memo

Project Name |	Groundwater Dependent Natural Resources	**Date** |	7/30/2024
To / Contact info |	BCWD Board of Managers		
Cc / Contact info |	Karen Kill, BCWD Administrator		
From / Contact info |	Pat Conrad, Jimmy Marty		
Regarding |	Groundwater Dependent Natural Resources Re-Classification Proposed Scope of Services		

Background

Currently the District has two sources of information that it uses in determining groundwater dependency of its resources (groundwater dependent natural resources – GDNR).

The first comes from the District's Wetland Inventory and Functions & Values Evaluation that was performed in 2001 and updated in 2007. In this evaluation, wetlands were identified as having groundwater dependency in terms of providing hydrology for the wetland, i.e., was the source of water for the wetland coming from surface water runoff, groundwater, or a combination of the two.

The second source of information related to groundwater dependency was developed in support of the District's Rules and the Managers desire to provide greater protection to wetlands that were dependent upon groundwater. In this case, the dependency went beyond simply providing hydrology to the wetland. Wetlands were determined to be Groundwater Dependent (for purposes of the District Rule) if their plant community relied upon groundwater. For example, the Grant Fen is a groundwater dependent natural resource because there are high-quality indicator plant species within the Fen that are only seen in areas where groundwater is the predominant source of hydrology. The quantity and quality of the water supporting the fen hydrology support the Fen's plant community.

In terms of the Districts Rules, groundwater dependency is based on this second source of information (i.e. the wetland plant community). Plant communities consisting of plants that are dependent upon groundwater are defined as being groundwater dependent. For purposes of the Rule, a wetland that is fed by groundwater (i.e. its hydrology is provided by groundwater) is not automatically a groundwater dependent natural resource. The wetland must have a plant community that is an expression of the groundwater according to classifications based on the Minnesota Land Cover Classification System (MLCCS). However, this vegetation-based definition lacks clarity when stressors beyond hydrology degrade the plant community, such as invasive species, vegetation clearing (e.g. cultivation), or historical overgrazing. Plant communities may be dominated by plants (e.g. cattails) that do not necessarily indicate groundwater dependency, but conversely do not rule out the wetland's groundwater dependent hydrology.

Shortcomings of the existing approach include definitional confusion and outdated data sources, as the MLCCS is being folded into the DNR's Native Plant Community (NPC) classification system. EOR will reclassify the GDNR within the District into a simplified layer and redefine the definition of GDNR within District rules. This will provide clarity to the District's permitting process and serve as a better resource for project planning.

This scope is complementary to a second, concurrently proposed Updated Wetland Inventory and Function & Value Assessment scope. Data generated from this scope will be included in the second

proposed scope. Advancing these scopes concurrently would provide efficiencies in the GIS processing for each task

Scope of Services

EOR will use the BCWD Wetland Function and Value Assessment, National Wetland Inventory (NWI) Hydrogeomorphic (HGM) classifications, and DNR Native Plant Community (NPC) classifications to reclassify groundwater dependent natural resources within BCWD. A description of each of these layers is provided below:

- BCWD wetland Function and Value Assessment: The 2007 assessment included hydrology source for each wetland evaluated. Although wetland characteristics can change over time and basin-specific data may not be suitable for project-specific assessments, the existing Function and Value data is likely still relevant at a District-wide scale. Additionally, data collected during the concurrently proposed wetland function and value assessment scope will also be included.
- NWI Hydrogeomorphic (HGM) Classification: The DNR updated NWI maps for the BCWD area in 2013. Revised polygon data will be updated within the BCWD GDNR inventory layer (this data will also be used for the concurrently proposed wetland function and value scope). In addition to revised polygon boundaries, the 2013 NWI layer included HGM attribute data. The HGM classification system classifies wetlands based on their landscape position, source of water, and hydrodynamics (inflow, outflow, flowthrough, etc.). The HGM classifications within NWI data can be used to define hydrology source. For example, "slope" wetlands can be assumed to be groundwater dependent. Other HGM classifications may also indicate groundwater-dependency (e.g. "depression"), but typically require additional data to verify primary hydrology sources.
- DNR Native Plant Communities (NPCs): The DNR NPC classification system is being folded into the Minnesota Land Cover Classification (MLCCS) system. The NPC system is the most widely used plant community classification system in Minnesota. This system groups wetland NPC classes into four categories of groundwater dependence. These categories encompass 1) wetlands dependent on sustained groundwater discharge, 2) wetlands dependent on groundwater associated with consistently high water tables, 3) wetlands dependent on groundwater associated with water tables that are high for some portion of the growing season, and 4) wetlands not highly dependent on groundwater. These data complement other GIS layers in classifying groundwater dependency, such as for HGM wetlands that are not classified as "slope" wetlands. A limiting factor of the DNR NPC layer is that it is constrained to the small geographic area where DNR has surveyed NPCs. To address this limitation, EOR will use the MLCCS/NPC model released by the DNR in 2024. This model replaced the original MLCCS polygons with predicted NPCs and will be used to classify groundwater NPCs in areas that have not been surveyed by DNR.

EOR will analyze these layers using GIS to append existing classification data to the NWI wetland polygons within BCWD. The scope of services does not include basin-specific assessments and will rely on the GIS attributes of existing data. The deliverable will include a simplified map and GIS layer

that can be used for project planning and permitting. EOR will compare the results of the different classification systems and propose a revised definition of groundwater dependent natural resources.

Tasks	Estimated Hours	Estimated Costs
Data consolidation/processing	13	$2,002
GIS analysis (raster analysis, append data layers)	17	$2,618
Desktop review of subset of polygons	8	$1,232
Map summaries, package GIS layers for use by District	12	$1,848
Project Management, Documentation, Recommendations	13	$2,272

Assumptions:

- No field work is included in this scope.
- The proposed methodology is wetland-specific. Existing groundwater-dependent classifications of streams and lakes are still valid.

BCWD Deliverables

- GIS data of District-wide groundwater dependent natural resources classifications
- Groundwater dependent natural resources technical memorandum
- Recommendations to the District for rule revisions regarding the definition of groundwater-dependent natural resources

Estimated Hours and Cost

EOR - 61 hours: $9,972

Board Action

1. Approve this Scope of Services in the amount of $9,972 from account number XX to conduct the Groundwater Dependent Natural Resource Update.