

FIGURE 1 -- Site Location

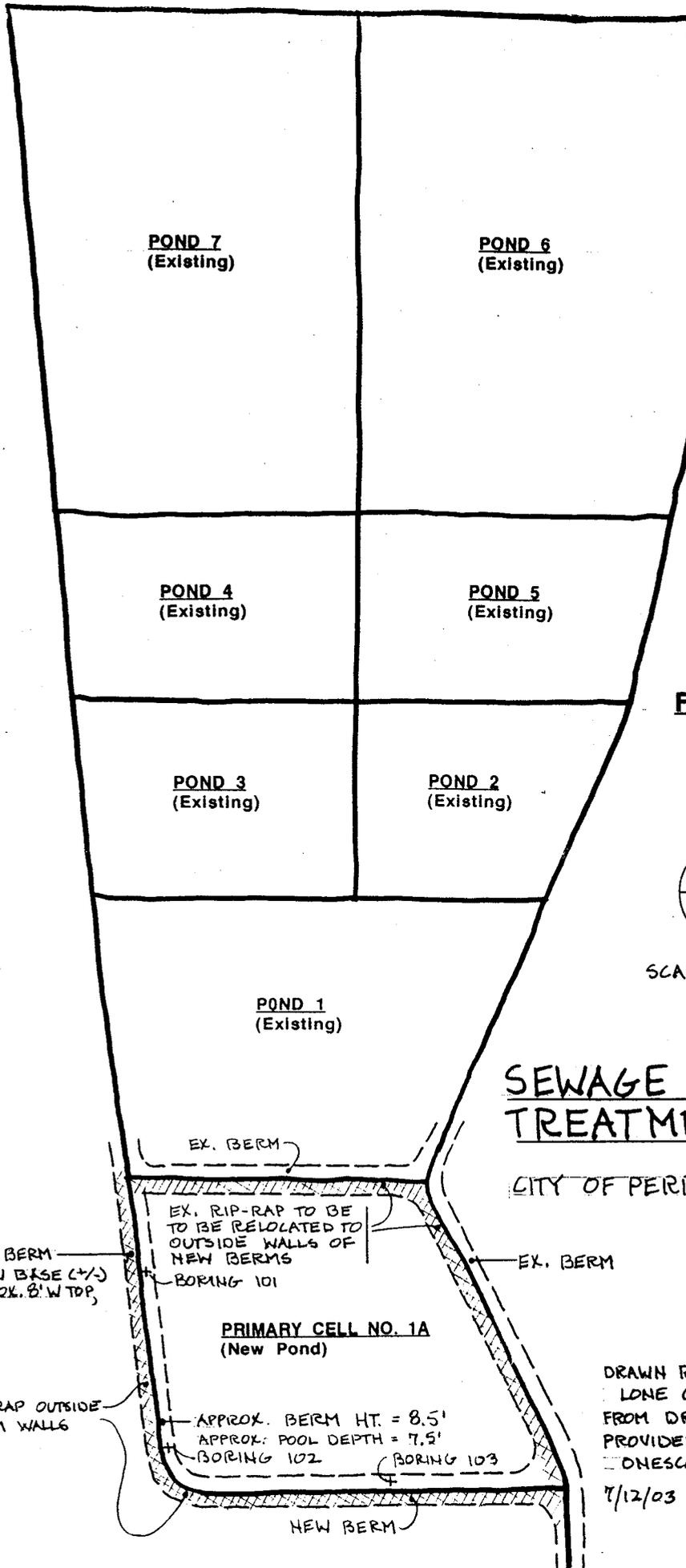
USGS Topographic Map
Willard Quadrangle

North



SCALE: 1" = 2000'

LONE GOOSE ENVIRONMENTAL, LLC



POND 7
(Existing)

POND 6
(Existing)

POND 4
(Existing)

POND 5
(Existing)

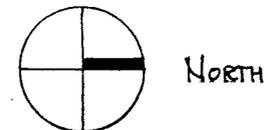
POND 3
(Existing)

POND 2
(Existing)

POND 1
(Existing)

SEWAGE WASTE TREATMENT PONDS

CITY OF PERRY, UTAH



SCALE: 1" = 200'-0"

NEW BERM
55' W BASE (+/-)
APPROX. 8' W TOP,
TYP.

RIP-RAP OUTSIDE
BERM WALLS

EX. RIP-RAP TO BE
TO BE RELOCATED TO
OUTSIDE WALLS OF
NEW BERMS

BORING 101

PRIMARY CELL NO. 1A
(New Pond)

APPROX. BERM HT. = 8.5'

APPROX. POOL DEPTH = 7.5'

BORING 102

BORING 103

NEW BERM

DRAWN BY:

LONE GOOSE ENVIRONMENTAL, LLC

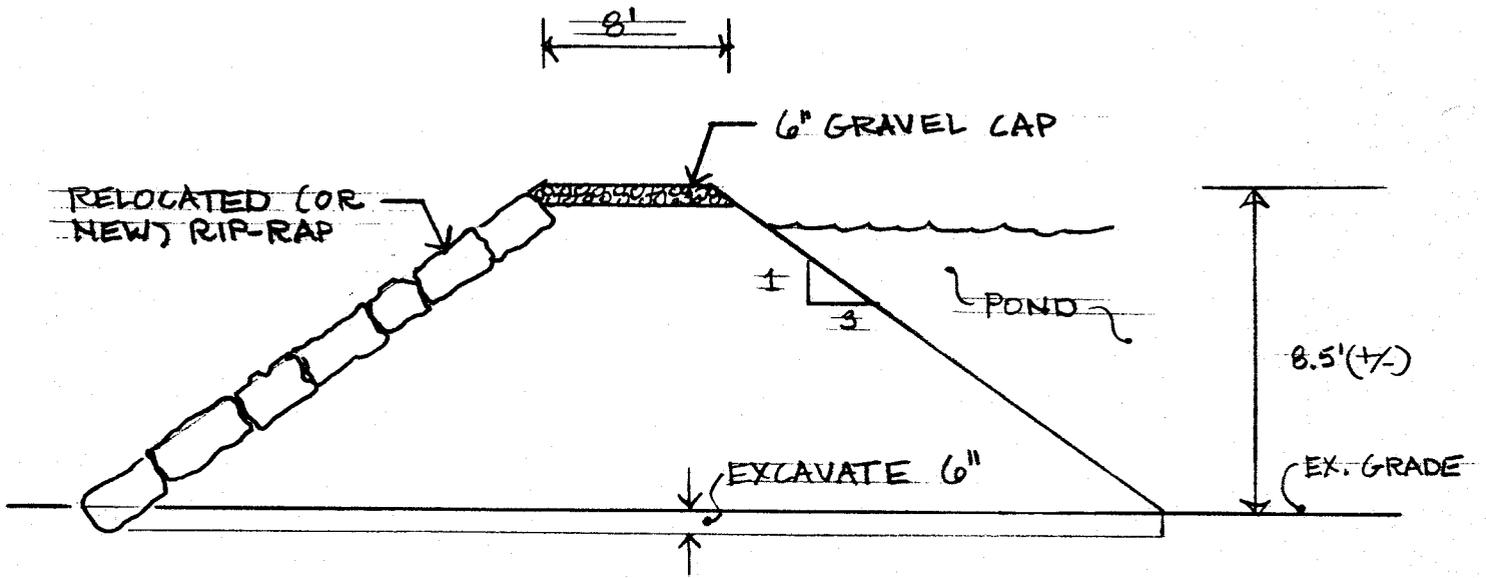
FROM DRAWINGS & SPECS

PROVIDED BY:

ONESCO ENGINEERING, INC.

7/12/03

FIGURE 3 -- Berm Section



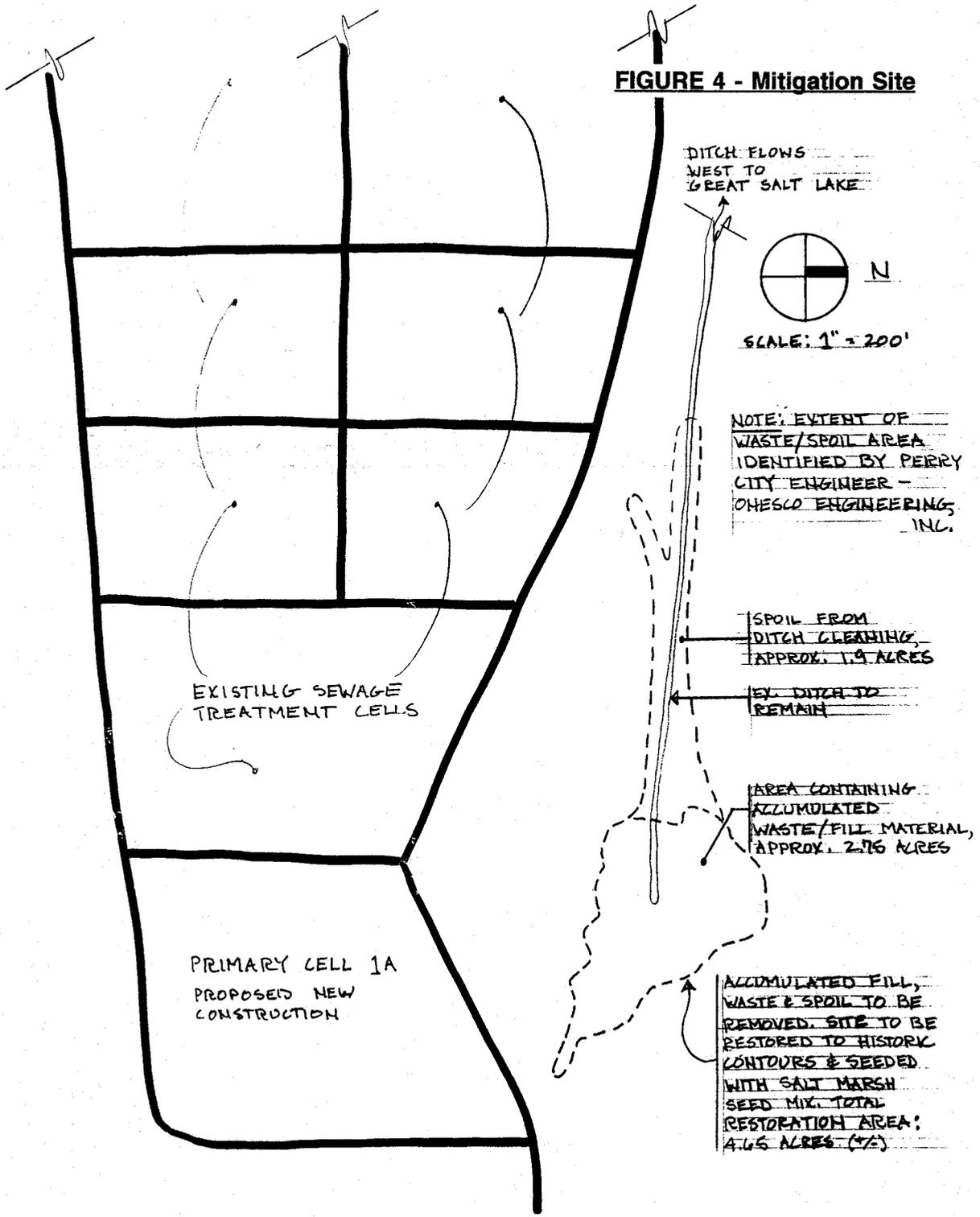
TYPICAL BERM SECTION

HORIZONTAL SCALE: 1" = 10'-0"

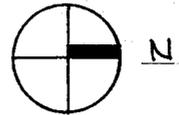
VERTICAL SCALE: 1" = 5'-0"

DRAWN BY:
L.G.E. 7/12/03
FROM SPECS. & DRAWINGS
PROVIDED BY
ONESCO ENGINEERING, INC.

FIGURE 4 - Mitigation Site



DITCH FLOWS WEST TO GREAT SALT LAKE



SCALE: 1" = 200'

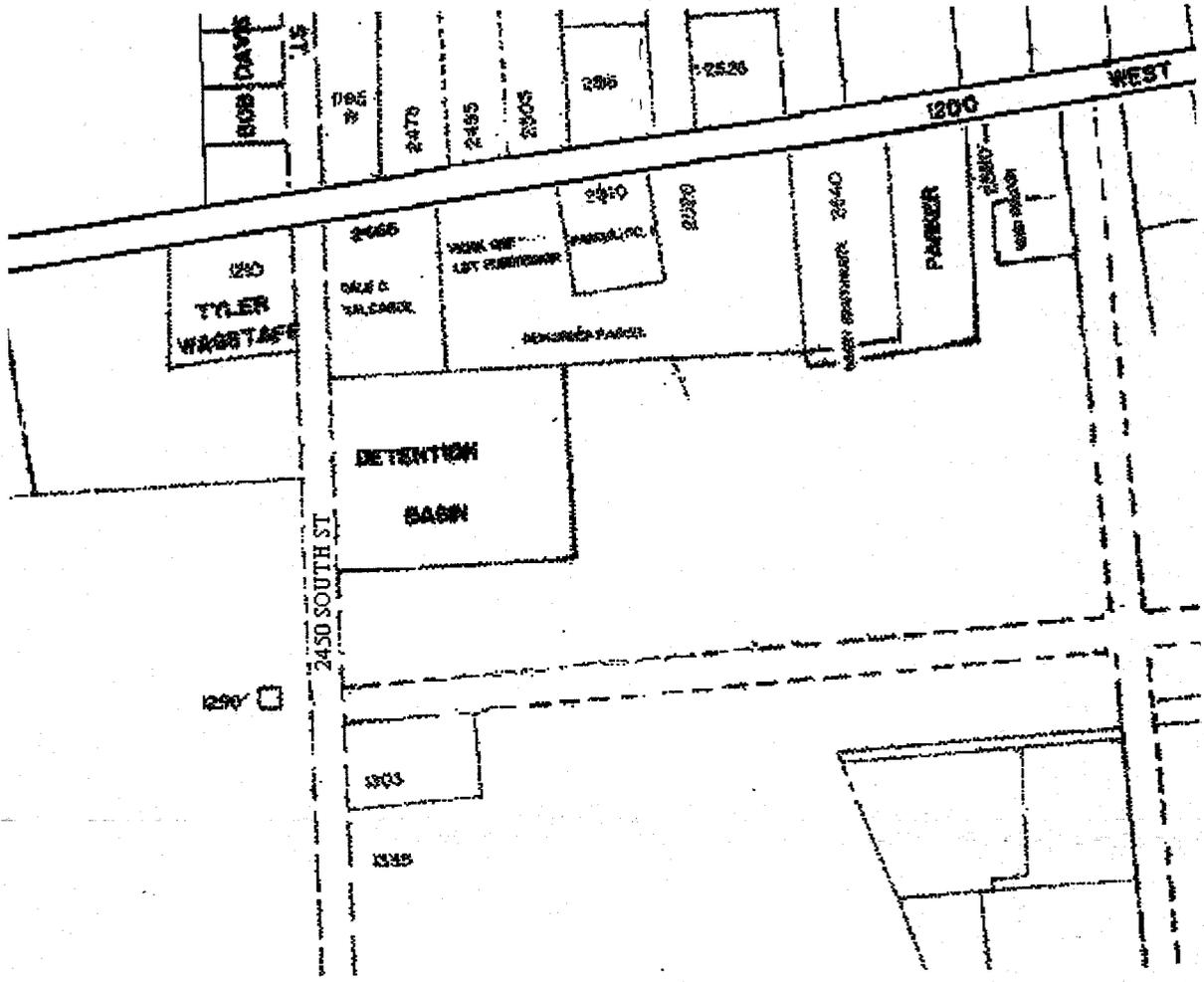
NOTE: EXTENT OF WASTE/SPOIL AREA IDENTIFIED BY PERRY CITY ENGINEER - OHESCO ENGINEERING, INC.

SPOIL FROM DITCH CLEANING, APPROX. 1.9 ACRES

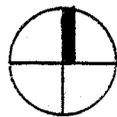
EX. DITCH TO REMAIN

AREA CONTAINING ACCUMULATED WASTE/FILL MATERIAL, APPROX. 2.76 ACRES

ACCUMULATED FILL, WASTE & SPOIL TO BE REMOVED. SITE TO BE RESTORED TO HISTORY CONTOURS & SEEDED WITH SALT MARSH SEED MIX. TOTAL RESTORATION AREA: 4.66 ACRES (1/2)



NORTH



SCALE: None

LONE GOOSE ENVIRONMENTAL, LLC

FIGURE 5 - Site Location
(Detention Basin)

Road map provided by
Perry City

MITIGATION and MONITORING PLAN
(April 18, 2005)

A. Introduction

In an attempt to satisfy a national goal of "no net loss" of wetland functions and values, the Corps of Engineers (Corps) requires a consideration of mitigation in order to offset unavoidable impacts to regulated waters, including wetlands. The decision to issue a Section 404 permit is based upon an evaluation of the probable direct, secondary, and cumulative impacts that the proposed activity might have on the general public interest. The Corps must decide whether or not the benefits which may reasonably be expected to accrue from the project proposal are balanced against reasonably foreseeable detriments.

One of the most important factors in balancing project benefits with possible detriments is a careful and thorough examination of mitigation. The Corps reviews and assesses the efficacy of mitigation in three specific ways: avoidance, minimization, and compensation. The following paragraphs are presented in this sequential order in an attempt to illustrate how the project proponent (City of Perry) has labored to ensure that the benefits of the proposed construction of the final lagoon at the City's existing waste water treatment facility, not only strikes a reasonable balance against foreseeable detriments, but that the overall mitigation substantially tips the scale in favor of the general public interest (e.g. aquatic ecosystem of the site).

B. Site Description and Wetlands Assessment:

The project site is described as a nearly flat, seasonally wet, salt encrusted lacustrine wetland adjacent to the Great Salt Lake. This mostly ephemeral (occasionally ponded) wetland is sandwiched between Interstate 15 to the east and the existing wastewater treatment lagoons to the west. The wetland site is also bordered by an existing dike and treatment facility access road to the north. Due to a combination of high concentrations of salts, highly alkaline soil, and only sporadic periods of seasonal moisture, this mud/salt flat wetland is less than 50% vegetated. The total area of proposed impact is approximately 10.8 acres involving 1.8 acres of fill and 9.0 acres of deep water habitat.

The vegetation that does persist, is chiefly comprised of herbaceous wetland halophytes such as, but not necessarily limited to, saltwort (Salicornia rubra), inland saltgrass (Distichlis spicata), foxtail barley (Hordeum jubatum), and alkali muhly (Muhlenbergia asperifolia). Plant cover is too sparse and/or intermittent to provide either nesting or escape habitat for migratory or upland birds. As with many halophytes, the dominant species composition provides only fair to low wildlife food value in terms of crude protein, nitrogen free extract, and palatability.

Based on current and relatively recent (i.e. last 5 years)

conditions, this wetland area is considered as a low value site for the six most basic wetland functions including: water quality, wildlife habitat, fisheries habitat, recharge/discharge, phytoremediation (filtering pollutants), and aesthetics. Please refer to the enclosed "LGE Functions and Values Assessment."

C. Avoidance:

The City of Perry has enjoyed a reasonably steady increase in population growth during the past decade since the last sewage lagoon cell was constructed. Consequently, Perry does not have the option of avoiding the need to meet the current and future public health and safety of its citizens; the proposed work is not a luxury; it's a necessity. The current project area was specifically purchased by Perry City approximately 40 years ago for the specific purpose of constructing a wastewater treatment facility. Due to the fact that Perry already owns the land, as well as the fact that its current facility has existed at this location for approximately 40 years, there is no reasonable nor practicable alternative available to Perry which would completely avoid the need to impact this wetland area.

D. Minimization:

Although the project site wetland cannot reasonably or practicably be avoided, the geometry of the new/final lagoon has been designed to minimize the area of impact to the maximum extent practicable, while still accomplishing the requisite standards for safe and effective wastewater treatment. The side slopes, top width, and total length of containment dikes have been engineered to minimize overall fill footprints and area of inundation.

E. Compensation:

The final component in the sequence of mitigation is compensatory mitigation. In this regard, the Corps recognizes several factors that are employed to compensate unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been reasonably achieved. These include, but are not necessarily limited to wetland creation, wetland restoration, wetland enhancement, wetland preservation, and wetland protection. The Corps also recognizes that "preservation may include upland areas adjacent to wetlands as necessary to ensure protection and/or enhancement of the overall aquatic ecosystem."

After evaluating and considering the aforementioned efforts to mitigate project impacts to the greatest extent practicable through avoidance and minimization, the Corps still recognized that

additional mitigation would be required via one or more avenues of compensation. Based on the Corps evaluation and permit decision of March 15, 2005, the unavoidable impact to approximately 10.8 acres of regulated wetland would still require compensatory mitigation after factoring impact reductions through avoidance and minimization.

The following compensatory mitigation measures should fully ensure that the minor impacts directly and indirectly resulting from the loss of 10.8 acres of wetlands, satisfy the national policy of no net loss of wetland functions and values (i.e. a minimum ratio of 1:1 mitigation). These compensatory measures include a combination of factors that shall result in wetland creation, wetland enhancement, and wetland protection that shall balance the loss of existing functional value (FV) calculated for the 10.8 acre impact area. The previously referenced LGE Functional Value Assessment determined that the existing FV's total 75.6 (see LGE FV Assess).

To begin, the project shall provide approximately 9.0 surface acres of perennial open water (lagoon). As evidenced by the existing (i.e. adjacent) treatment lagoons, the multitypic vegetated lagoons support a substantial and varied array of migratory birds and waterfowl during all seasons of the year. Besides providing feeding, resting, and loafing habitat for migratory birds, the densely vegetated containment dikes also support nesting and escape habitat for game and non-game upland birds. Treatment lagoons also provide a potential for fishery habitat where absolutely none currently exists.

In addition to the mitigating effect(s) of replacing the existing, low FV mud/salt flat wetland with 9 acres of permanent treatment pond, compensatory mitigation includes the restoration of 4.65 acres of previously filled lacustrine wetland located immediately north of the treatment facility access road. Restoration shall involve the removal of approximately 19,000 cubic yards of rock, concrete, and earthen fill material. Any fill material removed from the restoration area which is not suitable for use in the construction of permitted new dikes shall be deposited in a non-wetland area in a manner that precludes such material from entering any other water of the U.S., including wetlands.

Once the old fill material has been removed, the 4.65 acre site shall be mechanically graded to match the surface elevation of the adjacent undisturbed wetlands. After the site has been graded, soils shall be tested (Utah State Univ. Soils Testing Lab) and appropriately treated as per recommendations of the lab. Then, the entire 4.65 acre restoration site shall be planted (seeded) with native, wetland plant species that exhibit high nutritional and palatable value to migratory waterfowl. Vegetative seed selection and application rate(s) are recommended by Lone Goose Environmental, LLC (LGE) with the approval of the Corps of

Engineers. A typical profile and planting plan includes the following native species; it has been previously reviewed and approved by the U.S. Fish and Wildlife Service:

- a.) Nuttall Alkaligrass (Puccinellia nuttalliana - OBL)
- b.) Alkali Sacaton (Dropseedgrass) (Sporobolus airoides - FAC-)
- c.) Streambank Wheatgrass (Agropyron riparium - FAC)
- d.) Fall Panic Grass (Panicum dichotomoflorum/virgatum - FAC)
- e.) Salt Spikerush (Eleocharis parvula - OBL)
- f.) Torrey's rush (Juncus torreyi - FACW+)
- g.) Alkali Bullrush (Scirpus maritimus - OBL)

These plant species are selected for their acknowledged palatability and good to excellent nutritional value relative to levels of crude protein and nitrogen free extract available to waterfowl, migratory birds, as well as mammalian herbivores.

The seed mix shall be purchased from Granite Seed Co., Lehi, Utah or some similarly reputable supplier of native plants and seeds indigenous to the area. The plant mix shall be broadcast or drilled at an approximate rate of 12-15 pounds per acre. As previously mentioned, the mitigation site(s) shall be fertilized in accordance to the results and recommendations of the soil analysis prior to commencement of seed plantings. Once completed and vegetatively established to the satisfaction of the performance criteria (verified/approved by the Corps), functional value of this wetland restoration (plus all other mitigation) are expected to total 219.14 FV's (see LGE FV Assessment).

The current mitigation plan also includes the new creation of an approximate 2.5 acre wetland retention basin located within the City of Perry. The newly constructed bio-swale wetland is being excavated in an upland area west of 1200W just a few blocks north of the municipal office building. As with the 4.65 acre wetland restoration site, the 2.5 acres of created wetlands shall be hydrologically supported via close proximity to the seasonal high water table whereby the soils shall either be seasonally ponded or saturated to the surface for at least 5% of the growing season.

The 2.5 acre created bio-swale shall be maintained in perpetuity by Perry in that it shall serve as a permanent retention basin for stormwater runoff. Please note that unlike detention basins, the Corps has established Section 404 regulatory jurisdiction of retention basins and considers such basins as waters of the U.S. (i.e. special aquatic site wetlands).

Although substantially less saline than the 4.65 restoration wetlands, the soils within this created wetland area are characteristically alkaline. Therefore, the plant species seed mix is similar, but not identical, to the vegetative composition for the restoration site. A typical profile and planting plan includes

the following native species:

- a.) Fall Panic Grass (Panicum dichotomoflorum/virgatum - FAC)
- b.) Nuttall Alkaligrass (Puccinellia nuttalliana - OBL)
- c.) Streambank Wheatgrass (Agropyron riparium - FAC)
- d.) Bluejoint Reedgrass (Calamagrostis canadensis - OBL)
- e.) Olney Threesquare (Scirpus amaricanus/olneyi - OBL)
- f.) Nebraska Sedge (Carex nebrascensis - OBL)
- g.) American Vetch (Vicia americana - FAC)

As with the restoration site revegetation plan, these plant species are selected for their acknowledged palatability and good to excellent wildlife food value factors for crude protein, nitrogen free extract, and palatability. The seed mix is also available from Granite Seed Co., and the plant mix would be applied at the similar rate of 12-15 pounds per acre. Again, this mitigation site shall not be seeded until the soils have been tested for fertility by the Utah State University Soils Testing Lab in Logan, and that the recommendations for application of fertilization has been completed. Upon completion of this approximate 2.5 acre created wetland, functional value of all component mitigation shall be considered and calculated as complete (see LGE FV Assessment).

The quantitative illustration for demonstrating the efficacy of replacing 10.8 acres of existing, low value mud/salt flat ephemeral wetland area by creating 9.0 acres of a perennial open water wastewater treatment lagoon, 4.65 acres of wetlands restoration, and 2.5 acres of created palustrine bio-swale wetlands, is provided herein (enclosed) via a function by function wetland values assessment. The functions/values assessment includes a descriptive analysis for functions and values of the existing area of proposed impact. The attached quantitative functional value assessment demonstrates that this current (final) mitigation proposal produces a minimum overall wetlands benefit ratio of approximately 2.9:1 meaning that the functional value of the mitigation is nearly three times the functional value of the impacted wetlands.

F. Success Criteria, Maintenance and Monitoring:

It's anticipated that all components of the mitigation plan enumerated herein shall be maintained and assured by the permittee, and shall be fully enforceable by the Corps of Engineers as a special condition of a Section 404 Individual Permit.

In addition, LGE shall monitor all elements of the compensatory mitigation for a minimum period of 2 consecutive years, and submit a written mitigation monitoring report to the Corps' Bountiful Regulatory Office within 30-days of the end of the growing season in Box Elder County, typically on/about November 30. The annual mitigation monitoring report shall include a narrative assessment,

including photo documentation, of the mitigation success, as well as any problems or failures. The report shall specify recommendations for remedial action(s) as may be warranted to ensure that mitigation measures are in compliance with the approved plan.

In concert with typical Corps guidelines, compensatory mitigation shall be considered successful in the 4.65 acre restoration area and the 2.5 acre creation site when the following performance criteria have been satisfied: after one year post planting season, vegetative growth should exhibit greater than 50% total ground cover; after two years post planting season, vegetative growth should exhibit greater than 80% total ground cover. Percent cover includes native plants established from artificial seeding, as well as natural recolonization of desirable species. Final success shall require that undesirable weedy vegetation shall comprise less than 10% of total plant cover.

Mitigation monitoring is a general requirement for most Corps permits. The purpose of monitoring is to assess the attainment of the established annual success criteria and to identify any need to implement contingency remedial measures in the event of failure(s). For the current project, mitigation monitoring shall include an on-site analysis for vegetative response (growth), soil saturation (hydrology), undesirable weedy species invasion, and general integrity of the reseeded mitigation sites. Monitoring shall involve the establishment of at least four (4) representative photo point stations at each mitigation site, and percent cover of plants shall be attained via standard 1-meter diameter hoop plots (2-per photo station). Vegetative cover data shall be collected twice during each monitoring year (June & October); bi-annual monitoring facilitates identification of success criteria shortfalls, and expedites the initiation for remedial action if warranted.

The most likely remedial/contingency action required for achieving the final mitigation success criteria shall be weed control. In general, weed control protocol will be to use methods having the least environmental impacts first, and to employ more formidable methods (i.e. chemical sprays) only if problems persist/increase. Many weeds can be controlled (early stage) by simple hand pulling of species such as dyers woad, salt cedar, tumble mustard, and thistles. The next level of weed control is spot spraying with a hand-held pump. If required, an herbicide specifically formulated for use in wetlands would be employed such as 2-4-D.

Upon completion and reseeded of the 4.65 acre wetland restoration site, the City of Perry shall coordinate with the USFWS Bear River Bird Refuge (BRBR) regarding future monitoring and maintenance of the site. If approved by the Corps, Perry City is amenable to granting eventual mitigation oversight to the BRBR.

III. FUNCTIONS & VALUES ASSESSMENT

WETLAND FUNCTIONS & VALUES ASSESSMENT - EXISTING (Mud/Salt Flat)

Functional values based upon best professional judgment of LGE, and ranked as follows:

- #1 denotes poor to absent
 - #2 denotes good to acceptable
 - #3 denotes very good to excellent
-
-

Function: Water Quality (WQ)

Existing Condition/Value: no permanent source of water; only seasonally wet during early spring. Subject to drought and dry conditions the past five (5) years. Absence of inundation and seasonal flushing increases likelihood for botulism, concentration of salts, etc...

Appointed Value = 1.0

Existing Value (1.0) X 10.8 Acres = Total WQ Value of **10.8**

Function: Wildlife Habitat (WH)

Existing Condition/Value: Highly degraded during past five years of continuing drought. Severely limited hydrology and high concentration of salt and alkaline soil characteristics has resulted in poor vegetative response. Plant cover is sparse and species composition limited to halophytes which provide negligible nutritional/palatable value to wildlife, particularly migratory birds, upland birds, waterfowl, or even furbearers. Paucity of vegetation responsible for virtually no suitable habitat for feeding, breeding, nesting, resting, loafing, or escape, etc...

Appointed Value = 1.0

Existing Value (1.0) X 10.8 Acres = Total WH Value of **10.8**

Function: Fisheries Habitat (FH)

Existing Condition/Value: No open water ponds, creeks, streams, or ditches. Even during historic (i.e. non-drought) periods, this mud/salt flat provided no habitat for fisheries when seasonally ponded.

Appointed Value = 1.0

FH Continued:

Existing Value (1.0) X 10.8 Acres = Total FH Value of 10.8

Function: Recharge/Discharge (RD)

Existing Condition/Value: Limited effectiveness due to five years of continuing drought and excessive drying. Drying soils and vegetative degradation (paucity) has promoted excessive runoff and substantially reduces/restricts potential for absorption...

Appointed Value = 1.5

Existing Value (1.5) X 10.8 Acres = Total RD Value of 16.2

Function: Phytoremediation / Filtering Pollutants (FP)

Existing Condition/Value: Very poor effectiveness due to limited number and limited diversity of hydrophytic plants. With less than 50% overall vegetative cover of ground surface, this function is expected to be degraded in its efficacy.

Appointed Value = 1.5

Existing Value (1.5) X 10.8 Acres = Total FP Value of 16.2

Function: Aesthetics/Landscape (AL)

Existing Condition/Value: The site is immediately adjacent to the existing sewage treatment lagoons for Perry, Utah. The site is bordered on two sides by existing dikes and roads. With sparse, salt tolerant plants scattered across the site, this mud/salt flat area has been used as a dumping site for old wood and steel fence materials, rubber tires, and other refuse. The site is seldom (if ever) ponded, only seasonally wet, mostly salt encrusted surface soils lacking trees, vegetative shelterbelts, or even a dense growth of grasses or forbs. Little to no wildlife, waterfowl, fisheries, or even diversity of wetland types....

Appointed Value = 1.0

AL Continued:

Existing Value (1.0) X 10.8 Acres = Total AL Value of 10.8

TOTAL NUMERIC VALUE FOR ALL 6 FUNCTIONS - EXISTING = 75.6 (10.8 ac.)

WETLAND FUNCTIONS & VALUES ASSESSMENT - EXISTING SUMMARY:

All Functions/Values (FV) = **75.6** divided by 10.8 ac. = 7.0 FV per existing wetland acre.

Proposed lagoon fill (loss) of approx. 10.8 acre = 7.0 FV (1.0 ac.) x 10.8 ac. = **75.6** FV net loss.

Total loss of existing wetland FV's = 75.6

WETLAND FUNCTIONS & VALUES ASSESSMENT - PROPOSED MITIGATION

Functional values based upon best professional judgment of LGE, and ranked as follows:

- #1 denotes poor to absent
- #2 denotes good to acceptable
- #3 denotes very good to excellent

Function: Water Quality (WQ)

Proposed Condition/Value: Create 9 acres of deep water treatment lagoon, restore 4.65 acres of previously filled in-kind lacustrine wetland, and establish a 2.5 acre permanent retention basin wetland. All water effluent from the treatment lagoon must satisfy Utah water quality standards when discharged. WQ within the 4.65 acre wetland restoration area shall improve with the removal of rock, concrete, and earthen fill pollutants, and WQ shall be enhanced via establishment of 80% minimum vegetative ground surface cover with native wetland plants. 2.5 acre bio-swale enhances WQ via phytoremediation.

WQ Continued:

Appointed Value = 2.5

Proposed Value (2.5) X ~ 16.15 Acres (9.0 lagoon + 4.65 restoration + 2.5 basin) = 40.38

Function: Wildlife Habitat (WH)

Proposed Condition/Value: Newly created 9 acres of permanently ponded open water treatment cell (lagoon) plus submergent, emergent, and floating wetland vegetation types shall greatly enhance the depth of existing habitat for migratory birds, waterfowl, and other wildlife species. The restoration of 4.65 acres of previously filled emergent saltflat wetlands shall provide wetlands WH where none currently exists. Similarly, the creation of 2.5 acres of deep, bio-swale wetlands planted with a diversity of native, wildlife food plants shall likewise provide escape, nesting, resting, feeding & breeding habitat for waterfowl, various mammals, and passerines...

Appointed Value = 2.5

Proposed Value (2.5) X ~ 16.15 Acres (9.0 lagoon + 4.65 restoration + 2.5 basin) = 40.38

Function: Fisheries Habitat (FH)

Proposed Condition/Value: Creation of the 9 acre lagoon, as well as the deep 2.5 acre permanent bio-swale establishes the potential for supporting a limited fishery habitat for primitive scavenger species that can tolerate mixed water quality environments such as carp and catfish...

Appointed Value = 1.5

Proposed Condition/Value (1.5) X ~ 11.5 Acres (9.0 lagoon + 2.5 basin) = 17.25

Function: Recharge/Discharge (RD)

Proposed Condition/Value: The 9 ac. lagoon will not be constructed with an impervious (i.e. pvc) liner, therefore allowing for RD to the water table. Removal of 4.65 acres of existing concrete, and earthen fill material and restoration of these historic wetlands shall

RD Continued:

provide for RD where none currently exists. The 2.5 acre created bio-swale (basin) wetland shall enhance functional value for RD compared to current functional value of the existing upland site...

Appointed Value = 2.0

Proposed Value (2.0) X ~ 16.15 Acres (9.0 lagoon + 4.65 restoration + 2.5 basin) = 32.3

Function: Phytoremediation / Filtering Pollutants (FP)

Proposed Condition/Value: The 9 acre lagoon shall support several wetland vegetative types including submergent, emergent, and floating plant species comprised of 100% hydrophytes. These diverse hydrophytes (particularly duck weeds, filamentous algae & bladderworts) substantially enhance FP functionality. The restoration of 4.65 acres of historic wetlands plus creation of 2.5 acre deep basin wetland seeded and/or planted with a preponderance of FACW to OBL plant species shall also significantly boost functionality for phytoremediation...

Appointed Value = 3

Proposed Value (3) X ~ 16.15 Acres (9.0 lagoon + 4.65 restoration + 2.5 basin) = 48.45

Function: Aesthetics/Landscape (AL)

Proposed Condition/Value: Newly developed 9 acre lagoon shall exhibit equal or more aesthetic appeal than existing salt encrusted, sparsely vegetated, dried-out mudflat repleat with discarded steel fences and other refuse. Lagoon shall be permanently ponded, it shall support several types of wetland plants (submergent, emergent, floating); the lagoon shall also provide new and additional habitat for the observation of migratory birds. The 4.65 ac. restoration area shall be a significant enhancement to aesthetics via the removal of hundreds of tons of old concrete, rock, and dirt fill material from historic area of lacustrine wetlands, and the 2.5 acre basin (bio-swale) wetland shall replace an overgrazed, junk-strewn upland pasture area formerly slated for residential housing...

AL Continued:

Appointed Value = 2.5

Proposed Value (2.5) X ~ 16.15 Acres (9.0 lagoon + 4.65 restored + 2.5 basin) = 40.38

TOTAL NUMERIC VALUE FOR ALL 6 FUNCTIONS - PROPOSED = 219.14 (16.15)

All Functions/Values (FV) = **219.14** divided by 16.15 acres = 13.57 FV's per mitigated wetland acre.

Total (net) FV's for proposed 16.15 acre mitigation area = 13.57

WETLAND FUNCTIONS & VALUES ASSESSMENT - SUMMARY
(Functions, Values & Positive Net Changes)

1. Total of all measured Functions/Values of Existing Wetlands = 7.0 FV's per acre
2. Total loss of Functions/Values (10.8 ac. x 7.0 FV's) of Existing Wetlands = 75.6 FV's
3. Total of all measured Functions/Values of Proposed Mitigation = 13.57 FV's per acre
4. Total gain of Functions/Values (16.15 ac. x 13.57 FV's) of Mitigation = 219.14 FV's
4. Total net change between proposed fill (loss) & Proposed Mitigation:

Total Functions/Values (FV's) Mitigation = **219.14 FV's** (13.57 FV's x 16.15 acres)
 Total Functions/Values (FV's) Existing = -75.60 FV's (7.0 FV's x 10.8 acres)
143.54 FV's (Net Gain Wetland FV)

TOTAL MITIGATION BENEFIT RATIO: 2.9 : 1

Please note that the surplus (i.e. >1:1 mitigation ratio) of FV's are available to be applied to mitigation requirements for compensation to wetland impacts associated with 1200W as discussed and agreed by Col. Light and Perry City on March 29, 2005.
For Example: 143.54 FV surplus may be applied to mitigation for 1200W or...if Corps requires 2:1 mitigation for lagoon permit, simply subtract another 75.6 FV's (total value of existing 10.8 ac.) from the 143.54 FV's and apply remaining 67.94 FV's to mitigation requirements to compensate wetland function and value losses due to road fills on 1200W project. Wetland FV's for 1200W impacts to be calculated & presented with application.