mercury at Outfall 001 that represent TBELs found at 40 C.F.R. Part 440, Subpart J. The draft renewal permit would replace these TBELs with more stringent WQBELs derived from applicable Arizona surface water quality standards. The resulting discharge limits for these two parameters at Outfall 001 will be significantly more stringent than the limits contained in the current permit:

	<u>Current limits<sup>4</sup> (TBEL)</u>	<u>Proposed limits (WQBEL)</u>
Lead	300 ug/l; 600 ug/l	15 ug/l; 30 ug/l
Mercury	1.0 ug/l; 2 ug/l	0.01 ug/l; 0.02 ug/l

ADEQ’s decision to base discharge limits at Outfall 001 in the existing permit on TBELs rather than WQBELs was justified, given the absence of discharge or effluent data at Outfall 001 at the time the permit was issued. In an AZPDES permit, WQBELs are required only for those pollutants with reasonable potential to cause or contribute to an excursion above a surface water quality standard. See 40 C.F.R. § 122.44(d)(1)(i) (incorporated by reference at A.A.C. R18-9-A905(A)(3)(d)). ADEQ’s proposal to defer inclusion of WQBELs until there was effluent data on which to perform a reasonable potential analysis approach is consistent with EPA’s *NPDES Permit Writer’s Manual* (EPA-833-K-10-001) (September 2010) (“Manual”),<sup>5</sup> which allows the permitting agency to defer imposition of WQBELs until effluent data is available. See *Manual*, §§ 6.2.1, 6.3.2 & 6.3.3. It is South32’s understanding that the approach reflected in the existing permit (i.e.,

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<sup>4</sup> In this table, the first value given is the maximum allowable monthly average, and the second value is the daily maximum. As a practical matter, if monitoring is conducted only once per month, the monthly average (the lower number) will serve as the discharge limit.

<sup>5</sup> The *Manual* is available at <https://www.epa.gov/npdes/npdes-permit-writers-manual>

discharge limits based on TBELs) is one ADEQ has commonly taken with respect to discharges where no effluent data is available.

The approach to establishing permit limits for lead and mercury at Outfall 001 in the existing permit was, therefore, both reasonable and legally defensible, and ADEQ could have continued with the same approach in the renewal permit. However, South32 supports ADEQ's proposal to instead establish WQBELs for lead and mercury at Outfall 001 for several reasons: (1) the *Manual* allows (but does not require) the permitting agency to impose WQBELs based on data other than effluent data from the proposed discharge source, meaning that ADEQ's proposed approach is not inconsistent with the *Manual*; (2) WQBELs were established for discharge from Outfall 002 in the 2021 permit amendment (an approach supported by South32), even in the absence of discharge data, so the proposed change would harmonize the approach to establishing discharge limits at the two outfalls; and (3) WTP 1 already has been designed to produce discharge that meets all applicable surface water quality standards, aquifer water quality standards, and TBELs.

The proposed change makes the permit more stringent (especially combined with the change noted in the next comment). Discharge limits at Outfall 001 will now be based on the more stringent of WQBELs, TBELs, or limits derived from the Alum Gulch TMDL. As a result, every limit in Table 1.a would be set at a level that is equal to or less than (i.e., more stringent than) the most stringent surface water quality standard established for Alum Gulch.

**4. South32 supports the proposal to include a single effluent limitation table based on chronic criteria for Outfall 001 (Part I, table 1.a):** The existing permit has two effluent limit tables for Outfall 001. The first (Table 1.a) is applicable to discharges listing seven or more consecutive days or with less than 30 days between discharges. Some of the permit limits in this table were based on chronic Arizona surface water quality criteria for aquatic and wildlife uses. The second table (Table 1.b) applies to discharges of seven consecutive days or less with at least 30 days between discharges. Some of the permit limits in this table were based on acute Arizona surface water quality criteria for aquatic and wildlife uses, which are generally less stringent than chronic criteria for the same pollutants. The net result of this change is to impose more stringent discharge limits on even short-term and infrequent discharges.

Although South32 believes that the approach in the existing permit was valid, and that there may be periods where discharge from Outfall 001 is short-term and infrequent, it supports this proposed change. The change simplifies the permit, and WTP 1 has been designed to treat to a level meeting both acute and chronic Arizona surface water quality criteria for aquatic and wildlife uses.

**5. South32 supports the use of a default translator to derive WQBELs for certain metals (Part I, tables 1.a and 1.b):** ADEQ has used EPA's default translators for metals<sup>6</sup> to

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<sup>6</sup> These are found in: EPA, *The Metals Translator: Guidance for Calculating a Total Recoverable Permit Limit From a Dissolved Criterion* (EPA 823-B-96-007) (June 1996).

develop final WQBELs for certain parameters (copper at Outfall 001; cadmium, copper, lead and zinc at Outfall 002). See draft Fact Sheet, p. 14. NPDES and AZPDES regulations require that permit limits for metals be expressed in most cases as total recoverable. See 40 C.F.R. § 122.45(c) (adopted by reference at A.A.C. R18-9-A905(A)(3)(e)). However, the most stringent surface water quality criterion for metals is often that associated with protecting an aquatic and wildlife use, and criteria developed to protect those uses are generally expressed in terms of the dissolved fraction of the metal, consistent with longstanding EPA guidance.<sup>7</sup>

A translator aids in bridging the gap between surface water quality criteria for metals that are generally expressed as dissolved, and permit limits to protect those standards, which as noted above are generally required to be expressed as total recoverable. The translator represents the fraction of total recoverable metal in the receiving water that will be present in dissolved form. In the absence of a site-specific translator study, the EPA guidance provides conservative default translator values that can be used in most situations to convert a dissolved water quality criterion into a total recoverable permit limit, and it is these default values that ADEQ has utilized.

South32 supports this reasonable and well-established approach to deriving WQBELs based on the protection of aquatic life. It is our understanding that ADEQ has used this approach in other AZPDES permits.

The permit allows, but does not require, South32 to perform a site-specific translator study. See Part IV.B. ADEQ must approve a sampling and analysis plan before the study is performed. ADEQ may, but is not required to, modify the permit to reflect the study results, if requested to do so by the permittee. South32 supports this reasonable condition allowing it the option to conduct a site-specific translator study under ADEQ's oversight.

**6. South32 supports the addition of discharge characterization testing (Part I.D and Table 4):** The proposed reissuance permit adds an entirely new set of monitoring requirements referred to as discharge characterization ("DC") testing. See Part I.D.1 and Table 4. This monitoring is biannual (once every 6 months) for most parameters, and includes some parameters not otherwise included in required effluent limitation monitoring (Part I.A) or trace substance monitoring (Part I.B). DC testing is required even if a treatment plant does not discharge during the monitoring period, as long as performance testing and commissioning activities have been completed.

Including DC testing will generate data that will allow ADEQ to make more refined reasonable potential determinations. For that reason, South32 supports the proposed addition of DC testing.

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<sup>7</sup> See EPA, *Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria* (October 1993), at 2 ("It is now the policy of the Office of Water that the use of dissolved metal to set and measure compliance with water quality standards is the recommended approach, because dissolved metal more closely approximates the bioavailable fraction of metal in the water column than does total recoverable metal").

7. **South32 supports the more frequent effluent limitation monitoring required by the draft permit (Part I, tables 1.a and 1.b):** The draft permit increases the frequency of required effluent limitation monitoring from quarterly to monthly. South32 supports this change, in light of concerns raised by some in the community.

8. **ADEQ has adequately justified the hardness values used to derive WQBELs for hardness-dependent metals in the permit (Part I, tables 1.a and 1.b):** For those metals where aquatic and wildlife surface water quality criteria (and WQBELs developed to protect those criteria) depend on the hardness of the water,<sup>8</sup> ADEQ has not adopted single number surface water quality criteria. Instead, the applicable criterion is expressed as an equation, with the key variable being hardness. There is a direct correlation between hardness levels and the applicable surface water quality criterion: the higher the hardness, the higher (less stringent) the surface water quality criterion, and the resulting WQBEL.

ADEQ uses a hardness of 400 mg/l to derive WQBELs for hardness-dependent metals at Outfall 001. South32 provided a range of hardness levels for effluent produced by WTP 1 that ranged from 743 mg/l to 1040 mg/l. However, by rule, ADEQ caps the hardness that can be used to calculate applicable criteria at 400 mg/l. See A.A.C Title 18, Chapter 11, Article 1, Appendix A, Table 1, footnote d. Therefore, ADEQ used a hardness of 400 mg/l to calculate water quality criteria and associated WQBELs at Outfall 001, rather than using the higher levels of hardness that were detected in the plant effluent. See Part I, table 1.a, footnote 7. This approach is entirely justified and consistent with regulation.

For Outfall 002, which was not discharging at the time of the application, South32 provided an expected range of influent hardness that ranged from 258 mg/l to 340 mg/l. South32 also provided a memorandum from the plant designer indicating that the WTP 2 treatment processes were not expected to reduce hardness. See BQE Water, *Hermosa WTP2 Process Effect on Hardness in Plant Effluent* (July 17, 2023). ADEQ therefore used the lower end of the expected influent hardness range – corresponding to lower (more stringent) water quality criteria and WQBELs – to calculate effluent limits for Outfall 002. This too is an entirely reasonable and justified approach. Furthermore, South32 has since gathered three samples of WTP 2 effluent, with hardness results ranging from 262 mg/l to 284 mg/l. All three hardness results are higher than the hardness assumed by ADEQ in deriving WQBELs for Outfall 002.<sup>9</sup> These results confirm the appropriateness (and conservative nature) of ADEQ’s assumption about hardness at outfall 002.

The hardness values used to derive WQBELs for both outfalls, therefore, are justified and reasonable.

9. **No additional permit conditions are required relative to Sonoita Creek, and no TMDL is required for Sonoita Creek:** At the January 11 public hearing in Patagonia, several

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<sup>8</sup> These metals are cadmium, chromium III, copper, lead, nickel, silver, and zinc.

<sup>9</sup> These results have been, or will be, included on DMRs submitted to ADEQ.



commenters appeared to argue that additional permit conditions should be required, or the permit not issued, due to concerns about effects on Sonoita Creek. These arguments are not well-founded.

(a) In support of the AZPDES and APP permit amendments in 2021 that authorized discharge from WTP 2, South32 provided (and ADEQ accepted) an analysis that maximum allowed flow from WTP 2 was expected to travel approximately 9.36 miles down Harshaw Creek. See Ecological Resource Consultants, *Water Treatment Plant 2 Discharge – Pollutant Management Area Evaluation* (August 17, 2020). No greater flow from WTP 2 is anticipated under the draft renewal permit (in fact, the site APP contains an enforceable discharge limitation on flow of 4500 gpm, the design flow that is contemplated in the AZPDES permit). The 2020 analysis previously accepted by ADEQ remains a valid assessment for the estimated maximum geographic extent of discharge, and does not require evaluation of impacts to Sonoita Creek.

Moreover, as ADEQ notes in the draft fact sheet (p. 9), the designated uses of the portion of Sonoita Creek at its confluence with Harshaw Creek are the same as those applicable to Harshaw Creek itself. Therefore, if some component of the discharge were to reach Sonoita Creek, the permit WQBELs designed to protect Harshaw Creek also would be protective of that stretch of Sonoita Creek.

(b) Suggestions also were made at the hearing that a TMDL is required for Sonoita Creek, and that this TMDL must be completed before the South32 permit can be renewed. This is not true for two reasons. First, it is true that Lower Sonoita Creek (beginning at the end of the effluent-dependent stretch created by discharge from the Town of Patagonia wastewater treatment plant) was identified as impaired for zinc on the 2022 ADEQ list of impaired waters. See 28 Ariz. Admin. Reg. 405, 419 (February 18, 2022). However, the 2024 list recently finalized by ADEQ determined that this stretch was not in fact impaired for zinc. See 29 Ariz. Admin. Reg. 3741, 3760-64 (December 8, 2023) (listing impaired waters and not including Sonoita Creek). ADEQ determined, based on more recent sampling, that this stretch of Sonoita Creek was not in fact impaired for zinc, and therefore delisted it.<sup>10</sup> Therefore, no TMDLs are required for this (or any other) stretch of Sonoita Creek.

Second, even if the impairment designation for lower Sonoita Creek for zinc were still valid, there is no evidence that the South32 discharge from WTP 2 would reach that far, as noted above.

South32 appreciates the opportunity to comment on the draft renewal permit. Please contact me at (520) 485-1300 or [Brent.Musslewhite@south32.net](mailto:Brent.Musslewhite@south32.net) should you have any questions on these comments.

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<sup>10</sup> See [https://static.azdeq.gov/pn/wqd\\_cwa\\_assessment\\_2024\\_app.xlsx](https://static.azdeq.gov/pn/wqd_cwa_assessment_2024_app.xlsx)

Sincerely,





Brent Musslewhite  
Director, Environment and Permitting  
South32 Hermosa Inc.

Attachment: Figure showing Outfall 002 in relation to non-attaining segment of Harshaw



T23S, R16E, a Portion of Section 4 (Unsurveyed Protracted),  
Santa Cruz County, Arizona  
Projection: NAD 1983 UTM Zone 12N  
Image Source: South32 8/2/2023

**Legend**

-  End of Impaired Reach
-  Outfall 2
-  Harshaw Creek Flow Direction
-  Outfall 2 Flow Direction

