ENVIRONMENTAL REPORT

TOWN OF HAYDEN WASTEWATER TREATMENT FACILITY

September 2012

Prepared by

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TOWN OF HAYDEN WASTEWATER TREATMENT FACILITY

REVIEWED BY

_____

SGM Project # 2010-414.008

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I. Summary

A. Project Identification

Applicant: Town of Hayden
Address: PO Box 190
Hayden, CO 81639
(970) 276-3741

B. Contact Person

David Torgler – Town Manager
PO Box 190
Hayden, CO 81639
(970) 276-3741
dtorgler@hayden-co.gov

C. Abstract

The Town currently owns and operates a Wastewater Treatment Facility located on the south bank of the Yampa River. This facility utilizes a two cell aerated lagoon for treatment followed by disinfection and discharges to Dry Creek which flows to the Yampa River. The system was constructed in 1982 and is permitted for 0.75 MGD. The system is unable to meet discharge limits for ammonia with discharge of treated effluent to Dry Creek.

The Preliminary Engineering Report (PER) reviewed five alternatives to achieve compliance:

- Use of the existing aerated lagoon facility with discharge directly to the Yampa River
- New Integrated Fixed Film Activated Sludge Treatment System
- New IFAS MBBR Treatment Technology
- New Aero-Mod Sequox Treatment Facility
- New Sequencing Batch Reactor (SBR) Technology

Five WWTF alternatives were evaluated in the PER, with the recommended alternative being a lift station and forcemain to deliver treated effluent directly to the Yampa River. The existing treatment facility will continue to treat wastewater from the Town of Hayden.

A Jurisdictional Wetland Delineation was prepared by Western Bionomics LLC in November 2011 for the forcemain route which will be on Town of Hayden property and an easement from the Nature Conservancy property located adjacent to the Yampa River. No evidence of threatened or endangered animal or plant species were observed or have been documented anywhere within or adjacent to the proposed project area.

Flood insurance studies indicate that a portion of the forcemain will be within the 100 year floodplain of the Yampa River. The forcemain will be buried and protected from flood events.

More information can be found in the Preliminary Engineering Report (PER) revised August 2012, pending final approval by the CDPHE.

Construction of the proposed lift station and forcemain is expected to begin in summer 2013 and will be completed by December 2013. The forcemain and lift station will be designed and permitted for a maximum monthly flow of 1.5 MGD.

The Town of Hayden has been planning for the new facility for several years and has applied for a Colorado Water Pollution Control Division Revolving Fund loan of $603,300, and developed the following rates to finance the project.

Table 1. Town of Hayden Water and Sewer Rates

Current Water and Sewer Rates	
Type	**Monthly Base Rate**
Water Base - Residential	$ 36.13
Water Base - Senior Citizen	$ 21.68
Water Base - Key Pump	$ 48.73
Sewer Base - All Customers	$ 15.20
**40% discount on water rates for senior citizens*	

D. Comment Period

A notice of public meeting was published in the Steamboat Pilot & Today newspaper on September 30th, 2012 to advertise a public meeting to be held on November 1st, 2012. This meeting will summarize the project, address the expected rate changes as a result of this project, and allow for questions/comment/concerns from any stakeholders. (See Appendix B for notice of public meeting)

II. Purpose and Need for Action

The needs for action driving the project are:

1. Compliance mandate from CDPHE Water Quality Division
2. The existing treatment plant is unable to meet discharge water quality parameters at the existing discharge point to Dry creek.

Figure 1 shows the location of the existing wastewater treatment facility and discharge point.

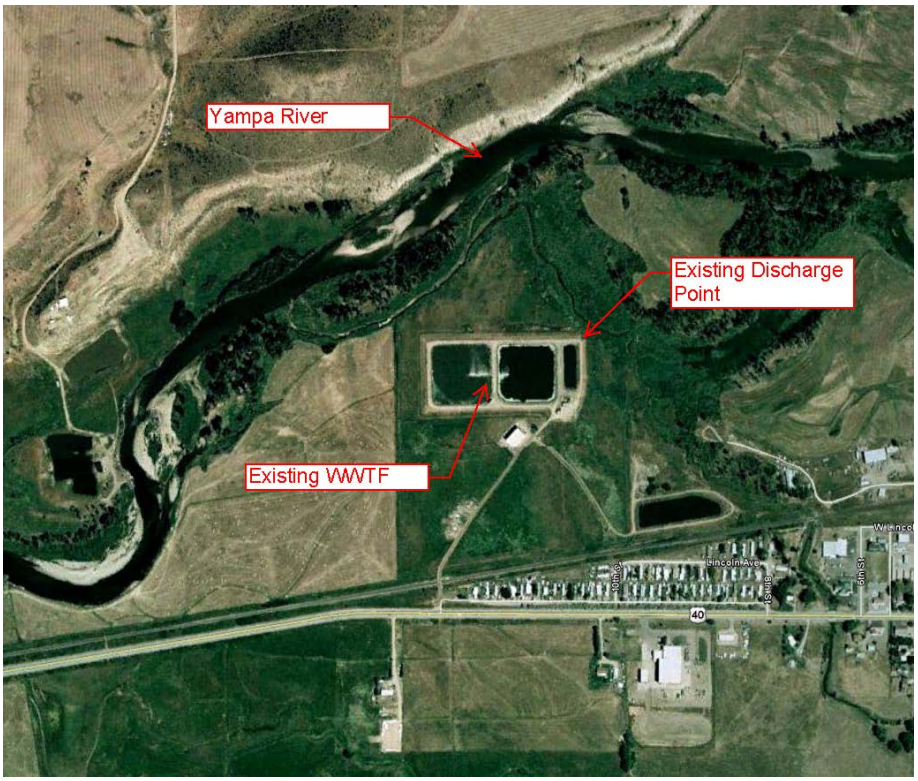

Figure 1. Existing Town of Hayden WWTF

III. Project Summary

In Chapter 5 of the PER (revised August 2012), five wastewater treatment alternatives were evaluated to achieve compliance with CDPHE discharge regulations. The alternatives differed in the technologies used and the degree to which existing structures and equipment at the Town WWTF were reused. The evaluation consisted of developing preliminary design criteria and opinions of capital and annual O&M costs. This information was used to evaluate the five alternatives considering both monetary and non-monetary evaluation criteria. The recommended alternative consisted of constructing a forcemain and lift station to deliver treated effluent from the existing WWTF and discharge directly to the Yampa River. The facility will be sized to handle 0.75 MGD.

The PER evaluated five basic alternatives:

1) Use of the existing aerated lagoon facility with discharge directly to the Yampa River
2) New Integrated Fixed Film Activated Sludge Treatment System
3) New IFAS MBBR Treatment Technology
4) New Aero-Mod Sequox Treatment Facility
5) New Sequencing Batch Reactor (SBR) Technology

A no-action alternative could not be considered because the Town facility is out of compliance and unable to meet effluent discharge limits.

IV. Affected Environment

A. Description of the Planning Area

The proposed project lies in the Town of Hayden, Colorado, along Highway 40 between Craig and Steamboat Springs. Hayden sits in the Yampa River Valley and was first settled in 1875. Historically a center of coal mining and agriculture, it consists today of a small cluster of homes and businesses. At 6,337 feet above the mean sea level, Hayden enjoys an alpine climate with very low humidity in the summer. The area experiences an average of 16.99 inches annual precipitation with an average annual snowfall of 113.3 inches in town. In the summer months, June, July and August temperatures are ~70-80 degrees F. July is the warmest month of the year with a normal range of 48 to 85 degrees F. In the fall from September to November, temperatures are ~60-70 degrees F during the day, with evening temperatures dropping to the ~30-40's degrees F. In the winter from December to February, daytime temperatures are ~30-40 with night time temperatures frequently below zero. The coldest temperatures are experienced in January with a normal minimum temperature of 6° F above zero and a normal maximum of 30° F. There are occasional periods of extreme cold where night temperatures are in the minus 20 degrees F range. In the spring months from March to May, day time temperatures range from ~40-70 degrees F. The last frost period is typically early to mid May. Winds prevail in the area from the west. The Figure below shows where the Town of Hayden is located within the state.

Figure 2. Location of Planning Area within the State

The figure below is a map of the existing service area. The following sections illustrate the equivalent population from the service area, as well as expected flows and loading.

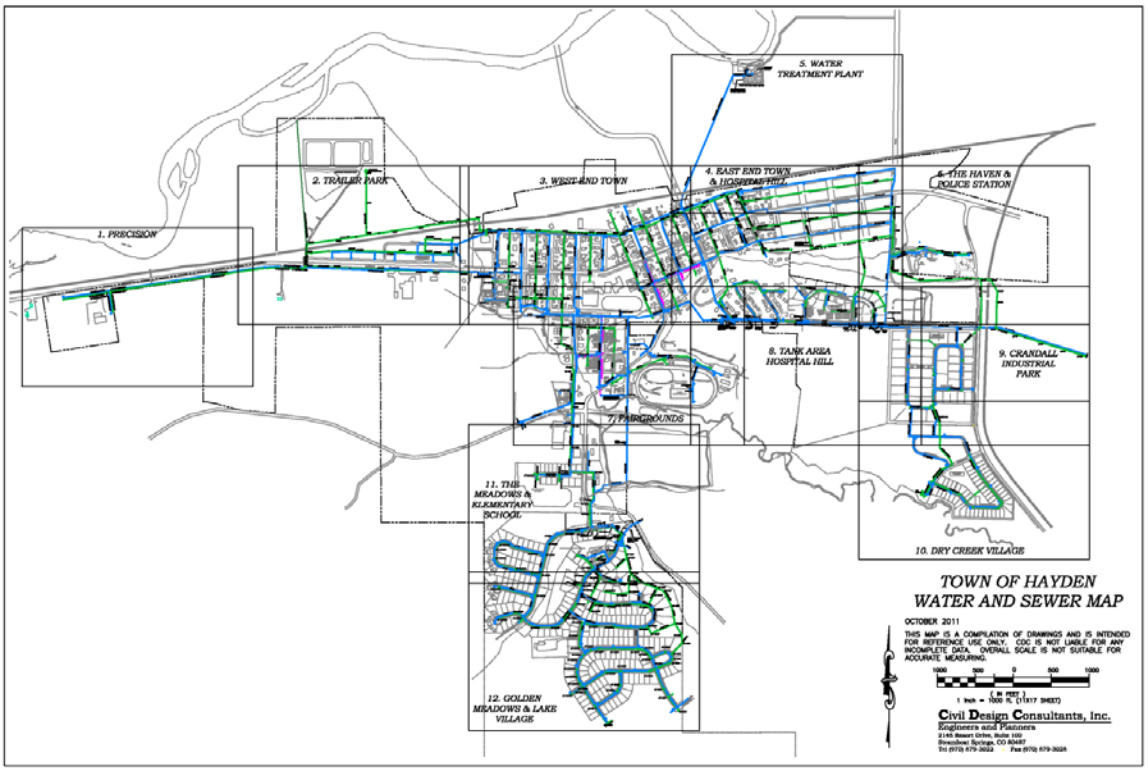

Figure 3. Planning Area Map

B. Population and Flow Projections

The PER used base population (existing population), anticipated growth rate, historical growth rate, regional planning and zoning data for accurate population predictions.

Population projections for Routt County and the Town of Hayden were obtained from the state demographers office. Table 2 shows the population projections and annual growth rate for Routt County from 2000 to 2030.

Table 2. Population projections for Routt County.

Year	Demographer Estimated Population	Annual Growth Rate
2000	20,121	
2001	20,528	2.0%
2002	21,063	2.5%
2003	21,378	1.5%
2004	21,623	1.1%
2005	21,862	1.1%
2006	22,384	2.3%
2007	23,011	2.7%
2008	23,622	2.6%
2009	24,109	2.0%
2010	24,465	1.5%
2011	24,866	1.6%
2012	25,301	1.7%
2013	26,016	2.7%
2014	26,738	2.7%
2015	27,513	2.8%
2016	28,273	2.7%
2017	29,047	2.7%
2018	29,803	2.5%
2019	30,567	2.5%
2020	31,322	2.4%
2021	32,085	2.4%
2022	32,883	2.4%
2023	33,728	2.5%
2024	34,615	2.6%
2025	35,495	2.5%
2026	36,373	2.4%
2027	37,245	2.3%
2028	38,115	2.3%
2029	38,973	2.2%
2030	39,826	2.1%
	Average	**2%**

Analyzing the annual percent growth in population from 2010 to 2030 shows an average growth of approximately 2% for Routt County.

Population estimates for the Town of Hayden were also obtained from the State Demograher's office. Table 3 shows the population estimates and percent growth for the Town of Hayden from 2000 to 2010.

Table 3. Population estimates and percent growth for the Town of Hayden

Year	Population	Percent Growth
2000	1,634	
2001	1,667	2%
2002	1,694	2%
2003	1,726	2%
2004	1,742	1%
2005	1,769	2%
2006	1,815	3%
2007	1,848	2%
2008	1,859	1%
2009	1,859	0%
2010	1,810	-3%
		1.0%

Analyzing the annual percent growth in population from 2010 to 2020 shows an average growth of approximately 1% for the Town of Hayden. For planning purposes this report will use the more conservative growth rate of 2%.

Historic average daily wastewater flows for 2008 to 2010 were obtained from the Town of Hayden and show an average daily flow of approximately 0.152 MGD. Table 4 shows the average daily wastewater flowrates for each month from 2008, 2009, & 2010.

Table 4. Historic Wastewater Flowrates 2008-2010

	Average Flow (mgd)		
	2008	**2009**	**2010**
January	0.082	0.095	0.082
February	0.095	0.121	0.077
March	0.232	0.257	0.119
April	0.370	0.187	0.206
May	0.213	0.176	0.181
June	0.219	0.195	0.233
July	0.180	0.153	0.161
August	0.156	0.138	0.114
September	0.173	0.125	0.121
October	0.170	0.132	0.179
November	0.113	0.080	0.095
December	0.085	0.080	0.094
Average	**0.174**	**0.145**	**0.138**

The monthly maximum flow is the average daily flow to the plant during the month with the highest flow. Historically, the maximum monthly flow has been approximately 1.5 times the average daily flow. Therefore a peaking factor of 1.5 will be utilized to relate average daily flow to monthly max flow.

Table 5 shows the projected population, average daily flow rate, and monthly max flowrate for 2013 to 2030. The projection population is based on a 2% growth rate.

Table 5. Projected Average and Monthly Max Flows

Year	Projected Population	Estimated Average Daily Flowrate (mgd)	Monthly Max Flow (mgd)
2013	1,921	0.152	0.228
2014	1,959	0.155	0.233
2015	1,998	0.158	0.237
2016	2,038	0.161	0.242
2017	2,079	0.165	0.247
2018	2,121	0.168	0.252
2019	2,163	0.171	0.257
2020	2,206	0.175	0.262
2021	2,251	0.178	0.267
2022	2,296	0.182	0.272
2023	2,341	0.185	0.278
2024	2,388	0.189	0.283
2025	2,436	0.193	0.289
2026	2,485	0.197	0.295
2027	2,534	0.201	0.301
2028	2,585	0.205	0.307
2029	2,637	0.209	0.313
2030	2,690	0.213	0.319

The existing wastewater lagoon system is designed for an average daily flow of 0.75 MGD. The projected maximum monthly flows over the next 20 years will be far less than the current permitted capacity of the lagoon system. Therefore this report will consider the design limit of any new equipment to maintain a design capacity up to 0.75 MGD.

Table 6 summarizes the design values used for the flow estimation for the design. A design monthly max flow of 0.75 MGD will provide the facility with well over 20 years of capacity. The peaking factors shown in the table are used to correlate the flows to peaking events such as peak hour.

Table 6. Design Flows for Treatment Processes

Average Daily Flow (MGD)	0.75
Monthly Max Flow (MGD)	1.5
Existing Influent Pumping Capacity (MGD)	3
Peak Hour Flow (MGD)	3

Based on an estimated future wastewater flow of 0.75 MGD, effluent waste load projections are as follows:

Effluent BOD: 30 mg/l – 30 day average
Effluent TSS: 75 mg/l – 30 day average

Effluent Ammonia: 40 mg/l – 30 day average

V. Environmental Impacts of the Proposed Project

A. Direct and Secondary Impacts

Construction of the proposed project on the Town and Nature Conservancy land may have direct impacts from construction. There are no secondary impacts expected by the project.

Secondary impacts are those induced or stimulated by, or as a result of, the proposed action. These include cumulative, social and land use impacts. Cumulative impacts are the collective incremental impacts of the proposed action regardless of the entity undertaking the action. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. From the characteristics of the proposed project, and descriptive elements of the environmental setting, probable impacts are direct and/or secondary.

1. Wetlands

A Jurisdictional Wetlands Delineation was prepared by Western Bionomics and dated February 15, 2012, see Appendix E. A total of 1.09 acre of moderately high quality wetland was delineated within the property boundary. Wetlands are located in the 100 year floodplain.

The construction of the forcemain will represent a temporary impact to some of the wetlands. Original grade contours will be restored after construction. Any damaged wetland vegetation will be restored by seeding with a native wetland seed mix. Trench dams will be incorporated into the Project, if necessary, to prevent draining of wetland areas near the forcemain alignment. Any confining layers of low permeability soils will be restored to maintain perched conditions.

2. Floodplains

The online FEMA Flood Insurance Rate Map (FIRM) system was reviewed and the existing wastewater treatment facility site is located outside of the 100-year floodplain. The site is located adjacent to Zone A of the Yampa River with an approximate floodplain elevation of 6,331. See Panel 785 of 1475 located in the Appendix.

The lift station will be installed on the existing site and above the 100-year floodplain elevation. A new outfall structure will be constructed along the Yampa River and protected from flood events.

3. Terrestrial and Aquatic Plants and Wildlife

According to the Fish and Wildlife Service of the United States Department of Interior, eight federally listed endangered species are known to exist in Routt County: bonytail, Canada lynx, Colorado pikeminnow, greater sage-grouse (candidate), greenback cutthroat trout, humpack chub, razorback sucker, and yellow-billed cuckoo (candidate). The project will not adversely affect the populations of fish listed as endangered species or animal habitiats. Water quality in the Yampa River is expected to improve with this project due to instantaneous mixing from the direct discharge to the Yampa River. Finally, during the wetlands delineation field work, Western Bionomics stated the following, “No evidence of threatened or endangered animal or plant species was observed or has been documented anywhere within or adjacent to the proposed project area.”

4. Cultural, Historical and Archeological Resources

There are no anticipated adverse impacts to any cultural, historical, or archeological resources by the proposed alternative.

5. Air Quality

Four major pollutants currently affect Colorado's air quality: carbon monoxide (CO), fine particulates (PM10), ozone (03) and hazardous air pollutants (HAP's).

Major sources of air pollution include:

- Wood burning - produces CO, PM10, HAP's and visual matter.
- Motor vehicles - give off CO, PM10, 03 , HAP's and oxides of nitrogen.
- Industry - could increase 03, air odors, PM10, HAP's, oxides of nitrogen and sulfur dioxide, and may cause visible releases, depending on the nature of industry.

The Hayden area is subject to air pollution from motor vehicles and wood burning. In general, prevailing winds moving through the area provide a moderate to good ambient air quality. The area

does not have a State Air Quality Implementation Plan in place. The area has no major air quality problems and is currently classified as attainment area.

Finally during construction of the facility it is anticipated that there will be additional dust, but every effort will be made to mitigate dust from the construction site.

6. Environmental Justice

The planning area is predominately populated by white middle-class residents. As of the 2000 census, there were 1,634 people, 618 households, and 443 families residing in the town. The population density was 664.1 people per square mile. There were 658 housing units at an average density of 267.4 per square mile. The racial makeup of the town was 96.02% White, 0.12% African American, 0.61% Native American, 0.12% Asian, 0.06% Pacific Islander, 1.96% from other races, and 1.10% from two or more races. Hispanic or Latino of any race were 5.69% of the population. Residentially the community consists of single-family homes, and multiple residence units. The types of residences are scattered throughout the planning area. Because the proposed project will be located at the existing WWTF, far away from any existing or proposed residences it is unlikely to affect any group disproportionately. There are no anticipated adverse impacts to any socio-economic or racial group as a result of this project.

B. Unavoidable Adverse Impacts

Unavoidable adverse impacts of all construction related projects that may not be fully mitigated include:

- Short-term increases in noise and ambient air particulate levels and increased traffic in the immediate vicinity of construction activities.
- Increased pollution in stormwater runoff from construction sites
- Commitment of resources including capital, manpower, and materials.

C. Mitigation of Adverse Impacts

All local and regional requirements to mitigate the environmental impacts will be addresses below and considered for the project.

Wetlands: The construction of the forcemain will represent a temporary impact to some of the wetlands. Original grade contours will be restored after construction. Any damaged wetland vegetation will be restored by seeding with a native wetland seed mix. Trench dams will be incorporated into the Project, if

necessary, to prevent draining of wetland areas near the forcemain alignment. Any confining layers of low permeability soils will be restored to maintain perched conditions.

Floodplains: The lift station will be constructed above the 100-year floodplain. A portion of the forcemain and outfall structure will be located within the floodplain and be designed to withstand flood events.

Erosion Control: The project will require the preparation of a stormwater management plan by the contractor and will follow best management practices to minimize stormwater runoff during construction.

Air Quality: Routt County has an Air Quality monitoring program. This program is used to collect data and educate the population about air hazards; there are no associated regulations for air quality protection in the county. Since no adverse effects to air quality are expected from the project no additional air quality mitigation is necessary.

VI. Public Participation

A notice of public meeting was published in the Steamboat Pilot & Today newspaper on September 30th, 2012 to advertise a public meeting to be held on November 1st, 2012. This meeting will summarize the project, address the user rates as a result of this project, and allow for questions/comment/concerns from any stakeholders. (See Appendix B for notice of public meeting)

VII. Reference Documents

A copy of the PER was submitted to CDPHE, please reference this document for any additional information, and its appendices.

VIII. Agencies Contacted

In July 2012 the following agencies were contacted via letters for comments:

- Colorado Department of Wildlife
- Colorado Division of Water Resources
- CDPHE – Air Quality Division
- Natural Resource Conservation Service
- State Historic Preservation Office
- US Army Corps of Engineers
- US Fish and Wildlife Service

Response letters from the following agencies were received, and are attached:

- CDPHE – Air Quality Division (Appendix C)
- Colorado Historical Society (Appendix D)

Appendix A

CDPHE Environmental Assessment Checklist

ENVIRONMENTAL DETERMINATION CHECKLIST

Use the Discussion and References space at the end of each section to document your responses. For example, explain how you determined the level of impact and document the reasoning if checking PA (possible adverse) for any resource. Attach additional pages if necessary.

1. Brief project description, including identification of selected alternative:

The project will consist of a new lift station and forcemain to discharge treated effluent directly to the Yampa River to meet water quality effluent parameters.

2. Describe if the project will improve or maintain water quality, and if the project addresses a TMDL, and/or Watershed Management Plan.

The project will improve water quality.

3. Provide latitude and longitude of the proposed project (if a transmission / distribution / collection line identify the center point not the whole line):

40deg 29’50.97”N
107deg 16’23.37”W

4. Provide discharge information:

The discharge will be directly to the Yampa River.

5. Provide NPDES/PWSID number:

CO-0040959

6. Provide primary waterbody name and waterbody ID, secondary name (if available), and State designated surface water use:

Yampa River

Y = Yes N = No PA = Possible Adverse

1. Physical Aspects - Topography, Geology and Soils

Y ___ N X PA ___ a. Are there physical conditions (e.g., steep slopes, shrink-swells soils, etc.) that might be adversely affected by or might affect construction of the WWTF facilities?

Y ___ N X PA ___ b. Are there similar limiting physical conditions in the planning area that might make development unsuitable?

Y ___ N X PA ___ c. Are there any unusual or unique geological features that might be affected?

Y ___ N X PA ___ d. Are there any hazardous areas (slides, faults, etc.) that might affect construction or development?

Discussion and References:

2. Climate

Y ___ N X PA ___ a. Are there any unusual or special meteorological constraints in the planning area that might result in an air quality problem?

Y ___ N X PA ___ b. Are there any unusual or special meteorological constraints in the planning area that might affect the feasibility of the proposed wastewater treatment alternative?

Discussion and References:

3. Population

Y ___ N X PA ___ a. Are the proposed growth rates excessive (exceeding State projections, greater than 6% per annum for the 20 year planning period)?

Y ___ N X PA ___ b. Will additional growth be induced or growth in new areas encouraged as a result of facilities construction?

Y ___ N X PA ___ c. Will the facilities serve areas which are largely undeveloped areas at present?

Discussion and References:

4. Housing, Industrial and Commercial Development and Utilities

Y ___ N X PA ___ a. Will existing homes or business be displaced as a result of construction of this property?

Y ___ N X PA ___ b. Will new housing serviced by this facility affect existing facilities, transportation patterns, environmentally sensitive areas, or be in special hazard or danger zones?

Y ___ N X PA ___ c. Will new housing create strains on other utilities and services - policies, power, water supply, schools, hospital care, etc.?

Discussion and References:

5. Economics and Social Profile

Y ___ N X PA ___ a. Will certain landowners benefit substantially from the development of land due to interceptor routing or WWTP location and size?

Y ___ N X PA ___ b. Will the facilities adversely affect land values?

Y ___ N x PA ___ c. Are any poor or disadvantaged groups especially affected by this project?

Discussion and References:

6. Land Use

Y ___ N X PA ___ a. Will projected growth defeat the purpose of local land use controls (if any)?

Y ___ N X PA ___ b. Is the location of the WWTP or other facilities incompatible with local land use plans?

Y ___ N X PA ___ c. Will inhabited areas be adversely impacted by the project site?

Y ___ N x PA ___ d. Will new development have adverse effects on older existing land uses (agriculture, forest land, etc.)?

Y ___ N X PA ___ e. Will this project contribute to changes in land use in association with recreation (skiing, parks, etc.), mining or other large industrial or energy developments?

Discussion and References:

7. Floodplain Development

Y X N ___ PA ___ a. Does the planning area contain 100 year floodplains?
If yes -
Y X N ___ PA ___ b. Will the project be constructed in a 100 year floodplain?
Y ___ N x PA ___ c. Will the project serve direct or indirect development in a 100 year floodplain anywhere in the planning area?

Discussion and References:

The outfall structure will be placed within the 100-year floodplain but backflow will be protected by a check valve.

8. Wetlands

Y X N ___ PA ___ a. Does the planning area contain wetlands as defined by the U.S. Fish and Wildlife Service?
If yes -
Y ___ N X PA ___ b. Will any major part of the treatment works be located on wetlands?
Y ___ N X PA ___ c. Will the project serve growth and development which will directly or indirectly affect wetlands?

Discussion and References:

Wetlands have been identified in parts of the forcemain alignment, however mitigation and restoration back to original condition will be required with construction.

9. Wild and Scenic Rivers

Y ___ N X PA ___ a. Does the planning area contain a designated or proposed wild and scenic river?
If yes -
Y ___ N ___ PA ___ b. Will the project be constructed near the river?
Y ___ N ___ PA ___ c. Will projected growth and development take place contiguous to or upstream from the river segment?
Y ___ N ___ PA ___ d. Will the river segment be used for disposal of effluent?

Discussion and References:

10. Cultural Resources (Archeological/Historical)

Y ___ N X PA ___ a. Are there any properties (historic, architectural, archeological) in the planning area which are listed on or eligible for listing on the National Register of Historic Places?
If yes -
Y ___ N X PA ___ b. Will the project have direct or indirect adverse impacts on any listed or eligible property?

Discussion and References:

11. Flora and Fauna (including endangered species)

Y X N ___ PA ___ a. Are there any designated threatened or endangered species or their habitat in the planning area?

Y ___ N X PA ___ b. Will the project have direct or indirect adverse impacts on any such designated species?

Y ___ N X PA ___ c. Will the project have direct or indirect adverse impacts on fish, wildlife or their habitat including migratory routes, wintering or calving areas?

Y ___ N X PA ___ d. Does the planning area include a sensitive habitat area designed by a local, State or Federal wildlife agency?

Discussion and References:

Routt County has seven endangered and threatened species listed. The lift station will be located on the existing wastewater treatment facility site. The forcemain will be only a temporary disturbance and restored back to original condition. No adverse impacts are expected to any endangered or threatened species.

12. Recreation and Open Space

Y ___ N X PA ___ a. Will the project eliminate or modify recreational open space, parks or areas of recognized scenic or recreational value?

Y ___ N X PA ___ b. Is it feasible to combine the project with parks, bicycle paths, hiking trails, waterway access and other recreational uses?

Discussion and References:

13. Agricultural Lands

Y ___ N x PA ___ a. Does the planning area contain any environmentally significant agricultural lands (prime, unique, statewide importance, local importance, etc.) as defined in the EPA Policy to Protect Environmentally Significant Agricultural Lands dated September 8, 1978?

Y ___ N X PA ___ b. Will the project directly or indirectly encourage the irreversible conversion of Environmentally Significant Agricultural Lands to uses which result in the loss of these lands as an environmental or essential food production resource?

Discussion and References:

14. Air Quality

Y ___	N X	PA ___	a. Are there any direct air emissions from the project (e.g., odor controls, sludge incinerator) which do not meet Federal and State emission standards contained in the State Air Quality Implementation Plan (SIP)?
Y ___	N X	PA ___	b. Is the project service area located in an area without an approved or conditionally approved SIP?
Y ___	N X	PA ___	c. Is the increased capacity of the project greater than 1 mgd?
Y ___	N x	PA ___	d. Do the population projections used in the facilities plan exceed the Sate or areawide projections in the SIP by more than 5%?
Y X	N ___	PA ___	e. Does the project conform with the requirements of the SIP? (See EPA regulations under Section 316 of the Clean Air Act.)
Y ___	N X	PA ___	f. Is the project inconsistent with the SIP of an adjoining State that may be impacted by the Project?
Y ___	N X	PA ___	g. Does the project violate national ambient Air Quality Standards in an attainment or unclassified area?
Y ___	N X	PA ___	h. Will the facilities create an odor nuisance problem?

Discussion and References:

15. Water Quality and Quantity (Surface/Groundwater)

Y ___	N X	PA ___	a. Are present stream classifications in the receiving stream being challenged as too low to protect present or recent uses?
Y ___	N X	PA ___	b. Is there a substantial risk that the proposed discharge will not meet existing stream standards or will not be of sufficient quality to protect present or recent stream uses?
Y ___	N X	PA ___	c. Will construction of the project and development to be served by the project result in non-point water quality problems (sedimentation, urban stormwater, etc.)?
Y ___	N X	PA ___	d. Will water rights be adversely affected by the project?
Y ___	N x	PA ___	e. Will the project cause a significant amount of water to be transferred from one sub-basin to another (relative to the 7-day, 10 year flow of the diverted basin)?
Y ___	N X	PA ___	f. Will stream habitat be affected as a result of the change in flow or stream bank modification?
Y ___	N X	PA ___	g. Are stream conditions needed for deciding upon the required limitations inadequately specified in the 208 Plan? If so, have the wasteload allocations calculations been performed and approved by the State and EPA?
Y ___	N X	PA ___	h. Is an Antidegradation Review required?
Y ___	N x	PA ___	i. Will the project adversely affect the quantity or quality of a groundwater resource?

Y ___ N X PA ___ j. Does the project adversely affect an aquifer used as a potable drinking water supply?

Y ___ N X PA ___ k. Are there additional cost effective water conservation measures that could be adopted by community to reduce sewage generation?

Discussion and References:

16. Public Health

Y ___ N X PA ___ a. Will there be adverse direct or indirect noise impacts from the project?

Y ___ N X PA ___ b. Will there be a vector problem (e.g., mosquito) from the project?

Y ___ N X PA ___ c. Will there be any unique public health problems as a result of the project (e.g., increased disease risks)?

Discussion and References:

17. Solid Waste (Sludge Management)

Y ___ N X PA ___ a. Will sludge disposal occur in an area with inadequate sanitary landfills or on land unsuitable for land application?

Y ___ N X PA ___ b. Are there special problems with the sludge that makes disposal difficult (hazardous, difficult to treat)?

Y ___ N X PA ___ c. Is the technology selected for sludge disposal controversial?

Discussion and References:

18. Energy

Y ___ N X PA ___ a. Are there additional cost effective measures to reduce energy consumption or increase energy recovery which could be included in this project?

Discussion and References:

19. Land Application

Y ___ N X PA ___ a. Has a new or unproven technique been selected?

Y ___ N x PA ___ b. Is there considerable public controversy about the project?

Y ___ N X PA ___ c. Will the project require additional water rights or impact existing water Rights?

Y ___ N X PA ___ d. Is the project multi-purpose?

Discussion and References:

20. Regionalization

Y ___ N X PA ___ a. Are there jurisdictional disputes or controversy over the project?

Y ___ N X PA ___ b. Is conformance with the 208 plan in question?

Y ___ N x PA ___ c. Is the proliferation of small treatment plants and septic systems creating a significant health problem?

Y ___ N X PA ___ d. Have inter-jurisdictional agreements been signed?

Discussion and References:

21. Public Participation

Y ___ N X PA ___ a. Is there a substantial level of public controversy?

Y x N ___ PA ___ b. Is there adequate evidence of public participation in the project?

Discussion and References:

22. Environmental Laws

Y ___ N X PA ___ a. Does the project threaten to violate any State, Federal or local law or requirement imposed to protect the environment?

Discussion and References:

Prepared By: Cooper Best, PE - Project Manager-SGM

Name, Title, and Affiliation

Date: 6/7/12

Reviewed By (WQCD): _____

Name and Title

Date: _____

Environmental Determination: (Circle One) CE EA EIS

Appendix B

Notice of Public Meeting

Legal Notice

Notice of Public Hearing for the Town of Hayden Wastewater Treatment Facility Hayden, Colorado

Date: November 1st, 2012
Time: 7:30 p.m.
Location: Town Hall
Address: 178 West Jefferson
Hayden, Colorado 81639
Topic: Town of Hayden
Wastewater Treatment Facility
Preliminary Engineering Report &
Environmental Report

A public hearing will be conducted for informing citizens and soliciting public input, written or oral, regarding the Town of Hayden Wastewater Treatment Facility Preliminary Engineering Report (PER) and Environmental Report (ER). The PER is a report detailing the project consisting of a Wastewater Lift Station project to address revised effluent limits as mandated by CDPHE. The ER is a document which analyzes the impacts of the proposed project and any mitigation necessary. The reports are being submitted to the Colorado Department of Public Health and Environment (CDPHE) to qualify the Town for a State Revolving Fund Loan.

The Town is in the process of permitting, designing, and constructing a new lift station and forcemain to discharge treated effluent directly to the Yampa River to meet water quality effluent parameters.

Maps, drawings, environmental statements, and other pertinent data will be available upon request for public inspection and copying from Melisa Owens, Town Clerk, Town of Hayden, Colorado.

All persons interested in the design, location, and construction of the proposed wastewater treatment facilities are invited to appear and express their views. Written statements may be submitted prior to or at the time of the hearing.

/s/ David Torgler, Town Manager

Published in the *Steamboat Pilot & Today*, September 30th, 2012.

Appendix C

Response Letter from CDPHE Air Quality Division

STATE OF COLORADO

John W. Hickenlooper, Governor
Christopher E. Urbina, MD, MPH
Executive Director and Chief Medical Officer

Dedicated to protecting and improving the health and environment of the people of Colorado

4300 Cherry Creek Dr. S.
Denver, Colorado 80246-1530
Phone (303) 692-2000
Located in Glendale, Colorado

Laboratory Services Division
8100 Lowry Blvd.
Denver, Colorado 80230-6928
(303) 692-3090

http://www.cdphe.state.co.us

Colorado Department
of Public Health
and Environment

July 5, 2012

RECEIVED
JUL 20 2012
SGM

Cooper Best, PE
Project Manager
SGM
118 W. Sixth St., Suite 200
Glenwood Springs, CO 81601

RE: Town of Hayden Wastewater Treatment Plant

Dear Mr. Best:

On July 5, 2012, the Colorado Air Pollution Control Division received a request for an air quality determination concerning Town of Hayden Wastewater Treatment Plant. Thank you for taking the time to inquire about air quality requirements in this area. The following information pertains to air quality issues only.

All sources of air emissions in Colorado are required to obtain a construction permit unless they are specifically exempted by the provision of **Regulation No. 3.** The link to Regulation No. 3 is: http://www.cdphe.co.us/regulations/airreg. Choose Air Quality Control Commission Regulations, then choose Regulation No. 3.

The first phase of air permitting involves submission of an Application for Construction Permit for each facility and one **Air Pollution Emission Notices (APEN)** for each emission source. For purposes of Air Pollution Emission Notice reporting, a source can be an individual emission point or group of similar emission points (Ref: Regulation No. 3, Part A) Both APEN reporting and permit requirements are triggered by uncontrolled actual emission rates. Uncontrolled actual emissions are calculated based on the requested production/operating rate assuming no control equipment is used. In general, an APEN is required for an emission point with uncontrolled actual emissions of any criteria pollutant equal to or greater than the quantity listed in the table below:

AREA	UNCONTROLLED ACTUAL EMISSIONS
Attainment Areas	2 Tons Per Year
Non-attainment Areas	1 Ton Per Year
All Areas	Lead Emissions: 100 pounds per year

Please consult http://www.cdphe.state.co.us/ap/attainmaintain.html to determine if your project will be located within an **attainment or non-attainment area**. Other exemptions may be found in Regulation No. 3, Part A, Section II.D.1 However, a source may not be exempted if the source would otherwise be subject to any specific federally applicable requirement.

Sources of **non-criteria reportable pollutants** have different reporting levels depending on the pollutant, release point height, and distance to property line. Please see **Appendix A and Appendix C of Regulation No. 3** for determining the

appropriate reporting level for each pollutant and for the list of non-criteria reportable air pollutants. The following chart will assist you in determining your reportable non-criteria pollutant levels from your project.

However, none of the exemptions from Air Pollution Emission Notice filing requirements described above shall apply if a source would otherwise be subject to any specific federal or state applicable requirement. Information concerning submittal of revised Air Pollution Emission Notices is also given in Regulation No. 3, Part A. An Air Pollutant Emission Notice is valid for a period of five years. The five-year period recommences when a revised APEN is received by the Division.

If you have any questions regarding your reporting and permitting obligations please call the Small Business Assistance Program at 303-692-3148 or 303-692-3175.

For small government wastewater projects, use the following chart to estimate your VOC and HAPS emissions to determine if you are required under Regulation No. 3 to apply for a permit or APEN.

Emissions calculation:

Pollutant	Em Factor lb/MM gal	Bin #
VOC	3.49414	
Hexamine	0.41207	C
Perchloroethylene	0.00890	A
Benzene	0.22873	A
Toluene	0.00267	C
Total Xylenes	0.00267	C
Ammonia	19.0000	C

Contact Mr. Chip Hancock of the Permit Program if you have any questions on this calculation, at 303-692-3168.

Land development (earth moving) activities that are greater than 25 acres or more than 6 months in duration will most likely be required to submit an APEN to the Division and may be required to obtain an air permit. In addition a startup notice must be submitted 30 days prior to commencement of the land development project.

Please refer to the following link for additional information:
http://www.cdphe.state.co.us/ap/downloadforms.html, **Permit Application and APEN Forms**, then scroll to: Land Development – Specialty APEN for the form and guidance.

If you have any questions or feel as though you need more information on possible air pollution permits or notice requirements, please contact me directly at 303-692-3127 or the Colorado Air Pollution Control Division's Stationary Source Program at 303-692-3150. I can also be reached via email at jim.dileo@state.co.us.

Again, thank you for taking the time to contact the Division about this project.

Sincerely,

James A. DiLeo
NEPA Coordinator
Colorado Air Pollution Control Division

Appendix D

Response Letter from Colorado Historical Society

HISTORY Colorado

RECEIVED
JUL 20 2012
SGM

July 12, 2012

Cooper Best, PE
Project Manager
SGM
118 West 6th Street, Suite 200
Glenwood Springs, Colorado 81601

Re: Town of Hayden Wastewater Treatment Plant Outfall Project
HC #62346

Dear Mr. Best:

Thank you for your correspondence dated July 5, 2012 (received by our office on July 9, 2012) regarding the captioned project having CDPHE and EPA involvement.

A search of the Colorado Cultural Resource Inventory indicated that no surveys for cultural resources have been conducted within the immediate vicinity of the proposed permit area and no resources that are eligible for or listed on the National or State Register of Historic Places have been recorded within the proposed area. However, our files contain incomplete information for this area, as most of Colorado has not yet been inventoried for cultural resources. As a result, there is the possibility that as yet unidentified cultural resources exist within the proposed area.

Please be advised that because a legal description was not provided we searched the area in red on your map that we read as 6 PM T6N R88W Sec 4 SW ¼.

Please be advised that this letter does not conclude the Section 106 consultation process, and that we recommend a survey of the project area to determine if there are any sites. Attached is our consultation guidance. If during ground-disturbing activities unrecorded sites are discovered we request that you stop work and contact our office regarding evaluation of the sites. Additionally, should human remains be discovered during ground-disturbing activities, the requirements under State law CRS 24-80 part 13 apply and must be followed.

Thank you for the opportunity to comment. If we may be of further assistance, please contact Dan Corson, Intergovernmental Services Director, at (303) 866-2673 or dan.corson@state.co.us

Sincerely,

for Edward C. Nichols
State Historic Preservation Officer

cc: Consultation guidance

REVISED CONSULTATION GUIDANCE FOR SECTION 106

COLORADO OFFICE OF ARCHAEOLOGY AND HISTORIC PRESERVATION
www.historycolorado.org

The Office of Archaeology and Historic Preservation (OAHP) is a division of History Colorado (The Colorado Historical Society) and serves as the Colorado State Historic Preservation Office (SHPO).

Federal agencies are required to engage in what is termed "consultation" with the SHPO to determine if any Federally funded or permitted activities may have an adverse effect on historic properties. Historic properties include not only those properties that are officially listed on the National Register of Historic Places, but also those that are determined to be eligible for the National Register. This requirement is set forth in Federal legislation known as the National Historic Preservation Act. The consultation process is described in Section 106 of that act.

Sometimes Federal agencies will delegate to its grantees or permitees the job of consulting with the SHPO in the Section 106 consultation process. *This guide is designed to help those who are unfamiliar with the Section 106 consultation process both understand what the process is and how to provide to the SHPO information needed to respond to a request without our office having to request additional information from you.*

For an overview of the Section 106 review process, you may wish to read "A Citizens Guide to Section 106 Review," a short publication found at http://www.achp.gov/citizensguide.html

A list of properties currently on the National Register in Colorado can be found on our website at http://www.historycolorado.org/archaeologists/national-and-state-register. In addition, our office maintains a library of many thousands of inventory forms for properties already recorded. It may be possible to determine if the property or properties involved with your project has/have already received determinations regarding whether they are eligible to be listed on the National Register. This process is called a "File Search" for which there may be a small fee depending on how much research is required. Therefore your next step may be to contact our office to determine if this is the case.

For more information on file searches, please contact the SHPO at (303) 866-5216.

The following checklist is intended to be a guide to the information that the SHPO may need to respond to your Section 106 consultation request.

I. Project description:

A. Identify the Federal agency involved, the agency program and type of Federal involvement.

Example 1: The Federal agency involved is the Department of Housing and Urban Development (HUD) the staff contact information for which is _____; the Federal program is CDBG; and the type of Federal program is a low-interest loan to conduct rehabilitation work on downtown buildings.

Example 2: The Federal agency involved is US Department of Agriculture Rural Development the staff contact information for which is _____; the Federal program is the rural solar program; and the type of Federal program is a grant to fund a portion of the costs to place solar panels on a barn.

Example 3: The Federal agency involved is the Department of Energy the staff contact information for which is _____; the Federal program is rural electrification; and the type of Federal program is permitting transmission lines.

B. What do you propose to do?

Example 1: Remove metal siding on several buildings; repair façade materials in need of repair; and paint.

Example 2: Install solar panels on the south side of a barn.

Example 3: With heavy machinery construct towers and string lines hat may be seen for hundreds of feet in any direction.

C. Provide vicinity information

1. Are there any buildings or structures 50 or more years of age on or adjacent to property site?
(This is important because 50 years is the established age to begin to evaluate if a building is eligible for listing on the National Register and will require research with the county assessor.)
2. Will any buildings 50 or more years of age be vacated elsewhere as a result of this project?
(This is important because abandonment of a building eligible to listed on the National Register may be considered an adverse effect to the building.)

3. Will there be any ground disturbance?
(This is important to determine if archaeological sites may be affected by the project.)
   a. Has the land been previously disturbed?
   b. Will access roads be constructed?
   c. Will the project require borrow areas?
   d. Will the project require staging or storage areas?

4. What are the previous use(s) of site?
(This is important to determine if previous uses may have damaged properties or obliterated archaeological sites.)

II. Establish **the Area of Potential Effect** (APE), which is defined as the geographic area or areas within which an undertaking or project may cause changes in the character or use of historic properties, if such properties exist. The APE should reflect the potential visual, auditory and physical effects to the setting of historic resources

Example 1: The APE of a project to do interior work may be only the building involved. However the APE for exterior work may also include the neighborhood if the neighborhood may be eligible or listed as a historic district.

Example 2: The APE for a tall structure (such as a barn) may include the area in which it is visible if there are eligible properties for which the viewshed is part of their significance.

Example 3: The APE will include the areas of the ground that will be used for construction, staging, and building access roads. In addition, because the electrical towers will be seen for hundreds of feet in any direction, the APE may include all or part of the area in which they are visible (similar to Example 2).

III. Complete Inventory form(s) for each building or structure (50+ years old) and archaeological site within the APE. The inventory form should include your opinion on the National Register-eligibility of any resource for which an inventory form is completed. The form that is used for a building is called the *Architectural Inventory Form 1403* and is available on our website. There are other forms for archaeological sites and linear resources (such as railroads or ditches) for which you are best advised to hire a consultant to complete. Inventory forms may be found on our website at: http://www.historycolorado.org/archaeologists/survey-inventory-forms

IV. Federal regulations state that the applicant should supply its opinion on the project's potential effects to resources identified as eligible for the National Register within the APE. If you do not have the expertise to do this, you will have to rely upon the SHPO's determinations. The types of effects are:

A. No historic properties affected
This finding of effect is appropriate when there are no National Register-listed or eligible properties within the APE, or if there are such properties they will not be affected by the project.

B. No adverse effect
This finding of effect is appropriate when the project will affect a National Register-listed or eligible property but the effect will not diminish the characteristics rendering a property eligible for the National Register.

C. Adverse effect
This finding of effect is appropriate when the project will diminish the characteristics rendering a property eligible for the National Register—either completely (for example, by demolishing it), or significantly (for example, by altering the facade of a building).

V. Consult with the appropriate local government and other consulting parties regarding your determinations of eligibility and potential effects, if applicable. The local government in which your project is located is required to be given the opportunity to offer its opinions on the project. Therefore you should also forward your request to the local government as well as the SHPO. Many local governments have their own historic preservation ordinance. A list of these local governments is on our website at http://www/historycolorado.org/archaeologists/city-and-county-government-preservation-programs

In addition, Native American tribes are sometimes required to be notified depending on the nature of the project. This is particularly important in rural areas or for projects where ground disturbance will take place.

For more information on consulting party requirements, you should contact the SHPO.

Correspondence with our office should be addressed to:

Edward C. Nichols
State Historic Preservation Officer
History Colorado
1200 Broadway
Denver, CO 80203

Appendix E

Wetland Delineation

Town of Hayden
Wastewater Plant Outfall Line

JURISDICTIONAL WETLAND DELINEATION

February 15, 2012

Prepared For

Town of Hayden

PO Box 190, Hayden, CO 81639-0190

and

SACRAMENTO DISTRICT
Regulatory Branch

Colorado/Gunnison Basin Reg. Office • 400 Rood Avenue Room 142
Grand Junction, CO 81501-2563

Prepared By

WESTERN BIONOMICS LLC

Natural Resource Management Services

31040 Willow Lane • Steamboat Springs, CO 80487

Ph: 970-846-8223 • kscolfer@westernbionomics.com

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Appendix A - Field Data Sheets
Appendix B - Representative Photographs
Appendix C – Wetland Functions and Values Assessment

1. INTRODUCTION

The Hayden Wastewater Plant is located between US Highway 40 and the Yampa River on the west end of the town of Hayden, in Routt County, Colorado (Figure 1). Wetlands on the property are associated with the Yampa River. The Wastewater Plant can be found on the USGS Hayden, Colorado 7.5' series topographic quadrangle on a parcel of land owned by the Town of Hayden. The entire parcel occupies 60.5± acres in the sixth principal meridian T6N, R88W, Section 9. The property is centered at 40.497594° North Latitude, 107.272866° West Longitude. Plant communities on the property include monotypic reed canarygrass, upland pasture, and cottonwood-riparian.

The Colorado Department of Public Health and Environment (CDPHE) issued revised effluent limits to the Town of Hayden and implemented a compliance schedule. The existing lagoon wastewater treatment facility is not capable of meeting the proposed ammonia limits with the current discharge to dry creek. Therefore the Town is proceeding with a direct discharge of treated wastewater from the existing facility to the Yampa River which will have less stringent water quality criteria. The project will consist of a lift station and forcemain.

The address of the project proponent is the Town of Hayden. The project engineer is the primary contact:

Cooper Best P.E.
Schmueser, Gordon, Meyer
118 W. Sixth Street, Suite 200
Glenwood Springs, CO 81601
(970) 945-1004
CooperB@sgm-inc.com

Wetlands were delineated on a 4.8 acre project area located within the Town of Hayden parcel for the purposes of this project. This document establishes, within the project area, the limits of federal jurisdiction with respect to Section 404 of the Clean Water Act.

2. METHODS

Prior to preparation of this jurisdictional wetland delineation report, pertinent background information was reviewed, individuals familiar with the project were interviewed, and maps, aerial photos, and soil map unit descriptions of the project area were obtained by Western Bionomics.

Upon completion of the pre-field work, the project area was identified and examined on November 9, 2011 to ascertain the physical arrangement of plant communities and to establish sample plot locations. Sample plots were established near the edge of each change in plant community type in order to ascertain weather the site was a wetland or upland. Each sample plot was numbered and designated with orange flagging. Ecosystem parameters (vegetation, soils, and hydrology) were characterized and recorded on field data forms (Appendix A) at each observation point, as per Army Corps guidelines (US Army Corps of Engineers Wetland Delineation Manual 1987; Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, U.S. Army Corps of Engineers, April 2008). The location of sample plots was mapped and is displayed in Figure 2.

Based on observations of all three wetland parameters at each sample plot, wetland boundaries were designated with fluorescent pink flagging. Boundary markers were individually numbered by Western Bionomics personnel and recorded by the surveyor to provide reference. A point to point survey of the delineated boundaries of each wetland was conducted by Emerald Mountain Surveyors. The wetland boundary was located with respect to the project datum and a map of wetland boundary locations relative to the project datum was created by the surveyor. The map is reproduced in Figure 2 at the end of this narrative.

The characteristics of vegetation, soils, and hydrology within wetlands and uplands on the parcel are presented in Section 3 of this report. Furthermore, wetland functions and values were assessed within each wetland polygon. The results of the functions and values assessment are presented in Section 3.4, Wetland Functions, Values, and Area. The total area of each wetland complex is also displayed in Table 2 within Section 3.4. Copies of the field data forms and wetland functional analysis data sheets are included in Appendix A. Representative photos of the project area are included in Appendix B. Detailed wetland functional analysis data sheets are included in Appendix C.

3. RESULTS

Wetland sample plots revealed the boundary between sites which exhibited all 3 wetland parameters and sites which were lacking one or more wetland parameters. Based on the presence or absence of parameters, wetland boundaries were designated.

The following narrative presents the results of the field examinations with respect to soil parameters, vegetation composition, hydrological indicators, and ecological functions of wetlands delineated in the project area. Figure 3 presents soil map units on the project area.

No evidence of threatened or endangered animal or plant species was observed or has been documented anywhere within or adjacent to the proposed project area.

3.1 SOILS

3.1.1 NRCS Soil Mapping Units

Soil survey information compiled by the Natural Resources Conservation Service (NRCS) identifies 2 mapping units within the limits of the project area (Figure 3). The following narrative provides a description of these mapping units.

3.1.1.1 Map Unit 90A – Apmay-Manbow complex, 0 to 3 percent slopes

Setting
Position on landscape: flood plains
Elevation: 6,150 to 6,450 feet
Air temperature: 42 to 44 degrees F
Annual precipitation: 14 to 18 inches
Frost-free period: 75 to 95 days

Composition
Apmay soil and similar inclusions: 50 percent
Manbow soil and similar inclusions: 30 percent
Contrasting inclusions: 20 percent

Contrasting Inclusions
Frolic soils
very poorly drained Aquents and Aquolls soils

Typical Profile
Apmay
Surface layer:
0 to 4 inches=dark grayish brown sandy clay loam

Subsurface layer:
4 to 19 inches=dark grayish brown sandy clay loam
19 to 23 inches=grayish brown gravelly sandy loam

Underlying material:
23 to 60 inches=light yellowish brown extremely gravelly sand

Soil Properties and Qualities
Apmay
Parent material: alluvium
Depth class: very deep
Drainage class: somewhat poorly drained
Seasonal High Water Table: 12 to 36 inches; May-June
Permeability: moderate over very rapid
Available water capacity: low
Potential rooting depth: 60 or more inches for water-tolerant plants and 12 to 36 inches for non-water-tolerant species
Flooding: common
Runoff: low to medium

Hazard of water erosion: slight
Hazard of soil blowing: low

Typical Profile
Manbow
Surface layer:
0 to 5 inches=dark grayish brown very gravelly sandy loam

Subsurface layer:
5 to 15 inches=dark grayish brown gravelly sandy loam
15 to 21 inches=brown extremely gravelly loamy sand

Underlying material:
21 to 60 inches=light yellowish brown extremely gravelly sand

Soil Properties and Qualities
Manbow
Parent material: alluvium
Depth class: very deep
Drainage class: somewhat poorly drained
Seasonal high water table: 12 to 30 inches; May-June
Permeability: moderately rapid over very rapid
Available water capacity: low
Potential rooting depth: 60 or more inches for water-tolerant plants, 15 to 30 inches for non-water-tolerant species
Flooding: rare
Runoff: negligible to low
Hazard of water erosion: slight
Hazard of soil blowing: moderate

3.1.1.2 Map Unit 91A - Frolic loam, 0 to 3 percent slopes

Setting
Depth class: very deep
Drainage class: moderately well drained
Seasonal high water table: 30 to 40 inches; April-June
Position on landscape: flood plains
Parent material: alluvium
Elevation: 6,150 to 6,450 feet
Air temperature: 42 to 44 degrees F
Annual precipitation: 14 to 16 inches
Frost-free period: 75 to 95 days

Composition
Frolic soil and similar inclusions: 85 percent
Contrasting inclusions: 15 percent

Contrasting Inclusions
Somewhat poorly to very poorly drained Aquolls and Aquents soils
Apmay soils

Manbow soils

Typical Profile
Surface layer:
0 to 6 inches=dark grayish brown loam

Subsurface layer:
6 to 13 inches=dark grayish brown loam

Underlying material:
13 to 30 inches=dark grayish brown clay loam
30 to 60 inches=grayish brown clay loam

Soil Properties and Qualities
Permeability: moderately slow
Available water capacity: high
Potential rooting depth: 60 or more inches for water-tolerant plants, 30 to 40 inches for non-water-tolerant species
Flooding: rare
Runoff: low to medium
Hazard of water erosion: slight to moderate
Hazard of soil blowing: low

Sample plot data sheets are located in Appendix A.

3.2 VEGETATION

Within the boundaries of the project area, hydrophytic vegetation was dominant within delineated wetlands. Hydrophytic vegetation was not observed to be dominant outside the wetland boundary. The dominant plant associations can be broadly characterized as follows:

- Upland pastures dominated by mixed cultivated grasses including timothy, Kentucky bluegrass, meadow foxtail, western wheatgrass, and smooth brome.
- Emergent hydrophytic grasslands dominated by reed canarygrass
- Cottonwood riparian uplands.

Table 1 displays vegetation found in the project area and its wetland indicator status. Vegetation on the project area is characteristic of that which is found on similar landscapes in the Yampa Valley.

Table 2. List of Plants on the Property, including wetland indicator status

Common Name	Scientific Name	R8 Ind	National Ind	Habit*
Grasses				
BENTGRASS,SPREADING	Agrostis stolonifera	FACW	FAC+,FACW	PNG
BLUEGRASS,KENTUCKY	Poa pratensis	FACU	FACU,FAC-	PNG
BROME, SMOOTH	Bromus inermis	-------	-------	
FOXTAIL,MEADOW	Alopecurus pratensis	NI	FAC,FACW	PIG
GRASS,ORCHARD	Dactylis glomerata	FACU	FACU,FACU+	PIG
GRASS,REED CANARY	Phalaris arundinacea	OBL	FACW,OBL	PNG
TIMOTHY	Phleum pratense	FACU	FACU	PIG

Table 2. List of Plants on the Property, including wetland indicator status				
Common Name	**Scientific Name**	**R8 Ind**	**National Ind**	**Habit***
WHEATGRASS,WESTERN	Agropyron smithii	FACU	UPL,FAC-	PNG
Sedges and Rushes				
RUSH,BALTIC	Juncus balticus	FACW	FACW,OBL	PNGL
SEDGE,SMALL-WING	Carex microptera	FAC	FAC,FACW	PNGL
Forbs				
CATTAIL,BROAD-LEAF	Typha latifolia	OBL	OBL	PNEF
CINQUEFOIL,VARILEAF	Potentilla diversifolia	FACU	FACU,FACW	PNF
CLOVER,RED	Trifolium pratense	FACU	FACU-,FAC	BPIF
DANDELION,COMMON	Taraxacum officinale	FACU+	FACU-,FACU+	PIF
DOCK,CURLY	Rumex crispus	FACW	FACU,FACW	PIF
PLANTAIN,COMMON	Plantago major	FAC	FACU,FACW	PIF
PURSLANE,COMMON	Portulaca oleracea	FAC	FACU,FAC	AN$F
THISTLE,CREEPING	Cirsium arvense	FACU	FACU-,FAC	PIF
YARROW,COMMON	Achillea millefolium	FACU	FACU	PNF
Trees and Shrubs				
COTTONWOOD,NARROW-LEAF	Populus angustifolia	FAC*	FAC,FACW	NT
DOGWOOD,RED-OSIER	Cornus stolonifera	FACW	FAC,FACW+	NS
HAWTHORN,CERRO	Crataegus erythropoda	NI	FAC?	NT
ROSE,WOODS	Rosa woodsii	FAC-	UPL,FAC-	NS

* A – Annual, B – Biennial, C – Clubmoss, E – Emergent, F – Forb, F3 – Fern, G – Grass, GL – Grasslike, H – Partly woody, HS – Half shrub, H2 – Horsetail, I – Introduced, N – Native, P – Perennial, P3 – Pepperwort, Q – Quillwort, S – Shrub, Z – Submerged, T – Tree, V – Herbaceous Vine, W – Waterfern, WV – Woody vine, @ – Epiphytic, / – Floating, $ – Succulent, + Parasitic, - Saprophytic

3.3 HYDROLOGY

Waters of the United States that are found on the property are associated with the Yampa River. The 100 year floodplain at the location of the project area has been mapped by FEMA. The project area is entirely within the limits of the 100 year floodplain.

Saturation within the root zone, inundation of the sample site, presence of one primary or 2 or more secondary wetland indicators was confirmed in all sample plots located in areas mapped as wetland.

3.4 WETLAND FUNCTIONS, VALUES, AND JURISDICTIONAL EXTENT

The ecological functions of wetlands on the project site were assessed using an approach based on the hydrogeomorphic methodology (HGM). Our approach is documented in Appendix C, and rates the potential for a wetland to perform a particular function. The rate is classified on a scale from 1 – 6, ranging from very low to very high.

Based on the above methodology, wetlands on the property were functionally ranked as shown in the following table. Table 2 displays the overall functional value of each wetland identified on the property, along with a rating of the quality of performance of each of the 6 functions within the wetland.

TABLE 2. SUMMARY OF JURISDICTIONAL WATER EXTENT AND FUNCTIONAL RATINGS OF WETLANDS.*									
WETLAND	WETLAND AREA	COWARDIN CLASSIFICATION	DYNAMIC WATER STORAGE	FLOOD FLOW ATTENUATION	PRODUCTION EXPORT	NUTRIENT AND POLLUTANT REMOVAL / SEDIMENT RETENTION	SHORELINE STABILIZATION / SEDIMENT CONTROL	WILDLIFE HABITAT	OVERALL WETLAND FUNCTIONAL VALUE
All	47341	Emergent Herbaceous	5	4	5	4	3	3	**4**
* Numerical Rating System: 0 = None / NA 1 = Very Low 2 = Low 3 = Moderate 4 = Moderately High 5 = High 6 = Very High									

Wetland functional analysis within the project area demonstrates that wetlands delineated on this portion of the property are moderately high functioning wetlands.

4. DISCUSSION AND SUMMARY

A total of 1.09 acre of moderately high quality wetland was delineated within the property boundary. Wetlands are located in the 100 year floodplain.

APPENDIX A - FIELD DATA SHEETS

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: HDN WASTE WATER City/County: RT Sampling Date: 11-9-11

Applicant/Owner: TOH State: CO Sampling Point: 1

Investigator(s): KC / BM Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____
Hydric Soil Present?	Yes ✓	No _____
Wetland Hydrology Present?	Yes ✓	No _____

Is the Sampled Area within a Wetland? Yes ✓ No _____

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. ALOPECURUS PRATENSIS			NI*
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: _____ (A)

Total Number of Dominant Species Across All Strata: _____ (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: _____ (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

* FAC IN ADJ RGN

SOIL

Sampling Point: 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
10	10YR3/1		7.5YR4/6	2	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks: THIS WOULD NOT HAVE BEEN WETLAND 2 YEARS AGO. RECENT CHANGE TO INTERPRETATION OF NI SPP.

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: HDN WASTEWATER City/County: RT Sampling Date: 11.9.11

Applicant/Owner: TOH State: CO Sampling Point: 2

Investigator(s): KC BM Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. ALOPECURUS PRATENSIS	40	✓	NI*
2. PHLEUM PRATENSE	40	✓	FACU
3. POA PRATENSIS	20	✓	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

SOIL

Sampling Point: 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
10	10YR 3/1		7.5YR 4/6	2	C	M	SL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ *Sandy Redox (S5)*
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ *2 cm Muck (A10)*
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: HDN WASTEWATER City/County: _____ Sampling Date: 11-9-11

Applicant/Owner: TOH State: CO Sampling Point: 3

Investigator(s): _____ Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. BROMUS INERMIS	60	✓	UPL*
2. POA PRATENSIS	20	✓	FACU
3. ALOPECURUS PRATENSIS	5		NI*
4. PHLEUM PRAT	5		FACU
5. PASCO SMITH	10		FACU
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:

*SEE PG 25 WMV SUPPLEMENT (NOT LISTED = UPL)
(NI = NEAREST ADJ RGN)

SOIL

Sampling Point: 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
10	10YR3/1		7.5YR4/4	4	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ *Sandy Redox (S5)*
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ✓ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ *2 cm Muck (A10)*
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: HDN WASTEWATER City/County: RT Sampling Date: 11-9-11

Applicant/Owner: TOH State: CO Sampling Point: 4

Investigator(s): KC BM Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes ✓	No _____	Is the Sampled Area within a Wetland? Yes ✓ No _____
Hydric Soil Present?	Yes ✓	No _____	
Wetland Hydrology Present?	Yes ✓	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____ = Total Cover		
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____ = Total Cover		
Herb Stratum (Plot size: _____)			
1. PHALARIS ARUNDINACEAE	100	✓	OBL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	_____ = Total Cover		
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____ = Total Cover		

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:

SOIL

Sampling Point: 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
8	10YR3/1		7.5YR4/6	2	C	M	CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ *Sandy Redox (S5)*
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ *2 cm Muck (A10)*
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ✓ No ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ✓ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes ___ No ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes ✓ No ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: HDN WASTEWATER City/County: RT Sampling Date: 11-9-11

Applicant/Owner: TOH State: CO Sampling Point: 5

Investigator(s): KC BM Section, Township, Range: _____

Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____

Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____

Soil Map Unit Name: _____ NWI classification: _____

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ✓ No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No ✓	Is the Sampled Area within a Wetland? Yes _____ No ✓
Hydric Soil Present?	Yes _____	No _____	
Wetland Hydrology Present?	Yes _____	No _____	

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		= Total Cover	

Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	

Herb Stratum (Plot size: _____)			
1. BROMUS INERMIS	✓	70	*
2. PHAL ARUND	✓	19	OBL
3. PASCO SMIT		11	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
		= Total Cover	

Woody Vine Stratum (Plot size: _____)			
1.			
2.			
		= Total Cover	

% Bare Ground in Herb Stratum _____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	_____	x 1 = _____
FACW species	_____	x 2 = _____
FAC species	_____	x 3 = _____
FACU species	_____	x 4 = _____
UPL species	_____	x 5 = _____
Column Totals:	_____ (A)	_____ (B)

Prevalence Index = B/A = _____

Hydrophytic Vegetation Indicators:

___ Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Wetland Non-Vascular Plants[1]

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks: * UPL SINCE NOT IN PLANT LIST

SOIL

Sampling Point: 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[2]	Texture	Remarks
10	10YR 4/1						CL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1) **(except MLRA 1)**
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ No ✓

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9) **(except MLRA 1, 2, 4A, and 4B)**
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres along Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Stunted or Stressed Plants (D1) **(LRR A)**
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water-Stained Leaves (B9) **(MLRA 1, 2, 4A, and 4B)**
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)
- ___ Raised Ant Mounds (D6) **(LRR A)**
- ___ Frost-Heave Hummocks (D7)

Field Observations:

Surface Water Present? Yes _____ No ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

APPENDIX B - REPRESENTATIVE PHOTOGRAPHS

PHOTO 1. Yampa River at project area.

PHOTO 2. Small wetland on TNC Parcel.

PHOTO 3. Large wetland on Town of Hayden parcel.

PHOTO 4. Wetland C. Monotypic reed canarygrass stand on Town of Hayden parcel, facing north.

PHOTO 5. Looking south from near Town of Hayden wetland boundary towards wastewater plant.

APPENDIX C – WETLAND FUNCTIONS AND VALUES ASSESSMENT

4.1 Wetland Functions and Values

The ecological functions of wetlands on the project site were assessed using an approach based on the hydrogeomorphic methodology (HGM) currently under development in the wetland scientific community. Our approach involves the use of professional judgment to assign a qualitative functional value to wetlands. This approach was developed based on several interim HGM methodologies currently being used throughout the country until a specific methodology is approved for the Sacramento District.

Western Bionomics' methodology rates the potential for a wetland to perform a particular function, and classifies this potential on a scale from 1 – 6, ranging from very low to very high. Functions evaluated on the project area are described below:

- **Dynamic Water Storage (DWS)** is a wetland's ability to store water either derived from the wetland or from adjacent uplands.
- **Flood Flow Attenuation (FFA)** is a wetland's ability to receive overbank flows from a stream or river and store that water for some period of time.
- **Nutrient and Pollutant Removal / Sediment Retention (NPR)** is a wetland's ability to influence water quality.
- **Shoreline Stabilization / Sediment Control (SSSC)** relates to a wetland's ability to maintain a healthy stable channel and shoreline by maintaining stable river banks and lake shorelines.
- **Production Export (PE)** is a wetlands ability to provide the organic matter that is the base of the aquatic food chain.
- **Wildlife Habitat (WH)** is provided by wetlands for a wide variety of animals.

Field Indicators for the functions described above include some of the variables used in HGM models currently under development. The presence or absence of indicators, and the degree to which that indicator is present, provides the basis for determining the quality of function performed by a specific wetland.

4.2 Recognized Field Indicators for Wetland Function

The first step in evaluating a wetland's function is to rate the quality of field indicators within the wetland, based on professional judgment. Once all field indicators are rated, the wetland is assigned an overall qualitative rating based on the presence or absence and quality of field indicators. Field indicators include the following:

Microtopographic Variation

Microtopographic variation provides a tortuosity to flow paths within a wetland, thus reducing the average velocity and detention time of surface water flowing through a wetland. Microtopography is an important field indicator for the DWS, FFA, and NPR functions. Subcategories of Microtopography include:

A) Hummocks
B) Coarse Woody Debris

Macrotopographic Variation

Macrotopographic variation is the larger scale variation present within a wetland, such as stump holes, meander scars, old oxbows, restricted outlets, and any other depression or levee present within a wetland that serves to slow or restrict the flow of water out of a wetland. This is another important indicator for DWS, FFA, and NPR functions.

Vegetation Density

Vegetation density within a wetland provides an important influence on wetland functions of DWS, NPR, PE, and WH.

Vegetation Structural Diversity and Species Richness

Vegetation Structural Diversity and Species Richness are important indicators of WH and of a wetland's ability to withstand disturbances.

Soil Depth to Bedrock

Soil depth to bedrock provides an indication of the DWS function.

Organic Litter

Organic litter provides an indication of the PE function.

Wetland Hydrology

Wetland hydrology, its source and the manner in which it is expressed indicates how well a wetland may perform certain functions. Hydrological patterns and the particular wetland functions which they serve include:

- Groundwater Discharge (DWS, NPR, PE)
- Seasonal Inundation (NPR, DWS, PE, FFA)
- Overbank Flooding (NPR, FFA)
- Side Channel Flows (FFA)
- Drainage Patterns Feeding Outlet Stream (PE)
- Surface Inflows (DWS, NPR)
- Tributaries Not Connected to the Main Channel (DWS, FFA, NPR)
- Tributary Inflow at Confluence (FFA, NPR)
- Bank Erosion (SSSC)
- Upstream Source of Pollutants (NPR)

Human Land Use within 300 feet

Human land use within 300 feet of a wetland affects the ability of a plant community to provide habitat for wildlife and is thus an indicator for WH.

Direct Observation of Wildlife

Direct observation of wildlife or evidence of their presence such as beaver ponds, animal tracks, or pellet piles is an indicator for WH.

Western Bionomics LLC
Natural Resource Management Services

Wetland Functions & Values

Field Data Sheet

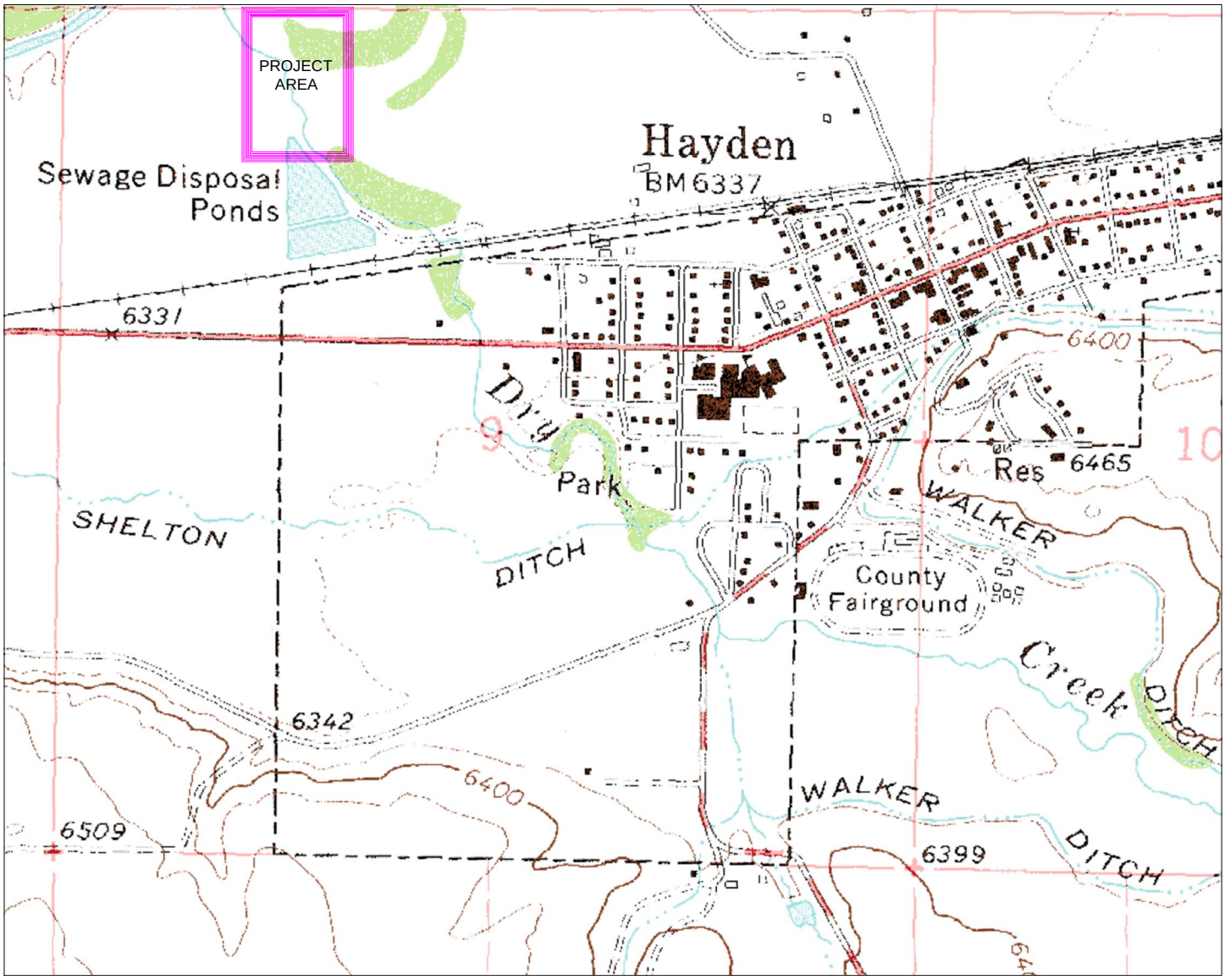
12/13/2011

Project Name: Hayden Wastewater Outfall **Evaluator:** Colfer

Wetland Area Identification: All **Type of Wetland:** Emergent Herbaceous

Function/ Value	Indicators	Rating Criteria	Degree Present	Rating
Dynamic Water Storage (DWS)	Microtopography	Hummocky	6	**5**
		Large Woody Debris (LWD)	2	
	Vegetation	Density / % Cover	6	
	Soils	Depth	6	
	Surface In-Flow	Present	4	
Flood Flow Attenuation (FFA)	Overbank Flow (OBF)	Wetland Receives OBF @ <1.5 x Bankfull Depth?	3	**4**
	Wetland Width	Width:Bankfull Width >2?	6	
	Microtopography	Hummocky	6	
		LWD	2	
	Vegetation	Density / % Cover	6	
	Tributary Inflow	Connected to Main Channel?	3	
		Receive OBF > 3 CFS?	3	
Production Export/Aquatic Food Chain Support (PE/AFS)	Vegetation	Density	6	**5**
	Drainage	Into Adjoining Stream/Pond	6	
	OBF	Evidence?	3	
	Organic Litter	Present?	6	
Nutrient & Pollutant Removal (NPR)	Microtopography	Hummocky	6	**4**
		LWD	2	
	Macrotopography	Closed Depressions	4	
		Restricted Outlet	3	
	Microbial Activity	Surface Leaf Litter, Humus	6	
	Vegetation	Density / % Cover	6	
	Soils	Histosols?	0	
		Texture / Clay Content	5	
	OBF	Evidence?	3	
	Subsurface Inundation	Evidence?	6	
Shoreline Stabilization/Sediment Retention (SS)	Stream Bank Rooted Vegetation	% Cover Below Bankfull Elevation	3	**3**
Wildlife Habitat (WH)	Plant Community	Species Diversity > 3?	1	**3**
		Structural Diversity	1	
	Direct Observation	Species Observed	2	
	Adjacent Land Use	Proximity >300= ?	6	
	Open Water	Present?	3	
	Travel Corridor	Used As?	3	
Overall Functional Rating				**4**

Numerical Rating System: 0 = None / NA 1 = Very Low 2 = Low 3 = Moderate 4 = Moderately High 5 = High 6 = Very High



Horizontal Scale

1000' 0 500' 1000' 2000'

1" = 1000'

N

HAYDEN WASTEWATER PLANT OUTFALL PIPE

VICINITY MAP

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Natural Resource Management Services
31040 WILLOW LANE STEAMBOAT SPRINGS, CO 80487 970-846-8223

Date: Drawn:

SHEET NO. 1 OF 1

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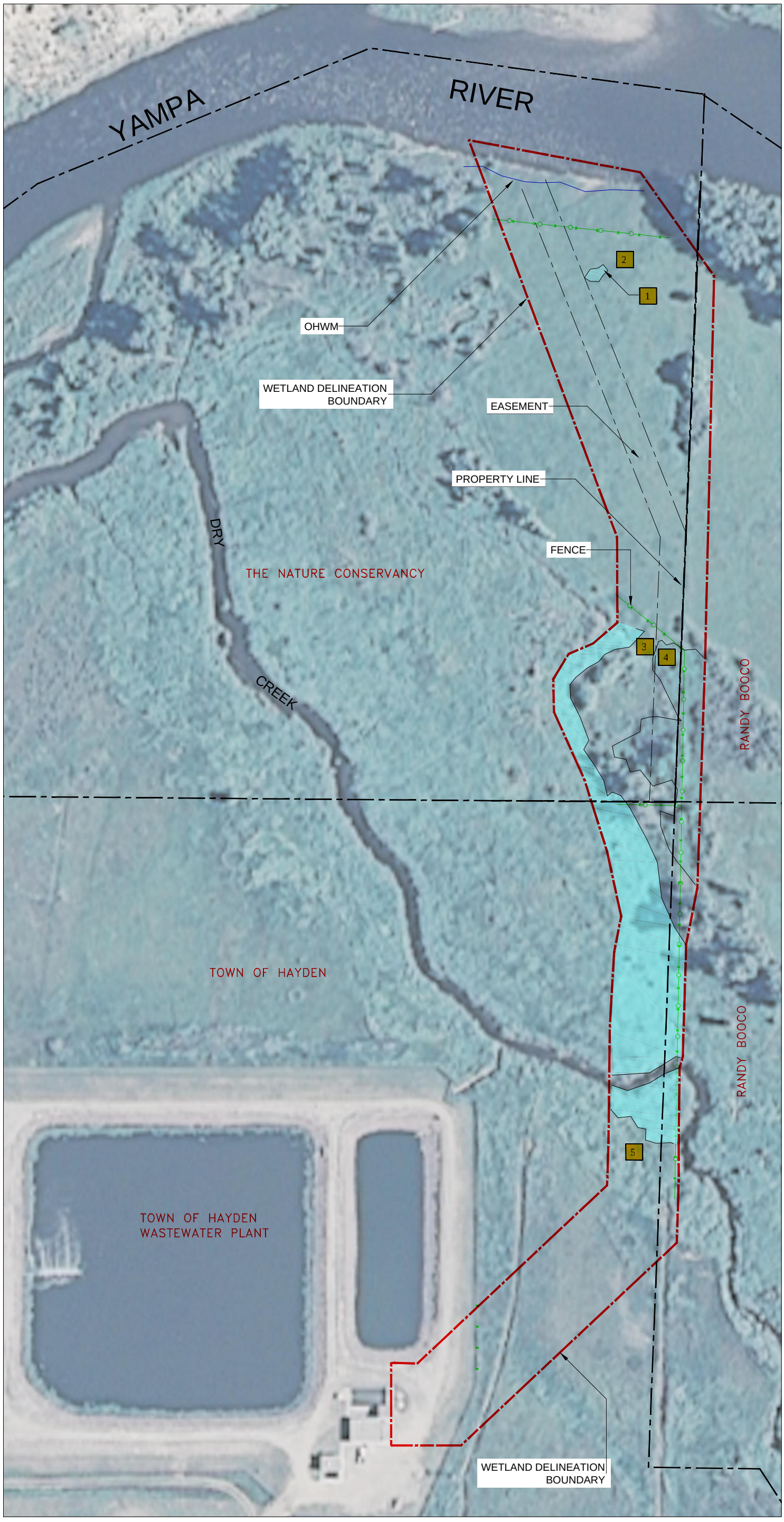

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HORIZONTAL SCALE

0 60' 120' 240'

1" = 120'

WETLAND

2 WETLAND SAMPLE POINT

HAYDEN WASTEWATER PLANT
OUTFALL PIPE

JURISDICTIONAL WETLAND DELINEATION

Western Bionomics, LLC
Natural Resource Management Services
31040 WILLOW LANE STEAMBOAT SPRINGS, CO 80487 970-846-8223
KSCOLFER@WESTERNBIONOMICS.COM

Date: 02/15/2012 | Drawn: KSC | Delineated:

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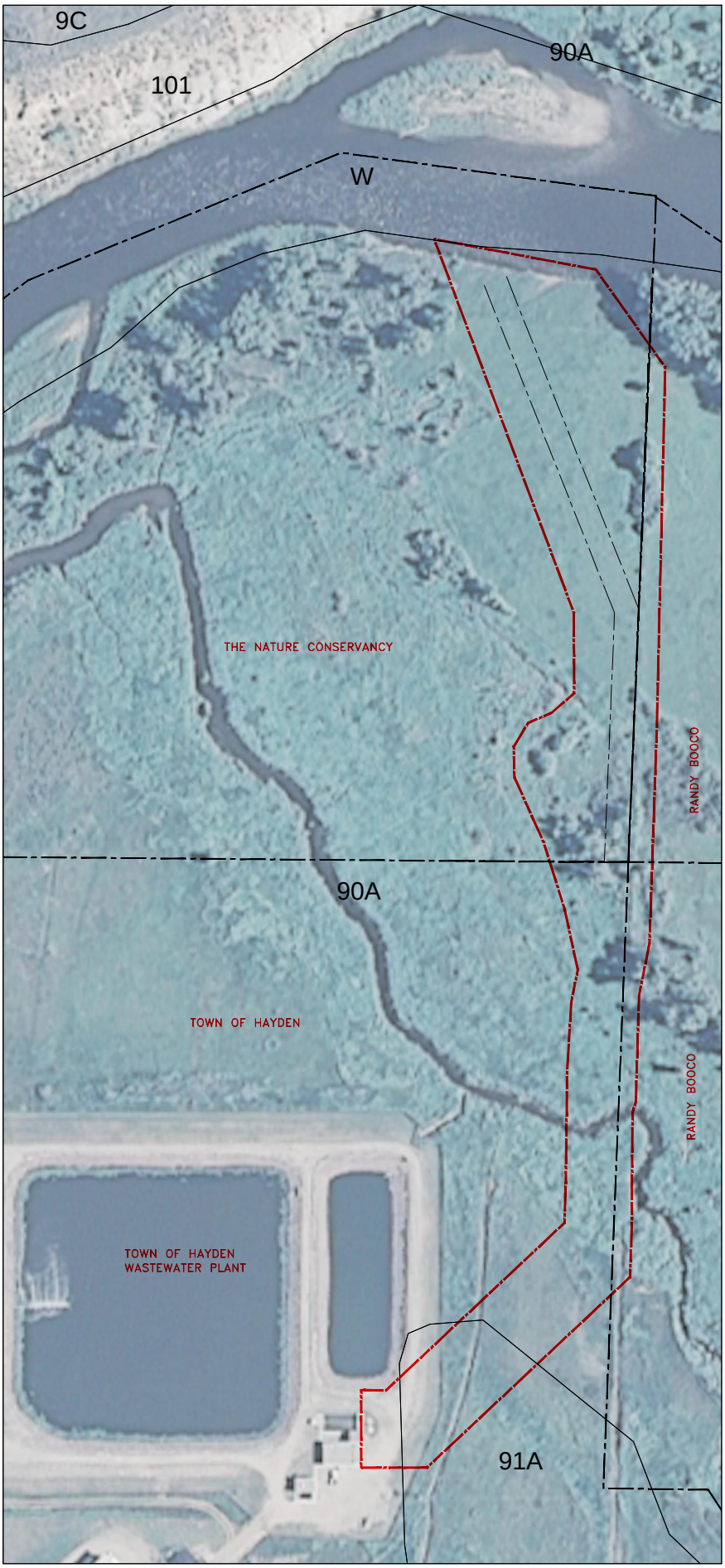

HORIZONTAL SCALE

1" = 120'

HAYDEN WASTEWATER PLANT
OUTFALL PIPE

NRCS SOIL MAP

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