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CIVIL ENGINEERING AND LAND PLANNING

ARCHITECTURE

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LIST OF RESPONSES TO NCCD COMMENTS

Arcadia Development Corporation – Proposed Industrial Development

January 22, 2024

The following responses correspond to the comments contained in the Pennsylvania Department of Environmental Protection letter dated November 22, 2023:

1. ***§ 102.4(b)(5)(i) The existing topographic features of the project site and the immediate area.***

    a. *Please correct the 4 spelling errors for the permit record on Module 1, Box 1 of E&S Plan Information Section. The section should also contain additional existing topographic descriptions per the instructions.*

    Module 1, Box 1 has been revised to correct the misspellings, as well as, to add additional information regarding the existing topographic features of the site.

2. ***§ 102.4(b)(5)(ii) The types, depth, slope, locations and limitations of the soils****.*

    a. *The soil types and subsequent information provided in the narrative (page 23) are not complete and consistent with the soils section provided in Module 1. Please review soil sections and discussion for consistency.*

    The soil types and subsequent information provided in the narrative have been updated to reflect the soils information displayed in Module 1.

3. ***§ 102.4(b)(5)(iii) The characteristics of the earth disturbance activity, including the past, present, and proposed land uses and the proposed alteration to the project site.***

    a. *Provide a legible Limit of Disturbance line for the earth disturbance proposed on route 512, north of Gateway Dr.*

The limit of disturbance is provided for the offsite median work north of Gateway Drive. The proposed work located within route 512 consists of median modifications and inlet relocations. This work is to be completed in dry weather conditions and back filled daily in accordance with PennDOT construction standards. Reference has been made to the PennDOT Standards in the sequence of construction.

4. ***§ 102.4(b)(5)(vi) A narrative description of the location and type of perimeter and on site BMPs used before, during, and after the earth disturbance activities.***

   a. *Sections vi through x of the narrative report appear to be repeated. Please review for consistency and update as necessary.*

      The E&S Report has been revised to not repeat Section vi through x.

5. ***§ 102.4(b)(5)(vii) A sequence of BMP installation and removal in relation to the scheduling of earth disturbance activities, prior to, during, and after earth disturbance activities that ensure the proper functioning of all BMPs.***

   a. *Step 9 of the construction sequence infers there is FS-8B and FS-8C. The BMPs could not be located in plan view and are not on Standard Worksheet #1.*

      Sequence of Construction, currently Step 10, has been revised to reference FS-8A and remove any reference to filter socks FS-8B and FS-8C.

   b. *In order to avoid confusion, please revise Step 12 to indicate "prior to starting rough grading."*

      As requested, Sequence of Construction, currently Step 14, has been revised to indicate "prior to starting rough grading."

6. ***§ 102.4(b)(5)(viii) Supporting calculations and measurements****.*

   a. *Per the submitted material a surface water is not present on the site. Please revise Worksheet 12. The basin does not apparently discharge to a surface waters (as defined in Chapter 102).*

      Worksheet 12 has been revised to identify that it does not discharge to a surface water.

   b. *The District acknowledges the correspondence with DEP (Mathew Miller) regarding jurisdiction of watercourse through the site. Please provide a drawing or describe extent of all areas determined to be non-Chapter 105 jurisdictional.*

A description of the extent of the area determined to be non-Chapter 105 jurisdictional has been added to the E&S Report and PCSM Report in the Existing Waters of the Commonwealth section on Page 2 of each report. Additionally, the location map has been revised in Appendix A, to depict the approximate location of the drainage feature.

c. *Baffle calculations are provided in the narrative but not proposed in plan or detail view. Please clarify.*

A turbidity barrier is proposed for the sedimentation basin. A detail is provided on the E&S Details sheet for the barrier. The baffle calculations have been removed from the E&S Report.

d. *EW100 is proposed to be a box culvert. Per figures 9.4 etc. the nomographs are not to be used for box culverts.*

The proposed storm sewer for EW100 is to be horizontal elliptical reinforced concrete pipe. The riprap calculations identify the pipe size as well as the equivalent circular pipe size to complete the necessary calculations. Additionally, the abbreviation has been added to the riprap details on the plans. The abbreviation is provided on the Index Plan in the abbreviations legend.

e. *Please clarify whether temporary EW100 and permanent EW100 are to be the box culvert noted on outlet protection calculations/details.*

See response 6d above, the apron is sized for the permanent condition which results in a larger riprap apron. This is conservative for the temporary condition. The permanent EW100 pipe is to be horizontal elliptical reinforced concrete pipe, the temporary pipe can be the equivalent size circular pipe (36-inch dia).

f. *It appears a new discharge point is proposed at EW100 at existing basin. Please discuss the DP and provide appropriate documentation on various applications/spreadsheets.*

The discharge to the existing basin has been added to all plans and documents as DP-002.

g. *In order to evaluate construction runoff impacts to existing stormwater basin at outfall of proposed EW100 and effectiveness of Step 16, please provide a pre-construction drainage area map for the existing basin.*

A pre-construction tributary area has been added to the Maximum During Construction Drainage Map for the existing stormwater basin.

h. *Please clarify whether the rip rap apron data on the detail sheet is for the temporary EW100 or the permanent EW100 or both.*

The E&S Details, as well as figures 9.1 and 9.4 in the rip rap calculations for EW100, have been labeled to identify the data as being for both the temporary and permanent condition.

i. *Provide all calculations and details associated with proposed Channel A.*

The Channel A calculations have been added to the E&S and PCSM Reports. The total flow for the 100-year storm was determined and taken from the Stormwater Management Report that is included in the PCSM Report as Appendix C. Additionally, supporting calculations have been provided to identify the proposed matting in the channel as cable concrete CC-35.

j. *RF-1 is proposed at terminus of Channel A. The dimension for total depth (D) provided in the design and details is not consistent with the dimension for Channel A on the Detail sheet. Please revise.*

Rock Filter RF-1 has been removed from the plans, as Channel A is protected upstream by filter socks to ensure no silt laden runoff enters the channel.

k. *Outlet barrels for permanent basins should be set in a concrete cradle, as shown in Standard Construction Detail #7. Provide detail and sequencing for the installation of cradle.*

As discussed, the basin outlet pipe is proposed to be reinforced concrete pipe. The RCP pipe is proposed to have concrete anti-seep collars and it is proposed to discharge to downstream manhole structures and through a reinforced concrete retaining wall. The manholes and wall are substantial structures that will provide the necessary pipe stability in lieu of a concrete cradle.

7. § 102.4(b)(5)(ix) Plan drawings.

a. *All rip rap apron outlet protection should be shown in plan view as installed on level grade. Revise temporary and permanent rip rap apron plan view designs accordingly.*

The riprap aprons and basin grading have been revised to depict riprap lined channels where necessary, conveying runoff to the basin permanent pool. Lined channel calculations have been provided in the Channel Calculations sections of the E&S and PCSM Reports. A detail has been provided on the plans.

b. *Provide in the legend the abbreviation SDS (located at top of bypass) and its definition.*

The label SDS, meaning "special drainage structure," has been added to the Abbreviations Table, provided on both the E&S and PCSM Index to Drawings Sheet. Additionally, for reference, the special drainage structure details is provided on Sheet 3 of the PCSM Plans.

c. *Label the retaining wall referenced on Step 10 and provide spot elevations.*

The retaining wall referenced in Step 10 of the Construction Sequence has been labeled, see Phase 1 and Phase 2 callout on the plans. Additionally, as requested, spot elevations have been provided.

d. *There appears to be unlabeled CFS on Sheet 4 of 9 west of Specially Minerals property. Please identify and design accordingly.*

The filter sock along the emergency access drive located to the north of the property has been labeled as filter socks FS-11A to FS-11D. The filter sock worksheet in the E&S Report and table on E&S Plans have been labeled accordingly.

e. *The emergency spillway should be clearly labelled in plan view.*

A label has been provided identifying the emergency spillway.

f. *The cleanout stake should be placed near the center of the sediment basin. Additionally, per the E&SPC Manual, provide a detail for the cleanout stake.*

The cleanout stake has been located at the center of the sediment basin as requested. Additionally, a detail has been provided on the E&S Details 2 Plan, Sheet 9 of 9.

g. *It appears additional BMPs are required for the earth disturbance occurring to install EW100 and associated storm sewer into the existing basin.*

Additional filter socks have been provided for the EW100 discharge, FS12 A&B and the matting has been extended downstream from the riprap apron. The sequence of construction ensures that construction shall only occur when no rain is forecasted for 72 hours and disturbances must be stabilized immediately. Additionally, a note has been added to the plans stating that matting shall be added to any area in the basin disturbed during construction, in addition to what is depicted on the plans.

h. *Show all PCSM BMPs on all E&S drawings.*

The basin and spray components have been labeled on the E&S Plans as BMPs No. 1 and No. 2. Additionally, temporary construction fence has been added to the E&S Plans for spray irrigation areas.

i. *FS-8A is not located downslope of all earth disturbance and grading proposed upslope. The BMP should be relocated.*

The location of filter socks FS-8A has been revised to be located downslope of all earth disturbance and grading.

j. *The construction detail and associated notes for Temporary cofferdam and pump bypass should be made more legible on Sheet 8 of 9.*

The construction detail and associated notes for Temporary cofferdam and pump bypass have been darkened on Sheet 8 of 9 to allow for more legible printing.

k. *The District requests that Sequence Step 12 be prominently placed in plan view on Sheets 3, 4, and 5 of 9.*

As requested, the Construction Sequence Step has been provided on Plans sheets 3 through 5 of 9, and is now step 14.

l. *The sequence note in plan view located beneath the Inlet 106 label should be competed.*

The note beneath Inlet 106 has been revised.

m. *Additional BMPs (e.g. barrier control) appear to be needed to protect the existing basin during construction of permanent EW100 and associated storm sewer down the slope.*

See response 7g. above

n. *Label the Holiday Inn parking lot expansion proposed in Offsite Improvements Construction Sequence.*

The Hampton Inn offsite improvements are no longer proposed and have been removed from the Construction Sequence.

o. *FS-8B and FS-8C could not be located in plan view in vicinity of Gateway Drive per the sequence.*

Filter Socks FS-8B and FS-8C were removed from the plans. The Sequence of Construction has been revised to not reference them.

8. ***§ 102.8(c) Consistency with E&S Plan. The PCSM Plan shall be planned, designed and implemented to be consistent with the E&S Plan under § 102.8(b) (relating to erosion and sediment control requirements).***

    a. *The PCSM plan should be planned, designed and implemented to be consistent with the E&S Plan. If any design changes made as a result of the PCSM and E&S deficiencies should impact either plan, please make the necessary revisions and list them clearly in the response letter. §102.8(c)*

    Acknowledged. All revisions to the E&S and PCSM Plans have been outlined in this Response Letter.

9. ***§ 102.8(f)(8) Supporting calculations.***

    a. *All existing impervious in existing conditions was classified as a D-soil type which is then also utilized when calculating the 20% of existing impervious should be considered meadow as D-soil. Please clarify if this entire area of existing impervious should be all D soils or if some of the existing impervious should be classified as meadow, soil group-B.*

    The spreadsheet has been revised to include a soil group-B existing impervious as meadow.

    b. *The proposed emergency spillway was not modeled into the weir structure input for the proposed detention basin in the rate analysis hydraflow pond input. Please revise.*

    An updated Stormwater Management Report has been provided with this resubmission as Appendix C of the PCSM Report. The revised report addresses this comment.

    c. *It appears that the basin was designed to have a bottom elevation of 319.5-feet, but the hydraflow pond data section is only calculating the storage volume of the basin from 323.5-feet to 332-feet. Please address.*

    The area from the basin bottom of 319.5 to 323.5 is a 4-foot-deep permanent pool and is not included in the calculations. The modeling begins at elevation 323.5, assuming the permanent pool is full.

    d. *The outflow pipe from the detention basin shown on the outlet structure detail shows a 30" diameter pipe at 324.63-feet. This does not match the culvert inputted into the hydraflow culvert structure. In the rate analysis within hydraflow, this outlet pipe is at an elevation of 326-feet, 1% slope, and is 800-feet long. Please ensure that the plans or calculations are revised for consistency.*

The revised Stormwater Management Report, as referenced in response to comment 9b., addresses this comment.

e. *Please provide vegetated swale sizing worksheets/calculations within the PCSM narrative.*

Vegetated swale sizing calculations have been provided in the PCSM Report for Channel A.

f. *Please fill out the rates and volume pages of Module 2 corresponding to the PCSM spreadsheets and rate analysis.*

A peak rate section has been added to Module 2 for DP-001 and DP-002.

g. *There are two total POIs listed on the offsite discharge analysis map. Each of the POIs should be analyzed separately as a part of the offsite discharge analysis. Additionally, due to the overall distance between these POIs and the different stormwater conveyance systems that these discharges convey through before reaching the watercourse, it is recommended that separate PCSM spreadsheets should be analyzed for volume, rate and water quality.*

After coordination with DEP Staff it was decided that one spreadsheet is acceptable for this project since the project discharges to the same watershed. Additionally, the spray irrigation system and Basin A are situated in the upstream portion of the site. DP-002 has been added to the existing basin.

h. *Please provide an analysis for the existing swale and also the proposed bypass pipe that convey flow to the existing 48" pipe that transfers water offsite to compare the capacity of the conveyances.*

An analysis of the existing swale and proposed bypass pipe is included in the Stormwater Management Report, attached as Appendix C to the PCSM Report. The requested analysis can be found on page 287 of the Stormwater Management Report.

10. § 102.8(f)(9) Plan drawings.

a. *All of the PCSM plans were not signed and sealed by a professional engineer. Please revise.*

The PCSM Plans shall be signed and sealed by a professional engineer following approval.

b. *Please provide an outlet structure detail for the proposed detention basin that also shows dimensions for the top of the structure.*

As requested, a detail view of the top of the outlet control structure has been provided. As identified in the notes for the proposed basin, the outlet control structure is to be a type 6 box with a single inlet grate installed flush in the top slab.

c. *Provide a maintenance access road with a maximum slope of 15% and minimum width of 9 feet which allows full access to all outlet(s) and embankment areas.*
As discussed with PADEP Staff, a maintenance access has been provided into the detention pond, with a maximum slope of 10% and a 10-foot width. The ramp has been labeled on the PCSM Plan as requested.

d. *Please address the vegetative cover and land cover areas for all spray irrigation areas.*

Vegetative cover for all proposed pervious areas is to be planted and maintained as lawn. The plans and PCSM Spreadsheet have been revised accordingly. Also, Sheet I-08 of the Irrigation Plans addresses landscaping and re-seeding if necessary.

e. *Please clearly label and show the emergency spillway for the proposed detention basin A.*

A label has been provided identifying the emergency spillway.

f. *There is a line of boulders on the PCSM plans that are within the spray irrigation areas 3, 4 and 5. Are these to be relocated in proposed conditions? The spray areas have approximately a 30-foot wide distance between the proposed impervious and the boulder locations while this does not match the existing parking lot area separation distance from the boulders (roughly 5-feet). If the proposed parking area is being reduced, which is increasing this distance, these areas beneath the impervious should not be receiving spray credit based on infiltration rates.*

As discussed with PADEP Staff, the plans have been revised to include protection of the spray fields in areas of pavement removal. These areas are protected early in the sequence before building demolition. Once the pavement is removed, while minimizing disturbances, confirmation testing is proposed to confirm the design infiltration rates for spray irrigation. The confirmation testing and soil restoration is indicated in the sequence of construction, stage 14, and on the PCSM Plans. The spray irrigation design has been adjusted and the dosing schedules and slope reduction factors provide a significant amount of reserve capacity if secondary testing is less than anticipated. We understand that if confirmation testing results in ET Spray, additional spray fields could be required. We have added additional

acreage to the permit for this reason and agree that a Minor Modification would be pursued if the spray fields shown require adjustments.

11. §102.8(h)(3), §102.11(a)(2) Detention Basin

a. *Provide both inner and outer embankment side slopes of 4:1 minimum as per the BMP manual. The detail appears to show 4:1 side slopes, however, it appears that this varies throughout the basin grading on the inner embankments. Please revise.*

The proposed basin grading was reviewed and confirmed that all slopes within the basin are drawn as 4:1.

b. *Provide a basin with bottom that has a maximum 1% slope. The basin cross section is calling for a 2% minimum bottom slope.*

Please note that the basin includes a 4-foot permanent pool and the basin bottom slope is only provided to meet Hanover Township Ordinance requirements. The bottom slope of this basin does not impact the performance of the basin.

c. *The minimum top embankment width of 9 feet is not provided. Please revise.*

As discussed, a detention basin top width of 8-feet has been determined to be acceptable.

d. *The basin cross section is calling for a "synthetic liner as the top layer for the proposed basin. The synthetic linear is usually proposed beneath the proposed topsoil. If the synthetic liner is shown as the first layer in the basin, the basin may not be sized correctly with the additional 12" topsoil cover. Please provide a cross section for the basin showing all layers of media, liners, depths, etc.*

The basin detail has been revised to identify the synthetic liner as not being the top layer.

e. *Please provide the specific seeding specifications to be utilized within the proposed detention basin.*

The seeding schedule for the proposed detention basin has been provided as requested on Sheet 6 of 6 in the top left corner. The seeding schedule for the basin was prepared by Brown Design Corp. for the Landscaping Plans prepared in conjunction with the Land Development Plans for the project.

12. §102.8(h)(3), §102.11(a)(2) Spray irrigation.

a. *Pop-up emitters are typically used in areas that are frequently mowed. If pop-up emitters are not being utilized or the spray areas will not frequently be mowed, provide the elevation of the spray nozzles. Typically, nozzles are positioned 3 feet to 5 feet above the ground elevation to prevent malfunctions due to vegetative growth.*

   See attached AMI Responses.

b. *If elevated spray nozzles whose spray pattern is perpendicular to the receiving soils is used, please provide elevations and notation on the PCSM plan. This is to ensure that the system will be sprayed along the same contour/elevation for even distribution and to prevent channelization of the stormwater.*

   See attached AMI Responses.

c. *Not all areas of proposed infiltration (spray irrigation areas) appear to be protected (fenced) during construction. Please describe how the infiltration areas will be protected from compaction during construction. The construction sequence should be more detailed relating to the spray irrigation system.*

   See attached AMI Responses. Additionally, construction fence has been added to the E&S Plans.

d. *A review of the PCSM Spreadsheet revealed post-development meadow cover types. Based on the plans provided, it appears that they are provided in spray irrigation areas. As such, the BMP maintenance notes should clarify the seeding and mowing specifications for these areas. Please revise as necessary for clarity and consistency. §102.8(f)(10)*

   The PCSM Spreadsheet has been revised to remove meadow from the post development condition and utilize lawn cover type instead.

e. *Please clarify the winter operation of the runoff capture/reuse system and associated stormwater basin. The spray irrigation plans specify a winter program which does match the PCSM plan drawings. The impacts of this system operation on the peak rate analysis should be addressed by the PCSM narrative and offsite discharge analysis. §102.8(f)(10)*

   See attached AMI Responses. Additionally, the pump location and winter bypass line have been added to the plans for reference. During the winter months, the winter bypass valve is opened and the system pumps to the OCS. The system still does not pump until 24 hours after the storm during an off

peak time. The pumped rate from the irrigation system is well below the allowable discharge rate for the project. This information is detailed in the stormwater management report summary tables.

f. *As currently depicted, the spray head dispersal areas will overlap. The application rates for those overlapping spray heads should be adjusted so the combined application rates do not exceed 0.5 inches per day, or the application rate based on infiltration credit in those specific spray areas. Please address whether the overlapping of spray areas was considered in the spray rate calculations.*

See attached AMI Responses.

g. *Please provide notation that the system should be designed to completely drain when it is shut off.*

See attached AMI Responses.

h. *Please demonstrate that a 90% ground vegetative cover (grasses, meadow, brush, short bushes, etc.) exists down slope of the system for the entire flow path and throughout the entire year.*

A note has been added to the PCSM Maintenance Schedule, Spray Irrigation Section, to inspect ground vegetive cover to maintain 90% cover.

i. *Many of the spray areas receiving infiltration credit for the application rate (examples: zone 3, zone 4, zone 5), do not appear to have adequate area for this application. The plans indicate that there is a meadow or grassed area that will not be graded or disturbed on these narrow sections with boulders around 30-feet away. The street view in this location from the existing parking lot does not appear to have existing soils where infiltration credit can be applicable for this entire area. Please address.*

See response 10.f above.

13. ***§102.8(f)(15) Additional information requested by the Department.***

a. *Please provide a technical deficiency response letter to the district and DEP, with responses to each individual technical deficiency.*

This letter services as the technical deficiency response letter.

14. ***Resubmission fee should be submitted to the District with the revised plans and narratives for review (per Section VIII, Northampton County Conservation***

District Erosion and Sediment Pollution Control Plan Review Fee Schedule.). §102.6(b)(3)

Scanned copies of the resubmission fee checks are included with the electronic resubmission. The hardcopy checks will be delivered to NCCD. Included with this resubmission are checks for the additional NCCD review fee and a check for additional disturbed acreage fee, as coordinated with PADEP / NCCD Staff.

mjs/

Aqua-Mist Irrigation

AQUA-MIST

Eastupland Warehouse – Arcadia Development 01-17-24

12. §102.8(h)(3), §102.11(a)(2) Spray irrigation.

a. Pop-up emitters are typically used in areas that are frequently mowed. If pop-up emitters are not being utilized or the spray areas will not frequently be mowed, provide the elevation of the spray nozzles. Typically, nozzles are positioned 3 feet to 5 feet above the ground elevation to prevent malfunctions due to vegetative growth. The rotary heads pop up 5". They are installed at ground level. They are not designed to be 3 to 5 ft above ground. The spray field was designed to be mowed 4 to 5 times a year. The O & M schedule states that a 10 ft buffer is to be maintained at all times around each sprinkler head. (Plan I -08 page 4)

b. If elevated spray nozzles whose spray pattern is perpendicular to the receiving soils is used, please provide elevations and notation on the PCSM plan. This is to ensure that the system will be sprayed along the same contour/elevation for even distribution and to prevent channelization of the stormwater. There are no elevated sprinkler heads (also see above)

. c. Not all areas of proposed infiltration (spray irrigation areas) appear to be protected (fenced) during construction. Please describe how the infiltration areas will be protected from compaction during construction. The construction sequence should be more detailed relating to the spray irrigation system. Plan I-05 updated to include protection fence around spray field in Sequence of construction

e. Please clarify the winter operation of the runoff capture/reuse system and associated stormwater basin. The spray irrigation plans specify a winter program which does match the PCSM plan drawings. The impacts of this system operation on the peak rate analysis should be addressed by the PCSM narrative and offsite discharge analysis. §102.8(f)(10)
Winter Discharge note (not to exceed 200 GPM) added to plans I-01 and I-02

f. As currently depicted, the spray head dispersal areas will overlap. The application rates for those overlapping spray heads should be adjusted so the combined application rates do not exceed 0.5 inches per day, or the application rate based on infiltration credit in those specific spray areas. Please address whether the overlapping of spray areas was considered in the spray rate calculations. Head to head coverage is the standard recommended by all Irrigation Manufacturers .
The application rates are all based on head to head coverage (overlapping sprays)

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g. Please provide notation that the system should be designed to completely drain when it is shut off.
Note added on I-05 below Main Line & Lateral Notes.

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